



Labor and Globalization

Christoph Scherrer, Santosh Verma (Eds.)

**Decent Work Deficits in  
Southern Agriculture:  
Measurements,  
Drivers and Strategies**



ICDD

Rainer Hampp Verlag

# Decent Work Deficits in Southern Agriculture: Measurements, Drivers and Strategies

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Volume 11

Edited by Christoph Scherrer

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**Bibliographic information published by the Deutsche Nationalbibliothek**

Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

ISBN 978-3-86618-896-9

Labor and globalization: ISSN 2196-5382

First published 2018

Cover photo: Daily wage workers plucking tea leaves in Assam, photographed by Padmini Sharma, 14 May, 2017

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Vorderer Lech 35 86150 Augsburg, Germany  
[www.Hampp-Verlag.de](http://www.Hampp-Verlag.de)

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## Acknowledgments

This book is a product of the lively network of the International Center for Development and Decent Work (ICDD). The ICDD is a global multidisciplinary network of eight partner universities on four continents with its head office at the University of Kassel (Germany). The ICDD contributes to the global fight against hunger and poverty through research and education on the Sustainable Development Goal #8 ‘to promote inclusive and sustainable economic growth, employment and decent work for all’.

For a better understanding of the decent work deficit in agriculture, the ICDD not only brought researchers from Brazil, Colombia, Germany, Ghana, India, Indonesia, Mexico, and Pakistan together for a couple of workshops but also from various disciplines such as agricultural sciences, economics, engineering, management, political economy, political science, and sociology. Many thanks go to all contributors, who make this volume possible by writing insightful chapters in a timely fashion.

Since not all of us are native English speakers, we are very thankful to Madhuparna Banerjee for a superb job in copy editing. Special thanks go to Nicole Magura and Jahnavi Rao for formatting the chapters. Many thanks also to Rainer Hampp at HamppVerlag who has been extremely supportive as always. Financial support was granted by the ICDD which is one of the five Centers of Excellence for Exchange and Development programme managed by the German Academic Exchange Service (DAAD) using funds from the German Federal Ministry for Economic Cooperation and Development (BMZ).

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Berlin / Hyderabad

February 2018

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## Introduction

Christoph Scherrer and Santosh Verma

When academics and policymakers talk about labour conditions, the focus is mostly on factory workers. However, nearly a third of the world's workforce is still employed in agriculture. In many of the countries in the Global South, the percentage is much higher. In India, for example, 49% of the working population is employed in the agricultural sector. Waged agricultural workers, self-employed farmers, and self-employed workers make up the agricultural workforce. The boundaries between these categories are not clear-cut. Quite a number of self-employed small farmers depend on casual wage work on other farms for survival. Most of those active in agriculture are part of a smallholders' family. Yet, out of the 1.3 billion people working in agriculture, an impressive 450 million are waged agricultural workers (ILO 2017: 3-4). These waged workers have received considerably less attention than the smallholders. While the working conditions of waged plantation workers were at least addressed by policies at the beginning of the 20<sup>th</sup> century, the casual workers on smallholder farms have been, and still are, mostly overlooked by policy makers (FAO 2011: 1). That said, even the smallholders' working conditions received less attention than issues of income and general survival.

Our book contributes to filling the knowledge gap on working conditions in agriculture, independent of the employment status of those toiling in the fields. Given the typically poor nature of these conditions, this is not just an academic exercise. While, especially for seasonal workers, working conditions are also deplorable in the Global North (and deserve equal attention), our book focuses on the Global South. There, we find the most vulnerable and marginalized workers who experience profound decent work deficits. For many, their labour does not lead to decent levels of income and sustainable livelihoods. In many countries, they suffer from the highest incidence of poverty. They toil under poor health, safety, and environmental conditions. Most of them are denied social protection. While some smallholders are organized in associations or cooperatives, most wage workers, especially the casual workers within the small holders sector, lack a collective voice and are not covered by labour laws (ILO 2017).

In its almost 100 years of existence, the International Labour Organization (ILO) has developed standards and formulated rights which serve as benchmarks for assessing workers' conditions. While the establishment of the ILO in 1919 was mainly driven by the concern for factory workers, already by 1921 the organization adopted the "Right of Association (Agriculture) Convention" (No. 11; 123 ratifications as of January 29, 2018, ILO NORMLEX). Since then, it has

promulgated over 30 international labour standards specifically for agriculture, including: Minimum Wage Fixing Machinery (Agriculture) Convention, 1951 (No. 99; 54 ratifications); Rural Workers' Organisations Convention, 1975 (No. 141; 40 ratifications); the Plantations Convention, 1958 (No. 110; 12 ratifications); and the Safety and Health in Agriculture Convention, 2001 (No. 184; 16 ratifications). However, only a few countries ratified these conventions, with the exception of No. 11, mirroring the general political neglect of agricultural labour. As the relevance for international standards increased with the second globalization wave in the 1990s, the ILO elevated eight conventions to the status of core conventions in 1998. The core conventions are:

- The Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87), establishes the right of all workers and employers to form and join organizations of their own choosing without prior authorization, and lays down a series of guarantees for the free functioning of organizations without interference by the public authorities;
- the Right to Organize and Collective Bargaining Convention, 1949 (No. 98), provides for protection against anti-union discrimination, for protection of workers' and employers' organizations against acts of interference by each other, and for measures that promote collective bargaining;
- the Forced Labour Convention, 1930 (No. 29), requires the suppression of forced or compulsory labour in all its forms. Certain exceptions are permitted, such as military service, convict labour (properly supervised), and emergencies such as wars, fires, earthquakes, and so forth;
- the Abolition of Forced Labour Convention, 1957 (No. 105), prohibits the use of any form of forced or compulsory labour as a means of political coercion or education, punishment for the expression of political or ideological views, workforce mobilization, labour discipline, punishment for participation in strikes, or discrimination;
- the Discrimination (Employment and Occupation) Convention, 1958 (No.111), calls for a national policy to eliminate discrimination in access to employment, training and working conditions, on grounds of race, colour, sex, religion, political opinion, national extraction, or social origin and to promote equality of opportunity and treatment;

- the Equal Remuneration Convention, 1951 (No. 100;), calls for equal pay for men and women for work of equal value;
- the Minimum Age Convention, 1973 (No. 138), aims at the abolition of child labour, stipulating that the minimum age for admission to employment shall not be less than the age of completion of compulsory schooling;
- the Worst Forms of Child Labour Convention, 2000 (No. 182), while in no way supplanting Convention no. 138, prioritizes dealing with child labour in its most extreme forms, such as all forms of slavery; the use, procuring, or offering of a child for prostitution; and work which is likely to harm the health, safety, or morals of children.

One year later, the ILO announced its Decent Work Agenda, which not only reiterated the importance of the core conventions, but formulated four strategic objectives: (i) employment creation and enterprise development, (ii) social protection, (iii) standards and rights at work, and (iv) social dialogue. The following ten substantive elements correspond to these four strategic pillars: (1) employment opportunities, (2) adequate earnings and productive work, (3) decent working time, (4) combining work, family and personal life, (5) work that should be abolished, (6) stability and security of work, (7) equal opportunity and treatment in employment, (8) safe work environment, (9) social security, and (10) social dialogue, employers' and workers' representation (ILO website).

The original Millennium Development Goals of the United Nations did not include reference to labour-related challenges. But in 2008, the ILO succeeded in convincing the United Nations to include the target “to achieve full and productive employment and decent work for all, including women and young people” (MDG 1, target 1B). This target reappeared in the 2030 Agenda for Sustainable Development as Goal #8: “to promote inclusive and sustainable economic growth, employment and decent work for all.” Also in 2008, the International Labour Conference (ILC) adopted a Resolution and Conclusions on promoting rural employment for poverty reduction and set the mandate for renewed ILO involvement in rural development issues. In 2011, the Governing Body of the ILO identified *Decent Work in the Rural Economy* as an area for priority action (ILO 2017 introduction). In addition, the ILO started to collaborate with the Food and Agricultural Organization (FAO 2011).

The Sustainable Development Goal #8, “decent work for all”, is the main theme of the global network of the International Center for Development and Decent Work, headquartered at the University of Kassel. Members, collaborators, and alumni of

this network have contributed to this anthology. Besides in Kassel, they are located at the Mumbai, Guwahati, and Hyderabad campuses of the Tata Institute of Social Sciences (TISS); at the Institute for Social and Economic Change (ISEC) in Bangalore, Social Science Faculty; in the Rural Sociology, Management, and Engineering departments at the University of Agriculture Faisalabad (UAF) in Pakistan; in the Institute of Economics of Universidade Estadual de Campinas (Unicamp) in Brazil; in the Department of Economics of the Federal University of Rio Grande do Norte (UFRN) in Brazil; in the Department of Agricultural and Animal Sciences of the Universidad Autónoma de Yucatan (UADY) in Mexico; at the Escuela Nacional Sindical (ENS) of Colombia; and in the Institute for Development Studies at the University of Cape Coast (UCC) in Ghana, Social Science Faculty.

As members of the ICDD started discussing working conditions in agriculture, they discovered that there was not only scant data available, but that there was also no well-developed methodology for measuring the decent work deficit. Although the guidelines of the ILO and FAO provide a starting point (ILO 2008, FAO 2011), it soon became evident that the diversity of working circumstances requires further methodological elaborations. Part I of the present anthology covers attempts to assess working conditions on plantations, of smallholders, and of workers on small holdings. For one, these contributions show the need for context specific observations and attention to the range of resources available to those employed in agriculture. The latter point is especially pertinent for understanding the working conditions of women in agriculture. In the pervasive patriarchal settings, women have no - or only limited - access to important resources, such as land, water and finance.

Another approach to assessing the well-being of people employed in agriculture is by measuring their capture of the value generated at the point of consumption. As studies have shown, the typical global value chains are characterized by an 'exploitation U-curve' (Herr et al. 2016). In part II of the book, a meticulous calculation of the value capture of each participant in the value chain of melons from north-eastern Brazil confirms these findings from manufacturing for agriculture. Highly concentrated providers of inputs, as well as distributors, take the lion's share; the fragmented agricultural producers are left with a tiny share. This calculation also reveals one of the main drivers for the plight of people employed in agriculture. It is not so much the final consumer, but oligopolistic market structures up- and downstream from the fields, orchards, and plantations. These market structures are explored at the global level under the heading of food regimes and at the national level at with the example of the Indian seed and pesticide producers, as well as providers of loans. While the seeds and pesticides

markets are moving towards private oligopolies, state banks offer low rates for loans. However, these loans are not really accessible for many smallholders because they lack collaterals and financial literacy. This highlights the Indian states' insufficient efforts to support alternative ways of credit deliverance. A final contribution in Part II points to another factor responsible for the decent work deficit: the limited capacity of the manufacturing sector to absorb the agrarian labour surplus and the competition from the efficient, and yet highly subsidized, agricultural producers in the Global North.

As Part II does not exhaust the full spectrum of factors reproducing decent work deficits in agriculture of the Global South, part III also only highlights a few efforts in mitigating the deficits. Its first contribution analyses the experience of organizing smallholders and landless workers through a trade union in Ghana. While it shows that collective action is not impossible, it also reveals the challenges of sustaining collective action. Another strategy is similarly ambiguous. Efficiency and quality oriented upgrading in the mango value chain of Pakistan is possible and leads to more local value capture. Yet, the benefits do not necessarily trickle down to the workers, and not every farmer is willing to train their workers for quality production. A further contribution to the book provides proof for decentralized solar energy sources' potential to support economic upgrading strategies, even in remote rural areas. The wide spread adoption of solar milk chillers, roasters, distillers, or dryers, however, requires sustained financial support by the state and training efforts. The final contribution calls attention to chain-upgrading efforts, i.e. of moving into new, yet related, products. In the described case, the products are actually old; they are indigenous fruits. The resurrection of these fruits for the markets will not only contribute to bio-diversity, but also to the diversity of income for the indigenous population. To what degree new market niches can be occupied, has yet to be seen

In sum, the severity of the decent work deficits in agriculture calls for action. Given the diverse contexts of work, and the many factors working at different spatial levels reproducing the deficits, action is needed in a comprehensive, context-specific form.

### ***Introduction of Chapters***

The book is divided into three broad areas, namely: measurement of decent work deficit (Chapter 1-6), drivers of the decent work deficit (Chapter 7-11), and the strategies for overcoming the deficits (Chapter 12-15).

The first chapter, "Measuring decent work deficits on Indonesian oil palm plantations," by Hariati Sinaga, discusses the applicability of the ILO's decent



work. She argues that the concept's focus on waged agricultural workers leaves out the numerically quite relevant unpaid family workers. It also overlooks the overlapping identities of people employed in agriculture. She proposes to take into account the socio-cultural and institutional environment and the policies shaping the agricultural sector. This necessitates analysing the history of agricultural labour supply, the current local labour market, and the local labour regime. Given the great importance of women in agriculture, it is also pertinent to take stock of (1) access and control over resources, (2) voice and decision-making power in the household, and (3) access to services and opportunities, such as health, education, and transportation. Applying these insights to the Indonesian oil palm plantations, Sinaga provides evidence that workers have found employment, but under very unsatisfactory conditions. Most are casual workers, many of whom are women who also work as unpaid contributing family workers -- the pay does not come close to living wages.

In the second chapter, "Working conditions, gender, and the ILO/FAO's concept of decent work: The Açu/Mossoró region of north-eastern Brazil," Valdênia Apolinário, João Matos Filho, Thales Augusto M. Penha, and Letícia Amaral Apolinário describe the neglect of agricultural labour in the 20th century and the resulting dire working and living conditions. Enforcement of their labour rights started only when the Workers Party (PT) gained power under the presidency of Luz Inacio Lula da Silva, which ushered in a period of improved working conditions, real wage increases, and expansion of social protection. To analyse the impact of the Workers Party's policies on agricultural labour, the authors conducted field research in the Brazilian Northeast Açu-Mossoró region. They compared labour relations of three main groups in the production of melons: corporate farms, medium producers, and family farmers who were provided with settlements owing to land reform. The study reveals that the corporate melon producers, when compared with rural settlements, are providing working conditions and occupational health and safety measures more in line with the ILO conventions. The family farms in the settlements suffer from limited access to basic resources such as credit, training, health assistance, and transportation. The lack of healthcare is especially detrimental for the women in this sector. Women's additional family responsibilities result in a seven-days-a-week work schedule. Their work at home and in the field goes mostly unrecognised, as it appears to generate no economic or social value. However, women have been able to better their conditions somewhat and, with the help of quotas, have entered leadership roles in collective organizations.

As Saira Akhtar shows in the third chapter, "Women in Pakistan's agriculture," women's contribution to agriculture in Pakistan is invisible in the official statistics.

While women are shouldering much of the agricultural work, they do not appear in the government of Pakistan's reports on labour force participation. Akhtar's field research revealed that women are paid less than men, work more hours, receive no childcare support, and have to suffer harassment at work. In particular, they lack access to resources such as land and finance. She concludes that in the countries like Pakistan where traditional and social taboos are embedded in the overall social attitude, it is hard to sensitise communities for equal gender rights.

In the fourth chapter, "The persistent decent work deficit for women in the cashew industry of Goa and Maharashtra," Varsha Ayyar and Sasmita Palo come to similar conclusions for the women employed in the processing of cashew nuts in India. Their study reveals that attempts to improve working conditions in the state of Kerala, previously a key location for the cashew industry, had led to a flight of capital to the neighbouring states. Their field research provides evidence for the continued feminisation of labour, precariousness, and job insecurity in the new locations. The factory work is casual, seasonal, and temporary. Even the permanent workers do not enjoy employment protection, social dialogue, or social security. Cashew nut processing continues to be a feminised and labour-intensive industry. Yet, special provisions such as maternity leave, crèche facility, regulated working hours, adequate health protection, and occupational safety are absent.

In the fifth chapter, "The informalisation of the labour: from plantations to small tea gardens," Debdulal Saha explores the reason behind the increase in small tea growers, and why and how small tea cultivation has become a livelihood option in rural Assam and West Bengal. For those able to buy larger tracts of land, the tea gardens are a lucrative source of income. For others, it is a survival strategy in the labour surplus environment. Plantation management is required to provide workers with various economic and social entitlements such as minimum wage, bonuses, rations, funds, education, and healthcare facilities; in practice, though, the plantation workers are subjected to exploitative work and severe control mechanism mechanisms, low wages, deplorable housing and living conditions, an inadequate supply of drinking water, dismal welfare benefits, and no provisions for collective bargaining. The marginal growers who rely mostly on family labour are frequently dependent on the local agents for supply of cash during the lean season, or for supply of fertilisers and medicines. Small growers do not have the advantage of processing their tea leaves; hence, they have to depend either on large plantations or on private tea factories that are set up especially to procure tea leaves from the growers. These factories are known as Bought Leaf Factories (BLF), as they do not have their own plantations and buy leaves from the growers who have to accept the prices quoted to them. The marginal growers neither have access to market information nor to political fora to raise their issues at in

collective organisations. Collective bargaining is dominated by large growers.

While the contributions in the first part of the book measured the decent work deficit in agriculture, the second part highlights some of the drivers of this deficit. A key driver is the value capture by most other actors in the agricultural value chain. In the sixth chapter, using the melon value chain in Brazil as an example, Thales Augusto M. Penha, Walter Belik, João Matos Filho, and Guilherme Medeiros Oliveira calculate each actor's share of the final price paid by the consumer. The farm owners capture the largest share of the value of fresh, whole melon. Independent of the melon's final destination, domestic or UK, they receive more than 40%; meanwhile, the workers receive only a bit more than 3%. The supermarkets' value capture increases tremendously once they sell melons in slices. This study also documents the seasonality of labour demand and the accompanying rhythms of hiring and layoffs.

In the seventh Chapter, "Access to finance in Indian cultivator households: are informal sources of credit still relevant?" Shika Saravanabhavan and Meenakshi Rajeev focus on the persistence of non-institutional credit from moneylenders, input suppliers, and traders in rural India. Based on national survey data from 2003 and 2013, they show that wealthier farmers make use of the low-interest loans from formal institutions, while the poor households, comprised mostly of historically disadvantaged groups, greatly rely on high-interest loans from informal lenders. They lack collateral to access bank loans and use the high-interest loans mainly for household expenditures and health emergencies. Consequently, they face a high risk of falling into a debt trap. These difficulties in taking out bank loans contribute to smallholders' livelihood struggles.

In Chapter Eight, "Liberalising the seeds and pesticides markets in India," Santosh Verma analyses the impact of the liberalisation of the seeds and pesticides market in India. Since the late 1980s, the formerly state-controlled seeds and pesticides sectors have been opened up to foreign private and international competition, step-by-step. As the public seeds providers cannot match the extensive research and development outlays of the national and international firms, their market share has significantly declined. Likewise, private companies gained a large share of the Indian and international pesticides market through their R&D, production, and distribution. In some market segments, private suppliers have gained a great deal of control which allows them to set prices of inputs. For many smallholders, the high costs of inputs cancel out the efficiency gains obtained by the use of these inputs. The rising costs of cultivation have aggravated the indebtedness of marginal and small farmers; at the same time, global fluctuation in farm produce prices and insufficient provisions from the state procurement system has placed farming in India in severe distress.

Florian Dörr discusses concentration tendencies in the global input, wholesale, and retail markets through the lens of the food regime concept in the ninth chapter, “Food regimes, corporate concentration, and its implications for decent work”. Food regime analysis takes a holistic, global, and historically grounded political economy approach to understanding the dynamics of food production, distribution, and consumption patterns. Dörr provides an overview of the academic discussion on the various shifts in food regimes, starting with the First Food Regime (1817-1914). It was characterized by family farmers in settler states whose surplus of grain and meat fed the new industrial working-class. During the Second Food Regime (1950s-1970s), Europe became the surplus producer, and together with the US dumped their surplus in the Global South. The characterization of the Third Food Regime of the last 30 years is contested; however, there is a consensus about the increasing corporatization of agricultural production. The author documents the concentration processes in the input and retail markets. In the agricultural input markets, different sectors compete for control of ‘big data’ steered agriculture. The concentration processes on both ends of the value chain are squeezing the agricultural producers and, thereby, contribute to the shocking decent work deficit in agriculture.

In Chapter Ten, “Peasant elimination without compensating modern labour market opportunities,” Christoph Scherrer examines the constraints on the manufacturing sector to provide for sufficient gainful employment, especially in Sub-Saharan Africa. In comparison to early industrialization, today’s late comers to the industry face more obstacles to being absorbed into it, as do those who have been ‘set free’ from the land. The demographic pressure is significantly more pronounced since fertility rates are not falling quickly enough to compensate for the much quicker increases in life expectancy compared to those of early industrialisers. The rapid world-wide productivity increases in the formal manufacturing sector limit the industry’s absorption powers. The labour market relief available to these first movers, i.e., outmigration into less densely populated areas, is no longer accessible. Some countries, especially in Southeast Asia, have partially succeeded in overcoming these constraints. Their success, however, restricts the opportunities for industrialisation for most countries in the Global South. Scherrer concludes that the resulting oversupply of the working age population severely limits the possibilities for improving the working conditions of large parts of the rural population.

The third part of the book contains a discussion of some of the remedies for decent work deficits in agriculture. It starts with an analysis of the impact of sustainable certification schemes. In the eleventh chapter, “Working conditions and ‘sustainable’ coffee in Colombia,” Daniel Hawkins reports on the spread of

sustainable certification programs in Colombia's coffee industry. While these certifications have led to noticeable improvements in environmental management, they had no noticeable positive impact on the coffee workers. These workers are also neglected by the Colombian state. Through its support for the National Coffee Growers Federation, the state has always attempted to protect the coffee growers of the country, but has never tried to implement a policy that protects the thousands of coffee workers who do not own property or directly grow coffee. These coffee pickers are denied their fundamental rights of freedom of association and collective bargaining, and few have been able to earn a salary equal to or higher than the legal minimum. Hawkins argues, therefore, that overcoming the decent work deficits of the workers requires major efforts, interventions, and commitments on the part of the certification systems, the coffee growers associations, and especially the Colombian State.

While the Colombian coffee pickers are without collective representation, the General Agricultural Workers' Union (GAWU) of the Trades Union Congress, Ghana, has organized agricultural workers and smallholders. The twelfth chapter, "Trade union's response to decent work deficit among rural agricultural workers in Ghana," Angela Akorsu and Akua Britwum recount the trade union's history in representing peasant farmers and the largely informal waged workers. Their chapter highlights the strong interest of rural workers in gaining a political voice. However, the union is handicapped by insufficient financial and human resources to fully satisfy this interest. Donor support fills this gap partially, but also leaves the union's efforts at the vagaries of donors' financial flows. Yet, once the rural workers are organised, GAWU is able to provide them access to policymakers. The authors laud the union's extension of decent work ideals to cover all segments of the informal economy by adjusting the pillars of decent work to the needs of the rural workers.

In the thirteenth chapter, "Value chain development and social upgrading: a case of Pakistan's mango industry," Mubashir Mehdi, Burhan Ahamad, and Muhammad Bilal Ahsan use the mango value chain in Pakistan to demonstrate the need for improving not only the competitive performance of rural producers, but all parts of the whole value chain. The authors provide cost studies which prove the advantage of the wholesome approach. Nevertheless, as the authors point out, not all farmers are willing to train their workers or to provide them with better pay and working conditions in order to achieve more efficiency and higher product quality. Subsequently, they argue for government agencies to create an enabling environment so that other farms, as well as the rural workers in the mango chain, can also be a part of this system.

Economic upgrading could also be supported by the provision of decentralized energy. Anjum Munir, Oliver Hensel, Abdul Ghafoor, and Waseem Amjad present some renewable energy technologies for on-farm processing in Chapter 14 Fourteen, “Providing rural areas with decentralised energy.” Currently, many rural areas lack access to inexpensive energy sources, which not only leads to much spoilage of farm produce, but also inhibits functional upgrading. In contrast, renewable, decentralized energy technologies can provide farmers with the necessary energy. The authors show designs for: solar-based distilleries for the distillation of medicinal and aromatic plants; a continuous solar roaster for the roasting of coffee and nuts; a solar tunnel dryer for perishable products; and a solar milk chiller. In addition, they provide evidence for these technologies’ energy efficiency. The realization of these technologies’ potential for income generation in rural communities requires governmental support.

In the final chapter of the book, “Sustainable agriculture through resurrection of indigenous fruits,” Juan J. Jiménez-Osornio, Diana Pastrana Cervantes, Aurelio Molina Cortez, María del Rocío Ruenes Morales, Patricia I. Montañez Escalante, and Ángel Lendechy Grajales explore the possibility of increasing rural incomes and food security through the resurrection of indigenous fruits. The chapter presents the historical incidents of the indigenous fruit species in the Mayan home gardens and explores their potential for commercialization. The authors participated in a project, launched in 2014, targeting marginalized households in rural Yucatan. These households received support for tending organic backyard vegetable gardens. Their experiences provide the basis for the authors’ recommendations which include, beyond ensuring operational efficiency, awareness-raising campaigns for promoting the population’s active participation in the conservation of indigenous fruits.

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# Part I: The Decent Work Deficit in Agriculture

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# 1. Measuring Decent Work Deficits on Indonesian Oil Palm Plantations

Hariati Sinaga

The oil palm plantation sector has been one of the front-runners in the Indonesian agriculture sector. The development of the oil palm plantation is aimed at employment creation, poverty alleviation, and rural development. The market of Indonesian palm oil has been substantially growing nationally and internationally. Such development is, however, criticised for causing environmental degradations and having adverse socio-economic impacts by bringing about land conflicts. Based on a field research on oil palm plantations in Riau province in 2012, this chapter reveals decent work deficits on oil palm plantations, contributing to the discussions on socio-economic implications of Indonesian palm oil sector development. The chapter particularly focuses on the attempt in measuring decent work deficit in the agriculture sector, particularly on oil palm plantations. To this end, the discussions start with a brief profile of the Indonesian oil palm plantation sector. The concept of decent work is then discussed, including criticisms and challenges in measuring decent work deficits in the agriculture sector.

## ***A Brief Profile of Indonesian Oil Palm Plantations Sector***

A wet tropical climate with temperatures between 24°C and 32°C throughout the year is very favourable for growing oil palm trees. Thus, Indonesia provides the apt conditions for oil palm plantations. It takes three to four years for an oil palm tree to mature. When the tree is mature, large bunches of palm fruits grow in the armpits of palm leaves each year. These fresh fruit bunches (FFB), as they are called, may contain 1,000 to 3,000 individual fruits, together weighing 10–20 kg. Every oil palm tree produces several FFBs every year, with fruit yield per hectare amounting to 10–35 tonne. A palm tree has a productive age from 8–25 years. Afterwards, the tree reaches a height that hinders harvesting activities (van Gelder 2004: 4).

Since 2007, Indonesia has been the largest producer of crude palm oil (CPO), overtaking Malaysia (Richter 2009: 3). While the history of the oil palm plantations trace back to the colonial period, the development of the sector was started in the late 1970s during the Suharto administration. Since then, the oil palm plantation sector has performed incredibly and has become one of Indonesia's major agricultural sectors. In 2010, CPO production reached 22 million tonne. Around 50% of the CPO produced is exported. In the domestic market, palm oil is mainly used to produce cooking oil. The major export destinations are India, Malaysia, the Netherlands, Singapore, Germany, and Italy. In exporting to India, Europe and China, Malaysia is Indonesia's biggest competitor (Goenadi et al.



2005). However, Malaysia, at the same time, also imports CPO from Indonesia. This is because, unlike Indonesia, the downstream industry of the oil palm sector in Malaysia has been growing well.

The Indonesian oil palm plantation sector comprise both large-scale and smallholding plantations. Compared to the large-scale plantations, the production volume of smallholding plantations is still relatively low due to low productivity. Some driving factors of low productivity of smallholding plantations include diminished ability of farmers to manage plantations, use of illegitimate seeds, lack of access to fertilizers, as well as improper use of fertilizers (Manggabarani 2009: 18).

For Indonesia, the sector is not only one of the major sources for foreign reserves, but is also the most important instrument for poverty alleviation and rural economic development (Rist et al. 2010). This impressive picture of the Indonesian oil palm sector is, however, hampered by environmental issues as well as problems related to forceful acquisition of land belonging to the local inhabitants (Surambo 2010).

The oil palm plantation sector is considered relatively labour intensive. Though oil palm plantations have a long history, dating back to the colonial period, mechanisation has taken place only partially, with several activities on the plantations still relying on human labour (Pahan 2011: 34). On-farm workers are not required to possess certain skills when entering the job. Activities on the plantations (e.g., those related to harvesting and maintenance) can easily be learned on the job. This low skill requirement is perceived as an opportunity for job creation in the plantation sector. The Directorate General of Estate Crops assumes the ratio of labour absorption in the oil palm plantation sector as 0.5/hectare. As of 2010, smallholder plantations absorbed 1,751,794 labourers, while large-scale plantations (both parastatal and private) employed 1,623,603 labourers (Directorate General of Estate Crops 2011).

### ***The Concept of Decent Work and Measuring Decent Work Deficits***

The International Labour Organization (ILO) introduced the decent work agenda as a new approach to highlight the importance of labour standards. The concept of decent work reflects, ‘the understanding that work is a source of personal dignity, family stability, peace in the community, democracies that deliver for people, and economic growth that expands opportunities for productive jobs and enterprise development’ (ILO webpage). The four pillars of the decent work agenda include employment, workers’ rights, social protection, and social dialogue. These broad concepts pose the question of how to operationalise them for an analysis of the extent to which they are realised by the respective countries. Further, remarks also

contend how they may apply for various other sectors, including agriculture. The focus on addressing the agriculture sector becomes even more crucial not only because agriculture sector remains the largest employer for workers in the world, but also because many agricultural workers fall outside the scope of many national labour laws (FAO 2016:1). The Food and Agriculture Organization (FAO) has shown a growing interest in the decent work agenda. The organisation argues that ensuring productive employment in agriculture sector would contribute to rural development and food security (FAO 2011: 2-3). Further, the FAO cautiously asserts that increasing employment opportunities and productivity alone is not sufficient. Rather, all decent work deficits facing rural people should be addressed.

Criticisms to the notion of decent work sheds light on how the concept does not take into account different social and cultural contexts. Also, sector-wise speaking, the agriculture sector consists of different groups of people, such as the ‘rural poor’, ‘self-employed farmer’, and ‘agricultural wage worker’ (ILO 2003). The ILO explicitly argues that the close relation between the decent work agenda with sustainable agriculture, poverty reduction, and food crisis, particularly applies to agriculture wage workers (ibid.).<sup>1</sup> As such, other types of employment relation might be undermined. In the meantime, (unpaid) family labour remains one of social and cultural contexts in rural livelihoods. As will be discussed in the findings below, works on oil palm plantations in Indonesia still rely on family members working as helpers or assistants. Furthermore, it is also often difficult to differentiate the members of social groups. For instance, self-employed small farmers may overlap with agriculture wage workers when the former are regularly wage-dependent and supplement their income with paid work on other farms or plantations (ibid.: 6). Meanwhile, the increasing integration of the agriculture sector into the world market have contributed to the ‘casualisation’ of wage employment in the sector, making it even more difficult to distinguish the variety groups of people working on farms or plantations (ibid.: 7). This conjuncture becomes even a more important issue in the discussions of rural poverty and strategies for poverty reduction. On one hand, the proponents of increasing global nexus of the agriculture sector emphasise on the growing job opportunities, despite the alleged casualization of the employment; on the other, the critical voices

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<sup>1</sup> According to the ILO (2003), the agriculture wage workers refer to, ‘men and women who labour in crop fields, orchards, glasshouses, livestock units and primary processing facilities to produce the world’s foods and fibres. They are employed on everything from small- and medium-sized farms to large industrialized farms and plantations. They are waged workers because they do not own or rent the land on which they work or, usually, the tools and equipment (they) use...’. The definition includes the categories of permanent, temporary, seasonal/casual, migrant agricultural workers, as well as of piece-rate workers and workers receiving ‘in-kind’ payment.

underline the persistent, if not increasing, rural poverty, showing how the increasing global ties of the agriculture sector does more harm than good for the rural poor. A strand of arguments in this body of literature emphasises how the global nexus of production and consumption involving the agriculture sector articulates with the vulnerability of the rural poor. This line of argument implies that poverty or informality is not the outcome of the globalised production and consumption, rather co-constitutes it (Phillips et al. 2014).

The initial steps in defining the groups of people working on farms or plantations show that before measuring decent work deficits it is essential to understand the dynamics of rural livelihoods. This implies meaningful scrutiny on socio-cultural policies and institutional environment that influence rural livelihood strategies (FAO 2013). Such exercise would shed light not only on which groups are the most vulnerable, but also on the important strategies in poverty alleviation. In particular, analyses on these three aspects would demonstrate the picture of the labour market and the local labour regime. Understanding the local labour market as well as the local labour regime is important in measuring decent work deficits. As will be explained in the findings section, mapping these issues would provide insight to the supply of migrant cheap labour on oil palm plantations.

Moreover, in measuring decent work deficits, we also need to take into account the specific features of the agriculture sector. Certain agricultural products or activities are seasonal, and, thus, the farms or plantations employ predominantly seasonal, temporary, or casual workers. Furthermore, as will be discussed in the finding section below, certain wage systems may also contribute to the employment of casual and unpaid family workers.

Employing gender lens in measuring decent work deficit is also necessary. Addressing gender roles and gender relations calls for a focus on certain issues, such as: (1) access and control over resources; (2) voice and decision-making power in the household; (3) access to services and opportunities, such as health, education, technical inputs and advice, transportation, markets, and public services (FAO 2013). Access and control over resources should be analysed at micro, meso, and macro levels (Katothya 2017: 3). One of the underlying reasons for women facing problems in these areas is gender stereotype. As will be discussed in the next section, gender stereotype in the society leads to the employment of Indonesian women workers as helpers or assistants in harvesting activities. These women workers are not paid. In this regard, helping their harvester husbands, women workers contribute to the income and salary received by their husbands. This sheds light on the lack of access and control of women over resources as well as decision-making in the household. Furthermore, the gender stereotype also put

women bearing double burden in carrying out both activities on plantations and domestic works.

There is a growing body of literature in operationalising the concept of decent work (Anker et al. 2002). Apart from the fact that the concept of decent work leaves room for discussions and debates, the lack of available data poses challenges in measuring decent work. While the ILO introduces the concept of decent work with dimensions addressing global employment, the FAO takes a complementary role by concentrating on the notion of decent work in rural areas, particularly with regard to informal employment in agriculture (FAO 2011). In this regard, the FAO posits four important dimensions in relation to the concept of decent work: (1) employment creation and enterprise development; (2) social protection; (3) standards and rights at work; (4) governance and social dialogue. Here, some aspects are worth mentioning. First, the characteristic of rural labour market is associated with high degree of informality, predominance of casual employment, high levels of self-employment and labour force segmentation, information asymmetries, as well as uncertainties in agriculture production (ibid.: 4). The FAO includes promoting enterprise development in its first dimension of decent work, which to a certain extent may imply the recognition of possible overlapping identities between agriculture wage workers and self-employed farmers. Taking into account the characteristic of the rural labour market, the FAO proposes that promoting decent work would need to target: (1) small-scale producers, including family workers; (2) agriculture wage workers; and (3) non-farm self-employed workers in micro and small business in rural areas (ibid.: 6). Here, while the FAO recognises the prevalence of contributing family labour in small-scale producers, it is unclear whether the same thing applies to the category of agriculture wage workers. As will be discussed later, many harvesters on Indonesian oil palm plantations rely on the help of family workers, many of whom are women and children. Furthermore, some people of these categories targeted by the FAO are considered to fall under vulnerable employment, namely, the own-account workers and contributing family workers (Ostermeier et al. 2015: 291). This is because these workers lack adequate social security and effective social dialogue mechanisms. However, it is contended that many agriculture wage workers in developing countries are not covered by social protection and do not have legally enforceable contracts, making them vulnerable as own-account and contributing family workers (ibid.). Second, such characteristic of the rural labour market is more prevalent for certain groups of rural people, namely, women, children, and migrants. Third, considering the characteristic of a developing country, where people are too poor not to work (i.e. working poor), it is important to understand the close connection between employment dimension and the dimension of social protection (Ostermeier et al. 2015: 288).

Taking into account the characteristics of plantation, I use the operationalisation proposed by FAO (2011) for an exploration of the situation of workers in the Indonesian oil palm plantation sector. Due to limited scope of this article, I will only focus on the first two dimensions of decent work proposed by the FAO. On the employment creation and enterprise development, I will focus on employment and smallholder development. On the issue of employment creation, I will also discuss the employment status of plantation workers. On social protection dimension, I will concentrate on issues related to minimum wages. Table 1.1 illustrates this operationalisation.

**Table 1.1 Operationalisation of Decent Work**

No	Dimensions	Descriptions	Aspects
1	Employment creation and enterprise development	It encompasses all forms of economic activity, including self-employment, unpaid family work, and wage employment in both the informal and formal sectors.	Employment creation and smallholder development
2	Social protection	Essential for workers to have acceptable livelihoods for themselves and their families, as well as to ensure sustainable development and competitiveness of enterprises and countries	Wages

Source: FAO (2011: 7), with some adjustments

### **Measuring Decent Work Deficit in Indonesian Oil Palm Plantations**

The descriptions and analyses of the workers' situation are mainly based on findings from my field study on three company-operated plantations (henceforth, estates X, Y, Z), as well as on smallholder-owned (both *plasma*<sup>2</sup> and independent) plantations in Riau in April 2012. Riau is a province in Indonesia that has the largest oil palm plantations in the country. In 2010, oil palm plantations covered 2 million hectares in the province, producing almost 30% of the total crude palm oil (CPO) output of the country (Directorate General of Estates 2011: 9). A parastatal company (henceforth, Company X) manages Estate X. The parastatal company operates 77,064 hectare of oil palm plantation in Riau and employs around 19,000

<sup>2</sup> *Plasma* smallholders refer to smallholders who participate in contract-farming scheme. The scheme would typically involve a nucleus estate (called '*inti*'), who would obtain 20-40% of plantation plot development, and participating smallholders (called '*plasma*'), who would obtain 40-60% of the plot called a 'satellite', usually around 2 ha, as well as 0.75 ha for home garden intended for food crops, and 0.25 ha for housing (Rist et al. 2010: 1011; McCarthy 2010: 828-9).

workers. Estate X covers an area of 2,813 hectare and has 484 workers. Private plantation companies operate estates Y and Z (henceforth, companies Y and Z). These companies are subsidiaries of two foreign-owned company groups considered as ‘big’ players in the oil palm sector (both upstream and downstream) in Indonesia and Malaysia. Both these groups operate a substantial number of oil palm plantations in Indonesia. Company Y operates 208,000 hectare, of which Estate Y manages 2,928 hectare and employs 495 workers. Company Z operates 182,840 hectare, of which Estate Z manages 1,288 hectare, employing 248 workers.

This study employs qualitative methods, especially in-depth interviews and observations on the plantations. Combining the results from the interviews and evidences collected from the observations with documentary analysis, a more nuanced understanding in the observed aspects of decent work is obtained. I interviewed 21 workers, 6 *plasma* and independent smallholders, 12 estate representatives, 2 representatives from trade unions, and 3 representatives of NGOs. I chose plantations operated by parastatal and private companies. Access to workers on company-owned estates, in many cases, was only allowed under the supervision of field supervisors. They guided me to the plots where plantation activities were conducted. This was how the respondents were selected. It was only in Estate X that I could manage to find time to interview workers without the supervision of the field supervisors. However, I did not find much difference in terms of the results of the interviews. I suspect various results would occur only if I stayed longer with the workers. Meanwhile, access to workers in smallholder-owned estates was much easier. I went through the plots of smallholder-owned estates and interviewed workers whom I encountered. There was only one case in which the smallholder owner was also present during the interview. This is because the smallholder was usually working together with the workers. Among the workers interviewed, 12 were women aged mid-20s to mid-50s. The majority of these women were maintenance workers. Most of the women were involved in casual employment, whereas four of them served as unpaid workers and only one had a permanent employment status. Meanwhile, male workers were between mid-20s and mid-30s. Among the male workers, there was only one worker who did not work as a harvester. Additionally, only two male workers had casual employment status. Aspects of the workers’ situations observed and analysed were based on operationalisation, as discussed in the previous section.

Before I discuss the situations of oil palm workers, I will briefly outline the work process on oil palm plantations. There are basically three main phases on an oil palm plantation. The first phase involves preparation activities such as land clearing, seedling preparation, and planting. The second phase starts after seedlings

are planted. Activities in this phase include maintenance and harvesting activities. The third phase occurs when palm trees reach their industry limit. This phase includes replanting activities. In this chapter, I will focus on the activities in the second phase.

Maintenance activities include weeding, spraying, and fertilizing. On the plantations visited, I encountered three more activities. The first one was called *nangkos*, a word coming from *jankos*. This activity basically meant applying empty bunches to the soils. The second one involved pouring a pesticide into a spraying tank. On some plantations, they do not need manpower to do this activity as they use a truck with a large tank filled with pesticides. The third one involved the loading and unloading of the FFBS.

#### *a. Employment Creation and Smallholder Development*

As mentioned, the oil palm plantations in Indonesia are labour-intensive. As of 2010, smallholder plantations absorbed 1,751,794 labourers, while large-scale plantations (both parastatal and private) employed 1,623,603 labourers (Directorate General of Estate Crops 2011). However, this number might not include casual and unpaid labour working in the sector. Indeed, casual labour is quite common in the Indonesian oil palm plantation sector. Meanwhile, the permanent employment status of plantation workers is different from the permanent employment status of administrative workers or the so-called ‘staff’. A study on the labour rights situation on large-scale oil palm plantations in North Sumatra (Siagian et al. 2011: 5) describes the structure of employment status on the oil palm plantations as a pyramid, with the ‘staff’ on top of the pyramid. ‘Staff’ refers to what we commonly consider as permanent workers. They have working contracts and receive pay slips. Below the staff category is the category of workers with an ‘SKU’ (*Syarat Kerja Umum/General Work Requirement*) employment form. Although workers in this category are also considered as permanent workers, they sometimes do not have working contracts and/or receive pay slips. Permanent workers working on the plantations fall into this category. This implies that plantation permanent workers, to a certain extent, share a common feature with informal workers. This also confirms the argument discussed earlier regarding how agriculture wage workers can also be considered as vulnerable employment. At the bottom of the pyramid, there are casual and unpaid labourers. There are two types of casual labourer employed on the oil palm plantations. The first one is a casual labourer directly hired by the company, so-called ‘BHL’ (*Buruh Harian Lepas*). The other one is a casual labourer brought in by plantation workers to help them with activities on the plantations. Siagian et al. (ibid.) call it ‘*kernet*’ or assistant. In the pyramid, the position of a BHL is higher than an assistant.

This structure is confirmed on the plantations operated by private and parastatal companies visited in Riau. In Estate Y, while plantation workers are called SKU Harian Tetap (fixed daily SKU), workers at the supervisor level, such as foremen, fall into the SKU Bulanan (monthly SKU) category. However, the structure remains similar to the pyramid described above. On Estate X, BHL workers are children or family members of SKU or staff workers. Estate Y has not hired BHL workers since 2007. The company does not hire any workers with BHL status. The company told me it was not allowed after the plantation received an RSPO (Roundtable Sustainable Palm Oil) certification. Nonetheless, one of the foremen interviewed mentioned that there is a possibility that workers bring someone (i.e. assistant) to the plantations to help them, especially for harvesting activities. Assistants are usually responsible for collecting individual fruits or so-called *brondolan*. A manager assistant of Estate X told me that the employment of an assistant is the responsibility of the workers who employ them, and not that of the company. A similar statement was also made by a supervisor of Estate Z. The employment of assistants shows that casual labour is still prevalent on this plantation. Meanwhile, unpaid workers are commonly workers' family members, namely, wife and children, who help workers on the plantations. In most cases, they are helping workers carry out harvesting activities.

On the three plantations visited in Riau, the SKU employment status was predominantly the case for workers engaged in harvesting activities (harvesters). Only in Estate Y did both harvesters and maintenance workers have SKU employment status. This was the plantation that was already RSPO certified. In Estate X, there were some maintenance workers that had SKU status, but most of these workers were BHL workers. An explanation for this situation was that the plantation would be replanted in the near future and thus the company decided not to carry out maintenance activities every day. On this plantation, the majority of harvesters were SKU workers. On one block of the estate, 30 harvesters worked under SKU status, whereas 7 harvesters worked as BHL workers. A similar case also applied on the other blocks. I interviewed two SKU harvesters of this estate and both of them mentioned that they previously worked under BHL employment status. It seems that BHL status is an initial form of employment before they are hired as SKU workers. In Estate Z, all the maintenance workers were BHL workers. This estate had the smallest area compared to the other two company-operated estates. The company that operated in Estate Z told me that the reason for hiring BHL workers for maintenance activities was the relatively small-scale plantation area; hence, there were not so many maintenance activities. In a given month, these activities could be finished within 10–15 days. The choice was either the company would reduce the number of maintenance workers but hire all maintenance workers with SKU status, or keep the workers but offer BHL status.



The company opted for the second choice. BHL workers of this estate told me that they were fighting for an increase in working days as this would bring in more income for them. Additionally, workers engaged in *nangkos* in Estate X were also BHL workers. In the same vein, workers who poured pesticides into spraying tanks in Estate Z were also employed with BHL status.

On the plantations operated by plasma smallholders, workers were by and large employed under BHL status. This depicts what a large body of studies has been revealed by this sector (Siagian et al. 2011; Chamim et al. 2012). I interviewed two workers on the plantations owned by plasma smallholders and both of them worked under BHL status. A similar situation was likely to apply in the case of workers on plantations operated by independent smallholders. In plantations owned by smallholders, workers were either family or relatives of the smallholders. The two workers interviewed mentioned that they work on two–three *kaplings*<sup>3</sup> in a day. It implies that workers were often hired by more than one plasma smallholder. These workers also brought their wives in order to help them with their work. This practice seemed to be quite common for harvesters on plantations, both owned by plasma and independent smallholders.

Women workers on plantations were mainly doing maintenance activities. Since maintenance workers comprised mainly BHL workers, this meant that women workers were predominantly employed as casual labourers on plantations. Furthermore, as already mentioned, women also worked as (unpaid) contributing family workers together with children on plantations. All these imply that women workers were in disproportionate situations compared to their male counterparts.

Oil palm plantations produced FFBs throughout the year. This made permanent employment on the plantations possible. However, this was limited to large-scale plantations where harvesting activities could take place regularly. As discussed earlier, even on large-scale plantations, maintenance workers were mainly employed as casual labourers. On smallholder plantations, where harvesting occasionally took place, casual labour was the common type of employment status. Nonetheless, certain workplace rules and practices contributed to the employment of casual labour in harvesting activities. For instance, as will be explained in the next section, setting a premium as well as requiring a clean plot after being harvested (no individual fruit is left out) often pressurised a harvester to hire an assistant, who was predominantly employed as casual labour. These also brought about the participation of unpaid family labour, mostly women and children, who worked as helpers during the harvesting activities.

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<sup>3</sup> *Kapling* refers to a plot of 2 hectare. According to the Nucleus Estate and Smallholder (NES) scheme, each plasma smallholder is given 2 hectare to cultivate palm trees.

The supply side argument on the issue of employment and employment status on oil palm plantations focus on the local labour market and local labour regime. In this context, it is worth mentioning that the initial development of the Indonesian oil palm plantations in the late 1970s, where the government introduced the so-called Nucleus Estate and Smallholder Development Project or PIR-NES, used funding from the World Bank (Badrin 2010: 63). Under this scheme, the state offered access to forest and village lands, infrastructure development, and credit at concessionary rates for plantation development. The state provided financing for smallholders' plantings, initial living expenses and housing, while the nucleus estate was responsible for extended services as well as for collecting and processing fresh fruit bunches (McCarthy 2010: 828).<sup>4</sup> This programme was then followed by similar state programmes, such as PIR Khusus and PIR Lokal (Badrin 2010: 64). Between 1986 and 1995, the government released a similar programme that involved migrants from other islands, mostly from Java, through a scheme called PIR-Trans. This programme, particularly the PIR-Trans, allowed for a supply of cheap labour from Java. Once on plantations, the Javanese workers would also bring in their Javanese relatives whenever there was demand for more workers. This was often the case done by the foremen on plantations. A supply of cheap migrant workers was not something new on Indonesian oil palm plantations. As mentioned, the oil palm plantation sector in Indonesia had roots dating back to the colonial period. During this period, the Dutch supplied cheap labour from Java Island to the oil palm plantations in Sumatra Island. These workers were called *kuli kontrak*, which literary meant contract labour. Some scholars preferred to use the term 'coolie' for describing *kuli kontrak*. In this context, coolie referred to Asian labour, 'nearly always Javanese origin, contracted for a period of three years to

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<sup>4</sup> The nucleus estate (called '*inti*') would obtain 20%–40% of plantation plot development, while participating smallholders (called 'plasma') would obtain 40%–60% of the plot called a 'satellite', typically around 2 ha, as well as 0.75 ha for home garden intended for food crops, and 0.25 ha for housing (Rist et al. 2010: 1011; McCarthy 2010: 828–9). The smallholders would get the fully privatised rights of their smallholdings upon completion of their development loan (McCarthy 2010: 829). As these plots matured, the operations were then transferred to the smallholders, who cultivated the plantations under the supervision of Inti developers (Casson 1999: 13). The plasma farmers could also entrust the plot to be cultivated by Inti developers (Rist et al. 2010: 1011). Inti developers were then required to purchase fresh fruit bunches from the smallholders. While waiting their plots to be mature, plasma farmers were employed on the oil palm plantation (either 'nucleus' or 'satellite') as wage labourers (Zen et al. 2005: 7).

work for an expatriate employer in the Outer Islands of colonial Indonesia' (Breman 2002: 333).<sup>5</sup>

On the issue of smallholder development, as previously discussed, government programmes in the past attempted to incorporate smallholders in the development of Indonesian oil palm plantations. As a result, smallholding plantations currently make up around 40% of Indonesian oil palm plantations. As mentioned, smallholders on Indonesian oil palm plantations comprise independent and plasma smallholders. However, smallholders face several challenges, from selling their FFB, accessing required funding, procuring good quality seedling, approaching the required skill and knowledge, and ensuring sufficient maintenance to voicing their interests (Nakajima et al. 2010: 4; Zen et al. 2005; Maryadi et al. 2004). Both independent and plasma smallholders are largely dependent on other actors, mainly on plantation companies.

Estate X was previously involved in PIR-Trans. Thus, the village surrounding the estate comprises migrants who came for this scheme in the past. I interviewed some of the previous plasma smallholders. One plasma smallholder revealed that she also opened a small grocery shop apart from owning an oil palm plot, as the income from the small oil palm plot was not enough for her and her children. The smallholder used to sell FFB from her oil palm plot through a cooperative. Another plasma smallholder also sold the produced FFBs through a cooperative. Similarly, the latter also has additional income from his casual job as a well digger, as well as from cattle farming.

I also interviewed an independent smallholder who was previously a plasma smallholder. He had to sell his plasma plot due to his inability to repay the debt. After repaying his debt, he used the sales revenue to buy a small plantation plot. He used to sell FFBs through a middleman. He was not a member of any farmer group. However, he together with nine other independent smallholders formed a group to share road maintenance costs. It is each smallholder's own responsibility to purchase materials for maintenance activities, such as buying fertilisers. Another independent smallholder, who previously was a plasma smallholder as well, also used to sell FFBs to a trader due to the inferior quality of the FFBs.

The discussions demonstrate the varied oil palm production nexus involving plasma and independent smallholders. The interviewed plasma smallholders have either another job or a side business, as income from the oil palm plot alone is not sufficient. The independent smallholders were previously plasma smallholders who

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<sup>5</sup> According to Breman (2002: 333), prior to Javanese people, coolie consisted of Chinese people recruited in Malaysia or in China. They were then replaced by Javanese people, partly because the latter were considered cheaper and docile, despite being less diligent.

had to sell their plots due to the inability to pay debt. These findings show the overlapping and dynamic identities between smallholders, wage workers, and own-account workers. This implication is important in addressing decent work in the agriculture sector.

The interviews also reflect how smallholders are dependent on palm oil mills, mainly managed by plantation companies. Some smallholders may sell FFB through a cooperative. As for independent smallholders, when a functioning cooperative or farmer group is absent, smallholders have to rely on a trader or a middleman to sell their FFBs to a palm oil mill. Relying on a trader or a middleman eventually reduces the profits gained by the smallholders. The reliance on a palm oil mill partly shows how smallholders are caught in captive relations with plantation companies, as a palm oil mill is often owned by a plantation company.

#### *b. Social protection*

In this section, I will discuss the issues related to wages on plantations. The system that applies to SKU workers consists of a basic salary and premium (or so-called *premi*). Each SKU worker has a daily target to meet. When these workers are able to achieve over the target, they receive *premi*, as an additional payment apart from their basic salary. For example, wages for SKU workers in Estate X are based on the minimum wage for the oil palm plantation sector in Riau as mentioned below. The daily target for harvesters is 700 kg/day. If workers are able to harvest more than this target, there are several layers of possible achievement. The first layer, between 701 and 840 kg, is called P1. In this achievement, workers will receive a *premi* of Rp 22/kg. The second layer is between 841 and 1050 kg. In this achievement, the *premi* is Rp 25/kg. The third layer is more than 1050 kg, in which workers will receive a *premi* of Rp 30/kg. *Brondolan* collected are calculated separately. The *premi* for *brondolan* ranges from Rp 150/kg to Rp 300/kg.

In Estate Y, SKU workers receive Rp 1,133,500 in a month as their wage. The estate sets a target for harvesting amounting to 1300 kg/day. If workers harvest over this target, they get a *premi*. In this estate, harvesters do not only receive a *premi*, but also an incentive amounting to Rp 13,500 when they are able to harvest more than the target. In Estate X, the *premi* for *brondolan* is also calculated separately. The estate offers Rp125/kg as a *premi* for *brondolan* collected.

In harvesting activities, this system triggers the employment of assistants or unpaid workers. Harvesters clearly desire to get as many *premi* as possible. A foreman in Estate Y mentioned to me that harvesters employ assistants when the daily target is increased, especially during peak seasons. These assistants can be their relatives or friends. However, in normal cases, harvesters usually bring their wives and/or

children to the plantations. One of the SKU harvesters told me that when his wife does not help him, his yield in a day drops as much as 50%. Another SKU harvester revealed that he has to work 2 hours longer if his wife does not come and help him on the plantation. A BHL harvester interviewed reported that around 24% of his income is contributed by the work of his wife.

Nonetheless, I found that Estate Z does not apply this payment system. Instead of using the above system, the company distributes the same scale of working plot (or so-called *ancak*) amounting to 2.5–3 hectare for harvesters. SKU harvesters on this plantation are paid at a rate of Rp46 x 1.5 tonne (harvesting capacity expected by the company) x 25 days, meaning Rp 1,725,000<sup>6</sup> in a month. This payment system implies that SKU harvesters do not receive fixed wages; they are paid by their output.

Meanwhile, the payment system for BHL workers on the plantations operated by plantation companies is based on the yield of the workers. In Estate X, the rate for BHL harvesters is Rp1000/FFB. A harvester can usually collect 1 ton of FFB in a day, assuming that the average weight of an FFB is 10 kg. This means that BHL harvesters could receive Rp 100,000 in a day or Rp 2,600,000 in a month (assuming that workers also work on Saturday). One of the BHL harvesters in Estate X told me that he is currently able to harvest 1300 FFBs in a month compared to 2000 FFBs in the past. This implies that he receives Rp 1,300,000 in a month. One of the SKU harvesters of this estate told me that the rate for BHL harvesters in the past was Rp26–30/kg. This rate is actually better than the current rate because the current rate does not take into consideration the weight of the FFB. In the meantime, workers engaged in *nangkos* activities in Estate X receive Rp 30,000 per truck of *jangkos*. These workers told me that they are able to finish applying a truck of *jangkos* in a day if they work full time or if it is not raining. Under less than ideal circumstances, it will take them 2 to 3 days. Assuming that they can finish applying *jangkos* daily and it is not raining, these workers could receive Rp 780,000 a month. However, these workers told me that they are able to apply only 12–13 trucks of *jangkos* a month, meaning that they receive only Rp 360,000 – Rp 390,000 a month.

Apart from wages, SKU workers on plantations operated by plantation companies are also entitled to other benefits such as housing, electricity, water and subsistence support (i.e., rice). All the three estates visited offer these benefits. In Estate Z, however, water is not provided by the company as a benefit in addition to wages. Workers have to pay for this utility. Estate Y provides rice in the amount of 15 kg/month to a worker, with an additional 9kg/month for his wife, as well as

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<sup>6</sup> Assuming \$1 = Rp10.000

7.5kg/month for each child to a maximum of three children. Housing is provided generally in semi-permanent houses. However, once workers are retired, they have to leave the housing. This may become a problem for workers who are not able to spend some of their income to prepare their own housing. In Estate X, I was informed that few workers were able to save money to build their own houses. Meanwhile, BHL workers on these estates are not entitled to these benefits. BHL workers who stay in worker housing are either the spouses or family/relatives of the workers. One former BHL worker told me that although as a BHL worker he was entitled to the worker housing, he already owned a house. Another facility formerly provided by companies is transportation such as pick-up cars, as the distance between worker housing and plantations is often quite far. However, nowadays most workers have their own motorcycles, mostly bought through credit. Companies support this mechanism and sometimes help workers to get credit.

BHL workers interviewed on the plantations of plasma smallholders receive Rp100.000/tonne. In a day, these workers are able to harvest 1 tonne of FFBS. Assuming that they also work on Saturday; this means that these workers receive Rp 2,600,000 in a month. One BHL worker told me that he receives Rp 125.000/tonne, which is higher than the normal rate for BHL workers in that area. As the worker revealed, this higher rate is because he and the smallholder employer are cousins. Another BHL harvester mentioned that he receives Rp 1,500,000 per month. Moreover, some of these BHL workers might have additional income. Smallholders might let their workers take *brondolan* with them. Workers then sell *brondolan* to traders nearby. Apparently, not all workers have this possibility and it really depends on the willingness of the smallholders. One of the BHL harvesters told me that he is only able to take *brondolan* with him if the employer does not know or does not watch. I observed that BHL workers who have family relations or are relatives of their employers have more possibility to do this. Additionally, unlike SKU workers on company-operated plantations, BHL workers on smallholder-owned plantations are not entitled to other benefits such as housing, water, electricity, and subsistence support (i.e., rice).

A manager assistant of Estate X told me that the wage level offered by the company is sufficient for workers to live decently. If we compare the above numbers to the minimum wage for the oil palm plantation sector in Riau, amounting to Rp 1,389,450 as of 2012, it seems that these workers are better off, except for workers in Estate Y. However, there are three issues worth noting with regard to the minimum wage level (either sectoral or provincial) in Indonesia. The first problem is that the majority of the minimum wage level does not meet the decent living needs. In Riau, the decent living needs for Siak and Kampar (the two regencies where the visited plantations are located) were Rp 1,455,340 and Rp

1,230,491 respectively in 2011(the data for 2012 were not accessible). We can see that the sectoral minimum wage which applies to the oil palm plantation sector in Riau is slightly above the decent living need for Kampar regency and lower than the decent living need for Siak regency. If we compare the payment received by workers to decent living needs in these two regencies, it appears that these workers are better off, except for *nangkos*<sup>7</sup> workers.

A highly contested issue is the indicators used to set decent living needs. The indicators of decent living needs are set up by the central government under Permenakertrans No. 17/2005. The regulation lists 46 items that serve as the basis for a decent living needs survey at the regional level. Workers had been demanding the government to revise the regulation by including 122 items into the indicators. The revision was eventually conducted in 2012. Under Permenakertrans No. 13/2012, the government lists 60 items as decent living needs indicators. However, this was not yet applicable during the time of my field research. Furthermore, the current indicators only take into account the living needs of single workers and thus, disproportionately affect workers with spouses and children. Some cases described above demonstrate the income of workers with spouses and children. Although their income might be higher than decent living needs level in the regency, it is worth noting that such decent living needs are applicable only for single workers. As such, it is questionable whether the income of these workers actually meets their decent living needs. This might also explain why these workers pursue as many *premi* as possible. The third issue is that minimum wage is supposedly used as a benchmark in determining the wage level between workers and companies. This is illustrated in the regulation, which states that minimum wage applies to workers whose working period is below 12 months. In practice, however, minimum wage is used as a maximum standard in determining the wage level.

For SKU workers in Estate Y, their wages are even below the minimum wage for the oil palm plantation sector in Riau. This wage level is stated in the collective agreement negotiated between the trade union and BKS-PPS (*Badan Kerja Sama Perusahaan Perkebunan Sumatra/Cooperation Board of Sumatra Plantation Companies*), an association of plantation companies in Sumatra. Further details about this issue are discussed in the sub-section on freedom of association and collective bargaining. Meanwhile, despite the fact that their income is higher than the minimum wage for the oil palm plantation sector in Riau, SKU workers in Estate Z do not receive fixed wages. This estate does not set a daily target that

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<sup>7</sup> *Nangkos* comes from the word *jangkos*, which literary means empty bunches. The activity of *nangkos* refers to the activity of spreading or applying empty bunches onto the plantation plots. In this way, empty bunches are treated as organic fertiliser for the plots.

serves as the basis for the basic salary of SKU workers. Instead, the calculation of the salary received by these workers relies completely on worker's productivity.

For BHL workers on smallholder-owned plantations, they inevitably face the issues with minimum wage as mentioned above. Although it seems that these workers receive income higher than SKU workers on company-operated plantation, the main problem for them is certainly their employment status. This also means that they do not receive regular income.

As mentioned, harvesters on company-operated plantations receive a *premi* when they are able to harvest more than the daily target, except for the case of Estate Z. The *premi* serves as a reward for their productivity. However, a reward is always accompanied by punishment. Indeed, harvesters are sanctioned when they do not carry out their harvesting tasks properly. The sanctions are usually fines deducted from the harvester salaries. In Estate Y, there are 20 activities that can result in sanctions. Only two of these 20 items are related to occupational safety and health, while the rest refer to improper harvesting activities. Every day, after working hours, a foreman has to prepare a working sheet, which contains the productivity (which determines the *premi*) as well as the sanctions of his subordinate harvesters. This sheet becomes the basis for calculating the harvester salaries.

**Table 1.2 Comparison of worker income, minimum wage and decent living needs in Riau**

Type of Worker	Estate X	Estate Y	Estate Z	Plasma Plantations	Minimum Wage	Decent living needs*
SKU workers	Rp 1,389,450 + <i>premi</i>	Rp 1,133,500 + <i>premi</i>	No fixed (basic) wage. Rp 1,725,000 <sup>a</sup>	Rp 2,600,000 <sup>b</sup>	Rp 1,389,450	Rp 1,230,491 for estate X and plasma plantations.
BHL workers	Rp 2,600,000 <sup>b</sup>	-	Rp 1,387,670 <sup>c</sup>			Rp 1,455,340 for estates Y and Z

Notes: SKU = *Syarat Kerja Umum* (General Work Requirement), a local term for permanent worker

BHL = *Buruh Harian Lepas*, a local term for casual worker

\*As determined by the government. Figure for 2011.

<sup>a</sup> This amount of salary requires workers to harvest 1.5 tonne of FFBS.

<sup>b</sup> Assuming that the average weight of an FFB is 10kg (workers normally can harvest 1 ton FFBS in a day) and that workers also work on Saturday,

<sup>c</sup> This amount results from the total maintenance expenses for April 2012 (Rp87,423,210) divided by the number of BHL workers as of the end of March 2012 (63 workers).



Table 1.3 provides a summary of workers' situations on the oil palm plantations according to the dimensions of decent work discussed earlier.

**Table 1.3 Workers' Situations Based on Two Dimensions of Decent Work**

<b>Dimensions</b>	<b>Aspects</b>	<b>Findings</b>
Employment creation and enterprise development	Employment	(+) Oil palm plantations provide a significant number of jobs for Indonesian people. (-) A large share of employment is however in the form of casual employment (-) Members of family in general also help on the plantations as unpaid family labour
	Smallholders	(+) Oil palm plantations include a significant share of smallholding plantations (-) Smallholders are dependent on and in unequal power relations with palm oil mills (-) weak functioning of cooperatives or farmers' groups (-) Independent smallholders rely on traders or middlemen in case the absence of cooperatives
Social protection	Wage	(+/-) While SKU workers in estates X and Zas well as BHL workers in Estate Z and smallholder- owned plantation manage to earn above the sectoral minimum wage, SKU workers on estate Y and BHL workers in Estate Z receive below the sectoral minimum wage. Meanwhile, casual workers do not receive regular income.

### **Conclusions**

As one of the main agriculture sectors in Indonesia, the oil palm plantation sector is expected to improve rural livelihoods. Displaying a considerable growth dynamic in both foreign and domestic markets, palm oil is perceived as critical for rural development and poverty alleviation. Profound understanding in rural development and poverty alleviation entails analysis on decent work, which in this case focuses on the employment in oil palm plantations.

This chapter discusses the concept of decent work introduced by the ILO, including the criticisms to the concept. This bears important consequences in measuring decent work deficits, particularly in the agriculture sector. For instance, the focus of the concept on agriculture wage workers, leaves out (unpaid) family workers, who remain playing an important role in agriculture sector, including in Indonesian oil palm plantations. Moreover, understanding the characteristics as well as the work practices in the agriculture sector, particularly in oil palm

plantations, sheds light on the overlapping identities of certain groups of people in the agriculture sector as well as on how certain employment relations are prevalent in the sector. Taking into account the socio-cultural and institutional environment and the policies shaping the agriculture sector, one receives a broader understanding of decent work measurement. This, for instance, implies looking back at the history of labour supply on plantations.

Drawing evidence from the oil palm plantations in Riau, a province with the largest oil palm plantations in Indonesia, this chapter concludes that workers have found employment but under unsatisfactory conditions. First of all, not only are casual workers still rampant in the sector, there is also no fixed form of employment (and payment) practices in the sector. Despite the presence of a common employment (and payment) structure, each plantation company may have its own form of employment practices. This casualization of employment relation can be associated with workplace practices (e.g. premi system) as well as labour regime tracing back to the supply of migrant cheap labour during the initial development of Indonesian oil palm plantations in the late 1970s and during the colonial period. Second, casual employment mainly takes place on maintenance activities which are predominantly carried out by women. Additionally, apart from children, many women also work as (unpaid) contributing family workers in plantations. All these imply how women carry out disproportionate amount of unpaid work and face worse working conditions compared to their men counterparts if they do find paid work in oil palm plantations. They are, therefore, doubly disadvantaged. Third, plantation workers are not paid with living wages. While casual workers seem to receive higher wages than their permanent counterparts, their employment status implies less income security. Furthermore, this finding serves a good reminder to link employment opportunities and social protection dimensions while assessing decent work in developing countries.

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## **2. Working Conditions, Gender, and Decent Work: Brazil's Açu/Mossoró Region**

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At the dawn of the 21st century, in light of growing unemployment at the global level, increasing poverty, rising cases of precarious employment, reappearance of degrading forms of work, contractual arrangements and pay, and diminishing workers' rights, the International Labour Organization (ILO) proposed, in 1999, the adoption of 'decent work' norms around the world. Kon summarises the ILO understanding of decent work as 'productive and adequately compensated employment, exercised freely, equitably, and safely, without any form of discrimination, which is capable of guaranteeing a dignified life for all people depending on that employment' (2006: 184; translated by authors).

The ILO also argues that in Latin America, decent work is indispensable towards the realisation of equitable economic growth, overcoming poverty and guaranteeing labour rights, including social rights, as well as the strengthening of democracies.

Brazil made substantial progress towards these goals during the years 2004–2012, presenting high rates of economic growth, enhancement in formal employment and social inclusion, real wage increase, and expansion of social protection. These gains resulted in notable reduction in high unemployment that characterized Brazil during the 1990s, as well as reduction in the rates of both absolute and extreme poverty and informal employment.

Despite these important advances, the ILO expresses concerns related to gender inequities in the Brazilian labour market, which persist despite growing rates of women's participation in the Economically Active Population (EAP) and women's superior educational attainment. The equity deficit accompanies serious failings related to women's human and citizenship rights.

In Brazil, several studies and data sources address aspects related to work in rural areas, and many of them reveal the vulnerability and/or worsening of the working conditions in these areas. According to DIEESE (2014), in 2013, almost 14 million people were employed in rural areas, which constitute 15% of the total Brazilian employed population (97 million). While among the employed persons in rural areas men dominate (70%), women accounted for 54% of the workers self-employed in production for own consumption and 57% of the unpaid workers. Among the employed persons, on average 60% do not have a formal contract and receive less than half the minimum wage. This rate reaches 77% in the north-east and northern regions of Brazil; Moreover, 32% of these are temporary employees;

39% have less than three years of schooling; only 44% contribute towards Social Security; and only 15% of the employees declare themselves unionised. The studies conclude that because of all these factors—high informality, low levels of schooling, low protection (CLT and Social Security), high turnover, and low unionisation, ‘there are still very precarious conditions in relation to rural workers in general’ (DIEESE 2014: 25; translated by authors)

The precariousness of rural work is confirmed by many studies (for example, Taiette Junior 2013; Alves and Novaes 2007 Schindwein 2010; Krein and Stravinski 2008). Some studies focus on the denial of workers' rights and its impact on working conditions. One such impact is the pervasiveness of work-related illnesses compounded by rural workers’ difficulties to access healthcare. Others emphasise on the precarisation evidenced in outsourcing, among other topics.

Given these considerations, this chapter intends to analyse more deeply working conditions in the irrigated production areas of Brazilian North-east, and those of women in particular. As in Brazil, there is a marked heterogeneity in the regions, in terms of crops produced and size of areas, which consequently links particular characteristics of work organisation; it was decided to analyse even more specifically the case of the production of melon in the region of Açú-Mossoró, located in the state of Rio Grande do Norte in Brazilian North-east. The region is characterised by representing most of the melon exported from Brazil and since the beginning of its production in the 1980s its production dynamics are strongly linked to international trade. The study makes use of the concept of Decent Work as established by the ILO and FAO (Food and Agriculture Organization), and indicates the principal remaining challenges in conforming with decent work norms.

In order to address these questions, a secondary analysis of the literature on decent work and agricultural labour is undertaken, as well as empirical research within the municipalities that constitute nearly 100% of the Gross Production Value of melon in Rio Grande do Norte state, that is, Mossoró and Baraúna. In total, interviews or questionnaires were completed with 16 firm (farm) representatives, producer-exporter cooperatives, workers’ unions, rural workers’ federations, and rural settlements, and meetings were held with 40 melon workers from both rural settlements and salaried employment situations.

This chapter is organised in two main sections. The first section discusses some aspects about the concept of decent work from the definition of ILO and FAO. Further, it also presents briefly few historical perspectives of agricultural work in Brazil. The second section explains the results of the field research realised in the Açú-Mossoró region, focusing on working conditions and exploring the participation of women in agricultural work in the region. The work relations were

divided into three main groups—the first group represents the work relations in the major firm/farm producer in the region (AGRÍCOLA FAMOSA); the second group reveals the characteristics of the medium producers (firms/farms); and the third group shows work relations amongst the family farmers, which included farmers who were provided with settlements owing to land reform.

The main result of this study is that the large private melon-producing firms, when compared with rural settlements, are better able to offer conditions of work environment, health, and occupational safety that are convergent with norms recognised by the ILO, as well as those specified in international certifications. Large private firms are also better at avoiding child labour and forced labour. This is partially explained by the poor framework of the settlements that has no assessment of the basic resources such as credit and rural training, or resources for living like health assistance and transportation. But despite a clear improvement from earlier conditions in melon production, some present problems indicate the precarious nature of work in this industry, even for salaried workers. Thus, the reality of Decent Work in the Açu-Mossoró melon region is questionable.

### ***Concepts of Decent Work and Agricultural Labour in Brazil***

The concept of decent work was detailed for the first time in 1999 by the ILO. Since then, commitments have evolved and the concept has gained broader acceptance and has become a benchmark for governments, firms, unions, and civil society.

According to the ILO, among the negative consequences of globalisation is the marked global crisis of employment, as revealed by the quantitative and qualitative reduction in employment, increase in inequality and poverty, and the dramatic impact of these factors on issues of citizenship and democracy.

Aiming to confront this employment crisis, the ILO proposes a ‘Global Decent Work Agenda’ based on the presupposition that:

- a) ‘work is the fundamental means by which to overcome poverty, inequality, and social exclusion’;
- b) ‘work is one of the most direct forms through which development favours people’; and
- c) ‘work permits social inclusion, which is the basic condition for a dignified life and citizenship, and, in this sense, for the strengthening of democracy’ (Abramo, Bolzón and Ramos 2008: 490; translated by authors).

Meanwhile, the ILO does not recognise all work as conducive to these objectives. Only Decent Work possesses this capacity (Abramo, Bolzón and Ramos 2008: 490).

In the rural context, the notion of decent work, as established by the ILO/FAO, seeks to address issues related to dignity in work, unemployment, underemployment, poor quality employment, insecure employment, low income, negation of rights, inequality of treatment between workers (that is, migrants, women), and lack of protection.

The ILO/FAO acknowledge that rural labour markets exhibit a greater propensity for inequality due to 'low levels of productivity, elevated levels of informality, labour force fragmentation, information asymmetries, uncertainties, and specificities of agricultural production'. As a consequence, 'working conditions are poor, labour legislation is rarely applied, and social dialog is weak' (FAO/ILO 2013: 4; translated by authors).

Furthermore, 'food insecurity, poverty, income inequality, and the lack of employment opportunities mutually reinforce each other in a vicious cycle, eroding human capital and diminishing labour productivity, thus perpetuating poverty and social inequalities across generations' (FAO/ILO 2013: 2; translated by authors).

In Brazil, the stimulus for the promotion of decent work came in 2003, when President Luz Inacio Lula da Silva and the ILO signed the 'Memorandum of Understanding' that foresaw a programme of Special Technical Cooperation for the promotion of a National Decent Work Agenda' (Araújo and Apolinário 2015: 79; translated by authors).

### ***History of Agricultural Labour in Brazil***

At the beginning of the 20th century, Federal Decree n° 979 of 1903, foresaw the creation of mixed labour unions, composed of employees and employers. Federal Decree n° 6,532 of 1907, affirmed that 'agrarian unions can self-organise without the authorisation of the government. Neither of the two decrees, however, were implemented in practice' (Lamarão and Medeiros 2009; translated by authors).

During the 1930s, when Brazil's development trajectory began turning more towards industry in detriment to agriculture, Brazilian labour legislation, derived from the newly formed development pact, began to regulate urban labour but failed to include rural labour, which continued on the margins of the law.

During the 1940s, rural workers were formally considered as targets of social benefits. As an example, the Sugar Cane Cultivation Statute of 1941 foresaw, among other benefits, medical assistance and housing for workers in this sector. In practice, however, these measures were never put into effect. In 1944, Decree-Law



n° 7,038 permitted the unionisation of rural workers, yet it was never implemented due to pressure from rural employers. From 1951 onwards, President Getúlio Vargas encouraged the extension of social protections to the countryside and the appropriation of landholdings in the social interest, i.e. areas that were not effectively used by their owners could be expropriated in order to meet the demands of the landless rural population. In 1954, additional measures were directed from the Presidency of the Republic to the National Congress, such as stability for rural workers, limitations on the number of working days, and protective measures for women. Nevertheless, all these proposals were rejected by the conservative National Congress. With Juscelino Kubitschek as President of the Republic (1956–1961), projects focused on labour legislation and pension for rural workers were again directed to the National Congress but were rejected by this body. During the government of President João Goulart (1961–1964), which coincided with a Congress less resistant to reform, a proposal was sent with some amendments and it became Law n° 4,214 of 1963, creating the Rural Workers' Statute (Lamarão and Medeiros 2009).

Law 4,214/1963 denominated the Rural Statute, which granted rural workers important rights, enjoyed only by urban workers earlier, such as the organisation of representation, procedures for collective bargaining, wages, holidays, due notice before firing, and protection for women, among others. Nevertheless, these guarantees were of little effect due to the lack of inspection by the Brazilian authorities and the absence of adequate judicial power, according to Paidá (2012).

Despite these advances in legal norms, the military dictatorship in Brazil (1964–1985) imposed harsh repression of social movements and workers' unions for both urban and rural workers. Thus, it was only with the Brazilian Federal Constitution of 1988 that rural workers were made juridically equal to urban workers in terms of social rights. Chapter II (On Social Rights), Article 7° of the Constitution, enumerates the rights of 34 workers and affirms that these rights would apply to both urban and rural workers and would work in concert with additional rights focusing on improvement of social conditions (Federal Constitution 1988). The extension of these rights to rural workers, while constituting a significant advance and effort, remains to the present day only partial in its efficacy and application.

With the repression of social movements during the military dictatorship, it was only towards the end of the 1970s and 1980s that rural labour negotiations resumed. They were realised within an entirely new agricultural environment characterised by new agricultural frontiers and activities. Among these new activities was fruit production for export in the Açu-Mossoró region, in the semiarid region of Rio Grande do Norte state.

In the case of Brazilian fruit production, diverse accords/collective bargaining were reached in the 1990s between workers and companies in different regions of Brazil (Marques 2008). The labour departments linked to the Ministry of Labour played a supportive role through the enforcement of labour legislation.

Both general and specific issues are dealt with in rural conventions in Brazil. The most frequent topics of negotiation include remuneration (salary readjustments, salary floors, productivity-adjusted salaries, profit sharing), working conditions, working relations and organisation (overtime, housing, transportation, working hours, licenses, access to local work) (Marques 2008).

In Brazil, the Federal Constitution provides that ‘the rights of urban and rural workers are the recognition of conventions and collective bargaining agreements’. Collective Labour Conventions (CCTs) and Collective Labour Agreements (ACTs) stipulate working conditions and rights between unions of workers of the same category and their employers. However, they are different from each other as they have different levels of territorial coverage, number of participating companies and, consequently, number of beneficiaries amongst workers.

Article 611 of the Consolidation of Labour Laws (CLT)<sup>8</sup> defines the Collective Labour Agreement (ACT) as the agreement ‘in which two or more trade unions representing economic and professional categories stipulate applicable working conditions within respective representations’. In other words, it is the negotiation carried out between the union of workers of the category, a union whose area of action reaches a territory previously defined and recognised by the Ministry of Labour and Employment (MTE), and the respective employers (companies) there located or their representatives (for example, lawyers, directors, prepositions). This instrument (CCT) reaches out to a large number of workers and companies, since all companies located in the geographical area of operation of the union are automatically submitted to the Collective Labour Convention (CCT), for at least one year.<sup>9</sup>

The Collective Labour Agreement (ACT), in turn, also emphasises working conditions and is carried out between the workers' union and the employees (or their representatives). However, unlike the CCT, ACT only affects the companies (one or more) that have agreed with the workers' union. Therefore, ACT has a smaller scope, either with respect to geographical coverage area or number of

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<sup>8</sup> The Consolidation of Labour Laws (CLT) is a norm which gathers all the laws that regulate the individual and collective relations of urban and rural work in Brazil. The CLT arose by Decree-Law No. 5,452, of 1 May 1943 and was sanctioned by the president at the time—Getúlio Vargas.

<sup>9</sup> In Brazil, generally, the workers' unions have a territorial base of action that includes one or more municipalities, but not a state or the nation.

participating companies, and is therefore more limited than the CCT. Its use only occurs when the negotiation of the CCT is stalled.

The principle clauses of the Collective Conventions in rural Brazil specify the enforcement of a salary floor (minimum wage), the quantity, quality, and type of transportation provided for workers, the enforcement of 44 hour work weeks, and payment of overtime for extra hours. They also stipulate norms of health, occupational security, and workplace environment, including limited exposure to harmful chemicals and climatic extremes. These clauses seek to control or minimise risk of accidents and illnesses, including the case of temporary workers. To a lesser degree, but of growing importance, the conventions include clauses related to women's work (that is, provision for absences related to women's health or pregnancy). Clauses related to union representation are rare in the conventions. More recently, issues related to food provision are being dealt with, including lunch areas, areas to warm food, and provision of food or snacks (Marques 2008).

In the Açu-Mossoró region, only the Collective Agreements were originally held. These agreements were signed only by a few companies (two or three). However, CCTs have been in place since the year 2000, covering all companies located within the territory of the Rural Workers Union, that is, 8 municipalities.

### ***Working Conditions in Açu-Mossoró Region***

The working conditions detailed here are analysed through the lens of the ILO's Decent Work Agenda and its accompanying recommendations, specifically the Fundamental Rights of Work, Environment, Health, and Occupational Safety. The topics addressed include the right to freedom of worker's organisation (Conventions 87 and 151), the right to collective negotiation (Conventions 98 and 135), work conducted under coercion or punishment (Conventions 29 and 105), child labour (Conventions 138 and 182), workplace discrimination by gender, racial origin, religion, or public opinion (Conventions 100 and 111), and the adequacy of the workplace environment, health, and occupational safety of workers (Conventions 148, 155, 170, and 174). The structural variables of analysis are based on FAO/ILO (2013) and Apolinário (2013 and 2002).

Our analysis highlights the voices of the principal actors interviewed in the study: AGRÍCOLA FAMOSA Ltda,<sup>10</sup> the Cooperative of Fruit Producers of the Potiguar

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<sup>10</sup> AGRÍCOLA FAMOSA Ltda. was founded by Brazilian investors in 1995, and is located on the border between the states of Rio Grande do Norte and Ceará. It claims to be 'the largest producer of melons and watermelons in Brazil, and one of the largest in the world' (AGRÍCOLA FAMOSA website, 2016: 1). The company owns 20 farms over 20,000 hectares of land, and employs nearly 6,000 workers at peak periods.

Watershed (COOPYFRUTAS),<sup>11</sup> the Rural Workers' Union, and rural settlements.<sup>12</sup>

The emergence of the melon crop in Rio Grande do Norte is strongly linked to the setup of large corporate farms, with an average of 4,000 hectares of planted area. These companies were specialised in the melon crop oriented to the international market —Europe and the United States mainly. The main representatives of this consolidated production model were the companies Mossoró Agro Indústria S.A. (MAISA) and Fruticultura do Nordeste Ltda (FRUNORTE) (Nunes and Mello 2007).

These companies promoted melon production in the region. After the first half of the 1990s, the region had already a production of nearly 40 thousand tons of melon per year, growing more than eight times over two decades. Of all the production from the region, a substantial part is destined for the international market; the main destinations are: United Kingdom, Netherlands, and Spain (see Penha et al. in this volume).

In the beginning, the production of melon in the Açu-Mossoró region was labour-intensive. However, official statistics capture the formal work contracts only. As shown by Belik et al. (2017), there was a large mass of workers under informal contracts until the second half of the 1990s. Migrant workers were also not provided with housing. They slept unsheltered on farms. The meal was brought/made on behalf of the worker, and since they were not even provided with a kitchen; they prepared their meals on rudimentary devices. In addition, melon production posed risks to occupational health and safety; water provided to workers was stored in uncovered gallons exposed to the sun; and residues of pesticides applied to the melons crops; and safety equipment such as gloves and masks were not used.

From the second half of the 1990s, the international environment changed. On the one hand, developed countries lowered their tariffs on agricultural products and pledged to reduce agricultural subsidies within the framework of the World Trade Organization. On the other hand, phytosanitary standards were established for

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<sup>11</sup> COOPYFRUTAS is the largest producers/exporters' cooperative in the region, and was founded in 2005. COOPYFRUTAS owns five farms, across approximately 1,500 hectares of land, and employs 1,400 workers at peak periods.

<sup>12</sup> The settlement visited for this study is in the region of the now-defunct Mossoró Agroindustrial S/A (MAISA), a firm founded in 1968, which closed in 2001 and in 2003 saw its location converted into a rural settlement. According to INCRA (2012), this settlement is one of the largest in Brazil, spread across 19,701 hectares and possessing 10 agricultural settlements and 1,150 residences.

agricultural products that were to be met by the exporting countries (Burfisher 2000; Busch and Bain 2004; see Penha et al. in this volume).

Changes also occurred at the national level. The Brazilian debt crisis of the 1980s curtailed the possibilities of the Brazilian state to subsidise melon production in the region. Furthermore, in the late 1990s Brazilian authorities began to enforce the application of labour legislation in the rural areas. Before 1992 there was no freedom of association. The shift in policy made it easier for unions to negotiate agreements with local companies. Companies began to adopt new forms of employment relationship.

This set of transformations at the local and international level led to a deep restructuring; some companies left and new companies entered. Hence, the two largest companies of the 1990s (MAISA and FRUNORTE) became bankrupt in the first years of the 21st century. However, as Penha et al. (in this volume) and Belik et al. (2017) observed, the local dynamics of production were not affected, since many of the companies that emerged in the 2000s were established by former employees (managers and agronomists) of the two giants of the 1990s.

After its bankruptcy, the huge MAISA farm was transformed into an agrarian reform settlement. Landless farmers obtained access to the Brazilian National Land Credit Programme (PNCF),<sup>13</sup> designed by the Brazilian Federal Government. Through this operation, about 20 thousand hectares were purchased via PNCF and distributed in 10 rural villages and in this way producers without land could be settled. It is important to note that some of these settled farmers were already familiar with fruit production especially melon.

#### *Fundamental Worker's Rights*

AGRÍCOLA FAMOSA and COOPYFRUTAS reported that workers on their farms enjoy freedom to organise in line with the Collective Convention on Work (CCT). They also observed that the firms' relationships with the Union of Agricultural Workers are healthy. Both reported active participation in collective negotiations that occurred every September.

At AGRÍCOLA FAMOSA, working hours are from 07:00–11:00 and 13:00–17:00. During peak production periods, the working hour extends until 19:00, with two overtime hours paid (at time and a half rates). The firm reports that it offers incentives for meeting or exceeding targets (that is rewards for the highest number of boxes, quantity of cuts, or quantity of clean bathrooms). These incentives are

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<sup>13</sup> The National Land Credit Programme was created in 2003 with the objective of financing individual farmers or associations that bring together landless farmers to facilitate access to land through financing for land acquisition, as well as to finance the basic infrastructure necessary for settlers to use the land productively (Amon-Há, 2012).

paid in cash and represent between 20% and 30% of the fixed salary. In terms of remuneration, the firm reported that workers receive a fixed salary, plus overtime pay of up to R\$300.00 (US\$ 91).

In terms of benefits offered, FAMOSA highlights that it offers coffee, lunch, an afternoon snack, dinner, and nighttime snack (the last of which apply only for workers who sleep at company residences). It is also reported that at peak harvest times, the firm may maintain as many as 9,000 workers, generally on a 9-month individual contract, and between 6 and 7 thousand meals are served each day.

Only AGRÍCOLA FAMOSA possesses dining halls and housing on its farms. Other firms generally encourage their workers in bringing their own food or provide transportation to local restaurants within the rural settlements (with meal costs covered by the company). These firms give preference to local workers who do not require housing assistance. When salaried workers come from more distant regions, the firms cover their rent payments, water, and electricity in houses located near the settlements, or house the workers in group residences of approximately 5–10 people each.

The collective bargaining in fruit production is led by the Federation of Agricultural Workers in the State of Rio Grande do Norte (FETARN). It is an entity that includes the unions of the rural workers of the municipalities that compose the state of Rio Grande do Norte. Therefore, in collective bargaining, the unions of the municipalities which have companies that produce fruit join with the members of FETARN and take part with the workers in the negotiation process. The process works in the following way: first, the unions together with the workers raise the demands and form the negotiation agenda; then, they negotiate with the companies and define the collective agreement signed.

In terms of freedom of organisation and collective bargaining, the union staff generally emphasise on the significant differences between current realities and conditions during the initiation of economic activities in the 1990s, when only collective bargaining was possible and included few firms.

Union staff highlight that they have organised Collective Conventions on Labour (CCTs) since the early 2000s, which deal with salaried rural workers in fruit production activities in eight municipalities, as well as existing fruit production firms.

Reports indicate that negotiations with firm representatives generally last for four days, with extensions possible. During the negotiations, worker's unions count on the support of the Department of Inter-Syndicate Statistics and Socioeconomic Studies (DIEESE), the Federation of Agricultural Workers of the State of Rio

Grande do Norte (FETARN), and, to a lesser degree, the National Confederation of Agricultural Workers (CONTAG).

In terms of union autonomy, according to union workers, they are currently able to visit workplace locations, as long as they respect the agreements of the CCT. The union staff emphasises that in the 1990s, if they were seen on the premises of the former dominant MAISA, the police would immediately be called and the staff would be pursued. Clause 26 of the Collective Accord of 1990–1991 indicates that work relations were quite tense in that period. It deals with preventative measures against physical violence at the workplace and prohibits firm administrators, field managers, and related personnel from carrying firearms. In accordance with the terms of the CCT of 2015, union staff can visit work locations under the condition that the firm is informed of their intention 48 hours in advance.

As the outcome of their long struggle, the unions attest the numerous gains accrued, such as provision of transportation, food, television in dining areas, potable water, more permanent housing, and fuel assistance, and formal employment papers (*Carteira de Trabalho*) within 30 to 90 days. Nevertheless, though these gains are evident at AGRÍCOLA FAMOSA, the largest firm in the region; such improvements are only recent, even amongst the largest firms in the region.

In terms of remuneration, the union reports that in accordance with the collective bargaining agreement (CCT) 2015, workers in the fruit production industry receive a salary of R\$892.00 (US\$ 268), plus a bonus of R\$12.00 (US\$ 3.60). They call attention to the fact that during the 1990s, workers received their salary, plus a 10% bonus instead of just R\$12.00 (US\$ 3.60). Nevertheless, beginning from the Plano Real (1994 – Brazilian plan to control inflation), given that high inflation was no longer a problem, this percentage was progressively diminished to 6% of the salary, then 5%, and finally to the fixed R\$12.00 (US\$ 3.60) rate.

According to the CCT, some municipalities release paychecks every two weeks (Mossoró and Baraúna), paying 40% on day 20 of each month, and 60% on day five of the subsequent month, while others emit paychecks monthly. Payment may be made in cash, credit in a bank account, check, or magnetic card. The CCT 2015 prohibits that these payments be made within maintenance buildings, given that discounted salaries have been known to be emitted from these buildings.

Union representatives inform that workers living on company grounds often complain about the transportation services they depend on to visit their families, since this transportation, when available, is very expensive. These complaints suggest that worker's earnings left over after monthly expenses are few. The workers of melon production come from several nearby and distant regions

(sometimes about 160 km away) and many come from extremely poor living conditions. Reaffirming this, the union representatives noted that some salaried melon workers accepted the job not only because of the salary that they would receive, but often because of the meals that they would be provided with or a place where they could sleep, suggesting that the condition of these workers' families is likely to be even more precarious than the conditions offered by firms such as AGRÍCOLA FAMOSA.

Although in many respects working conditions have improved over the recent period, the union reports that the Ministry of Labour and Employment (MTE) no longer invites them to accompany firm inspections and provides no information about the findings. Previously union representatives have accompanied government officials as stipulated in the Collective Accord of 1990–1991 (Clause 19) and in the CCT 2015 (Field Research 2016).

The union noted that though there are several number of claims registered against the firms during each collective negotiation, sometimes reaching as many as 50, nevertheless, only two or three demands (4%–6% of the total) are addressed at the time of the closing of negotiations.

#### *Working Hours and Forced Labour*

In general, this study found no indications of forced labour, at least not of the form specified by the ILO. Nonetheless, it is possible to identify harsh labour conditions within the premises of AGRÍCOLA FAMOSA Ltda. and COOPYFRUTAS, given that the work routine established in the CCT requires labour during the hottest part of the day, in the semiarid north-east (13 hours). Furthermore, there is a trend towards extended working hours, either motivated by company incentive policies (meeting or exceeding quotas/goals) or owing to the nature of the harvest which requires extra labour beyond the standard daily hours. These overtime hours, while compensated beyond the normal pay rate, nonetheless prolong the working day and are not in line with the CCT. The CCT foresees a working week of 44 hours, and for the majority of firms the working day runs from 07:00–11:00 and from 13:00–17:00 from Monday through Friday, and from 07:00–11:00 on Saturday mornings. The CCT allows that this routine may be extended by up to one hour (between Monday and Thursday), in compensation for not working on Saturdays.

Trade union representatives confirm that private firms do not employ forced labour. When enquired about the intensification of labour to meet quotas, representatives responded that this does make the work routine more exhausting, though it was worse before.

Our field research did not register any indication of forced labour in the rural settlements, at least of the form defined by the ILO. Nonetheless, working days in



the rural occupations are quite long and likely to be significantly longer than the private firm average, which totals 8 hours per day. As an example, one settlement resident reported that he works in the field from 05:00–19:00, seven days a week, totalling 14 hours per day (Field Research 2016). Even while subtracting necessary stops for lunch, snacks, physiological necessities, and rest, this work routine would result in a quantity of hours significantly above the legal 44 hours per week specified for private companies.

In terms of child labour, some settlement residents reported that the whole family, including children, helps with farm activities during harvest. Residents reported that their children under age 16 are all enrolled in school, even during harvest season, yet children (boys) around age 10–12 were observed helping their parents with irrigation during field research visits. Trade union representatives confirm that no child labour is employed by private firms, but that children sometimes engage in work activities on the rural settlements.

#### *Environment, Health, and Occupational Safety*

AGRÍCOLA FAMOSA Ltda. reported that at the peak of the harvest, nearly 5,000 workers reside within the firm's premises. During off-peak periods, approximately 500 workers live or stay overnight at the premises. The farm that was visited during field research offered one dining facility for workers with a size of nearly 1,000m<sup>2</sup>, a tiled roof, and the construction was of concrete. There were large tables, seats, a television set, and the temperature was pleasant. The food served had a good smell and appearance.

The overnight housing facilities provided for workers who live within the firm's premises are concrete constructions, having tiled roofs, electricity connection, and cement floors. The furniture rests on the floor and measures approximately 1.5m in height. The door at the entrance is of a standard size, and a few small windows are located approximately 2m from the ground to ensure air circulation. Apart from the limited furniture, a few portable fans are provided. The building possesses an interior space with a series of columns, from which are hung dozens of hammocks where workers can sleep or rest. The mass of hammocks and workers residing in the dark interiors gives the impression of an unhealthy and depressing place, especially when compared with AGRÍCOLA FAMOSA's impressive resources.

The firm offers a medical clinic located alongside the housing facility. It also offers drinking stations (walls of approximately 2m in height and 3m in width with various faucets at a height of 1m from the ground). In this same area, the company operated a large water tank with a capacity of approximately 50,000l and at least a dozen thermos tanks which can be filled and brought to the fields. This is also considered a significant advance.

In relation to worker transportation, AGRÍCOLA FAMOSA operates between 10 and 15 buses to transport workers who do not sleep on the premises. Part of this transportation operation is outsourced, while part is operated from within the firm.

In the field, workers have access to concrete bathrooms, which appear to measure 1.5m by 1.5m and has a small elevated water tank. According to the firm, these bathrooms are spaced every 500m, and where it is not possible to construct them, the firm installs portable chemical toilets.

It was reported that various programmes exist with the object of complying with the Internal Commission for the Prevention of Accidents norms to reduce accidents and increase the use of Personal Protective Equipment. For severe medical cases (diarrhoea, fever), the firm provides ambulances and/or vehicles for transport.

The principal work-related accidents reported were strains, equipment handling injuries, snakebites, and bee stings. It was noted that the firm had not received any reports of injuries during the six days of the field visit, and that the record was 139 days without accidents. The nature of the most recent accident was not revealed. Workers entering the company receive job-specific training. Technicians involved in pesticide manipulation are graduates of the National Rural Training Service (SENAR), the National Industrial Training Service (SENAI), and/or receive internal training at FAMOSA.

COOPYFRUTAS reported that it meets all national and international norms on work environment, health, and occupational safety.

In general, working environment, health, and occupational safety considerations are precarious at the rural settlements visited for this study. Risks result from exhaustion caused by long working days, infrequent use of safety equipment provided by the employers, and lack of sufficient technical assistance or expertise. One factor that increases risk is the lack of audits or certifications that are regularly conducted on private farms by the Ministry of Labour.

Some farmers in the settlement reported that they had to leave work in melon production or became sick as a result of exposure to agro-toxins, harmful equipment, or back injuries resulting from long periods of bending over. They affirmed that these problems were common among salaried workers as well.

### *Progress towards Decent Work Conditions*

In general, union representatives affirm that workplace environments in recent times are much healthier than they were before, given that at the initiation of fruit production activities, conditions were very unhealthy and precarious. This was in reference to both conditions in general, and to AGRÍCOLA FAMOSA Ltda., in particular.

Representatives relate that previously workers slept on trees since there were no housing facilities, or when they did exist, they had no cement floors. Workers themselves had to buy and store their own food. It was also reported that in the past, saw-blades were left exposed; pesticides and herbicides were stored in unsafe conditions; workers suffered from dust and most of their injuries were primarily caused by unsafe equipment and inhalation of chemicals. In this era, the water that workers drank was not potable and was left exposed to high temperature and all types of contamination, including pesticides (Field Research 2016).

According to union representatives, topics related to working environment, health, and occupational safety, which were the most common complaints of workers, have been more or less resolved, including complaints about cramped housing space, unpaid leave, insufficient EPI, and late paychecks. Representatives add that workers' principal complaints currently focus on the reduction of leave granted by the firm against the doctor's note (reduced from 10 to 3 days), the alteration by the firm of the Illness Classification Code (CID), and the difficulties workers encounter in reaching a health clinic or seeing a doctor. The union representatives add that in conjunction with the MTE, they conducted a campaign throughout the settlements to educate producers on the correct use of herbicides and pesticides (Field Research 2016).

### ***Women's Work in Family Agriculture and Private Firms***

In traditional family agriculture, the male figure is responsible for activities outside the home. The home, in turn, is understood as 'the woman's place'.

Consequently, women's work in family agriculture is frequently unpaid, and is considered as 'help'. Contrary to men's efforts in the field, women's work at home and in the field goes mostly unrecognised as it appears to generate no economic or social value. In general, this ideology persists even as women's participation in out-of-home work continues to increase. Women are perceived as weaker and more often unqualified, thus compromising their labour value.

Field research conducted in rural settlements of the Mossoró-Baraúna region indicates that most women work in family agriculture throughout the entire year, seven days a week, and that they participate in all activities directly and indirectly

related to agriculture. Specific to melon production, women's labour is principally directed towards harvest-related tasks, a function which the sexual division of labour appears to have designated as being feminine. Nevertheless, at peak harvest periods both men and women work together in this supposedly 'feminine' activity, illustrating relative flexibility regarding gender and agricultural tasks.

During the visit to the rural settlements of the former MAISA property (see above), the important role played by women in local agricultural production became clear. Some women exercise relative autonomy in decisions regarding the settlement, which in itself represents a significant advance, considering that the settlement is a space historically marked by the absence of women's voices. Nonetheless, women appeared active in settlement associations, and even occupied roles within the settlement directorate.

Women's presence was also observed in the Support Programme for Environmental Conservation Green Scholarship, which was launched in 2011 and which grants, each trimester, a benefit of R\$300 (US\$ 91) to families in situations of extreme poverty and who live in areas landmarked as priority zones for environment conservation. Women are the principal beneficiaries of this programme, which enables them to gain a second source of income.

In an emblematic development, a group of women in a rural settlement in Baraúna organised themselves four years ago in order to open a 'bank' called the Banco Gold. This is a project that emerged from a settlement development programme supported by the World Bank that created a self-help group to generate a fund for joint-liability loans. The project currently includes seven women, who lend money among themselves at an interest rate of 2% per month. Through this initiative, the women hope to invest in their small-scale production endeavours and support their families. Till date, there are no cases of abuse or default at the bank. It was also through the initiative of this group that it was possible to construct a small regional chapel which receives weekly visits from a priest.

It is important to highlight women's collaboration in activities that are not tied directly to agriculture. Some women note that their non-agricultural incomes are important to maintain household finances and to guarantee the security of their investments in agriculture, which are riskier due to diverse factors (climate, price variations, etc.).

In the MAISA settlement, the research team interviewed a female farmer and civil servant at the regional Health Clinic. This woman also founded the Agricultural Association in the local agricultural settlement in which she resided, and was responsible for its day-to-day functioning. She produced melons and worked three shifts per week in the Health Clinic. She emphasised that women in the region do

not work solely in agriculture, but rather possess varied occupations, including providing beauty services, opening up small supermarkets and clothing shops, etc. She reported that a significant portion of the directorate of the settlement association was made up of women.

The distribution of men and women within AGRÍCOLA FAMOSA Ltda. is as follows. In melon cultivation, 90% workers are men and 10% are women. In passion fruit cultivation, the distribution is reversed: 90% are female. These patterns reportedly result from the different fragilities of the fruits in question, which demand varying degrees of delicateness in handling (Field Research 2016). Thus, it appears that the presence of women varies according to the type of fruit in production and the type of activity being undertaken. As one additional example, we note that while just 10% of the field workers as a whole are female, approximately 40% workers in the processing roles (biological control and packaging) are women.

The participation of women within AGRÍCOLA FAMOSA is also concentrated in the packing house, where activities related to washing, selection, and packaging occur. At this stage of fruit processing, men and women appear to divide the space evenly, as it appeared when the research team visited the facility.

#### *Challenges Facing Women: Violence and Sexual Harassment*

The challenges identified here relate to the business environment and rural settlements (production, community, and family) without losing sight of broader macrosocial factors impacting women and their livelihoods in the study site.

Regarding these broader factors, the Rio Grande do Norte Observatory of Violence (2016) report that Rio Grande do Norte is one of the Brazilian states with the highest percentage of women killed by femicide in Brazil. This fact is even more alarming when taken in light of the United Nations' ranking of Brazil as the country with the fifth highest rate of femicide in the world (ONUBR 2016).

The federal government tried to address this issue by setting up the Mobile Units Programme. Its success was limited because many rural women remained unable to access the services of the mobile units due to threats from their partners. Some women who visited the buses just to get to know of the services inadvertently threw suspicion upon their husbands just by being seen there. The trade union representatives also affirmed that coverage by Ministry delegations throughout the state is rare and incomplete, and that many bodies of women delegates do not exist. As a consequence, attendance to women's needs is quite fragile in the food-producing communities, where deaths of women by mutilation were recently verified (in the settlements). In the case of more daily abuses, delegates sometimes declined to emit a Bulletin of Occurrence (BO – complaint report) when requested

by the victim. Delegates declined the requests because they alleged that if the victims' husbands were arrested, 'the women would ask for alms' (Field Research 2016). In 2016, Brazil's interim president, Michel Temer, discontinued the Mobile Units Programme.

### *Challenges Faced by Employed Women*

The worker's union reports that women are generally more responsible than men and show up more reliably to work. The interviewed women noted that when they participate in the harvest, they are often acting to cover the 'absence of a few men'. Nevertheless, women generally do not receive promotions within the private melon production firms, and when they are promoted, it is typically to the position of inspector. Few women assume management roles or even assistant roles. The women interviewed did not know any women in management roles (Field Research 2016).

According to information provided by the worker's union, women in the past submitted many complaints of sexual assault. Currently, however, these complaints have ceased. The union believes that this decline in complaints is likely the result of the frequent audits and certifications to which the firms are submitted. Nevertheless, women still reported that attractive women enjoyed higher likelihoods of promotion. The union staff reported that older women are more likely to be fired and that younger women often suffer from harassment, yet may never file a complaint because they are unable to prove the occurrence of this harassment. Other women avoid filing complaints because they fear that relatives working in the same firms may be prejudiced, because they are married and do not want to put their marriages at risk, or because they fear they would suffer criticism if they complain.

In further observations regarding discrimination, union leaders report that three years ago, in Baraúna, women who had not undergone permanent female sterilisation procedures were denied employment. Those who had entered into contracts needed to prove that they were sterilised. The reversal of that requirement was a significant victory in the union struggle, as affirmed by the leaders.

In terms of women's health at private firms, it was reported that access to company health care services is difficult. When employees do have access, the diagnoses they receive are not always reliable, 'since company doctors only release a worker when he's dead' (Field Research 2016). It was also reported that company doctors are not always on duty. In fact, they often only come to the clinic once a week, or only receive patients in neighbouring cities. When they do accept patients at the company location, they only accept accident victims, neglecting victims suffering from ailments. Furthermore, owing to the fear that presenting more than two

medical release documents will result in firing, many workers (male and female) work while ill. They feel that if they miss work they could be fired or have their salaries reduced.

According to women union members, one major challenge for employed women in fruit production is the lack of day-care facilities. This has been a recurrent topic at the Collective Convention on Work (CCT) ever since the 1st Collective Accord in 1990–1991. Despite this, there has been no progress. A major problem for employed women is that they are also heads of families, and depend on their jobs to provide the families' primary income.

Additionally, nearly all fruit-producing firms provide no food to workers, with the exception of some companies as AGRÍCOLA FAMOSA and few others. As a consequence, employed women not only have to prepare food for their families, but also wake up earlier to prepare their own food for the working day. Once at work, they have to negotiate with the firm to warm the food that they have brought.

Again, according to female union members, the employed woman's working day is even longer than that of self-employed female field workers, since field workers have more flexibility to come and go, or, if they fall ill, to stay at home. In contrast, employed workers on top of the duties to the firm, must take care of their family, even during formal leisure hours (that is, Sunday). It is thus common that employed female workers spend all of their weekend cleaning the house and washing clothes, among other tasks. For all of these reasons, many employed women never manage to participate in union activities. Another challenge faced by employed women is that many are heads of their family and have no support to help them pay for rent, while women in the rural settlements reside in housing offered by the National Institute for Settlement and Agrarian Reform (INCRA).

#### *Challenges Faced by Women in Rural Settlements*

One of the principal challenges faced by women in rural settlements is the fact that almost all financial transactions are issued only in the man's name, making men the owners of credit. Thus, women are unable to manage their family finances, which impede them in the process of gaining autonomy of decision-making on issues such as irrigation, production, administration, purchases, etc. As an example, interviewees stated that very few women were managing businesses (Field Research 2016).

In terms of credit, female union members complained that besides women facing more cumbersome bureaucratic hurdles than men to obtain credit; the Declaration of Aptitude of Pronaf is one of the most accessed government rural credit programmes. Thus, when many women go to the bank they are informed that their husbands have already registered for the credit programme. They argue that part of

the credit should be accessible only to women, which would also help to reduce conflicts at home over access to resources.

Equally challenging is the complete inadequacy and precarity of health programmes oriented towards rural women. It is reported that women's health services in the rural settlements of Baraúna, Rio Grande do Norte, operate only once every 15 days, and sometimes once every 30 days if there is a lack of nurses. Furthermore, births and check-ups are not even offered in the municipal seat of Baraúna, but only in the neighbouring city of Mossoró. All these factors not only make finding jobs more difficult for local women (since they must leave home to seek medical care), but also make it more arduous to complete the traditional women's triple shift: at the company or in the field, at home, and in childcare. While juggling all of these responsibilities, many women report that their children are left without supervision.

Female union members relate that some government officials direct women to doctors located in distant municipalities. As a result, women not only have to leave the rural area, but also have to go beyond the municipal seat to undergo medical examinations or consultations. These factors dramatically increase the time required to access health care. The non-existence of effective community health facilities result in many shocking cases. One female field worker swallowed an insect while attempting to unplug a hose. She complained for three days about having an object in her throat, and later died due to the slow pace of medical attention and diagnosis (Field Research 2016).

Female workers in the rural settlements report numerous work-related illnesses, especially in melon production. They inform that they left this activity as a result of the frequent illness and harm that resulted from contact with the chemicals that were applied weekly. Female workers affirmed that the number of individuals with cancer in the field had elevated, which was not surprising to them given that 'they wake up and go to bed breathing agro-toxins'. Lung cancer is reported to be the most common form of cancer in the region (Field Research 2016). Women also believe that they are more susceptible to cancer and have a greater chance of becoming ill after contact with chemicals. All of these factors serve to increase the number of women on paid leave through the National Social Security Institute (INSS) or with medical notices, which in turn reduces the number of women being contracted by firms.

In terms of discrimination, female workers in rural settlements relate that younger women are more often harassed, and that all women, owing to their gender, had to listen to insults as if they were compliments. They add that many women who are morally and psychologically harassed at home (that is, verbal aggression) see this as normal, and that they believe only physical violence constitutes abuse. One



result of this lack of perception of violence is that many women come to accept sexism. Women cite examples that some husbands pay for other women to work in the fields, while their own wives would like to receive the earnings from such work. Interviewed women state that to change the situation, they need to possess resources in their own names, technical, economic, and management support for their production efforts, and social programmes which include women and youth effectively. They admit that they remain dependent on projects and programmes.

Another challenge mentioned by female union members is that many women in the region do not possess basic citizenship documents (that is, Identify Card, CPF) because they can't leave their homes due to housework, such as preparing meals and taking care of children (Field Research 2016). It is estimated that 50% women lack essential documents. Another challenge, which is also a demand, refers to effective access to land. Only recently, did INCRA provide land concessions through Beneficiary Relations (RB) in the name of both husband and wife, instead of only in the name of the husband. According to interviewees, women are now capable of owning land. Currently, in the case of divorce or separation, the woman retains some property rights. Until recently, a woman leaving her husband had to leave the land as well.

### ***Final Considerations***

It is evident that the melon-producing region in Açu-Mossoró, Rio Grande do Norte, is a generator of employment opportunities, including formal employment. This is especially the case during melon harvest periods, despite seasonal variation and drought conditions of this semiarid region.

For rural settlements, the reality is that poverty is omnipresent, and technical support, credit, commercial opportunities, infrastructure, and management are lacking. These limitations compound on the lack of basic services such as health, education, transportation, and security. In sum, these challenges make it difficult for residents of rural settlements to lead dignified lives. In this context, conventional salaried employment appears to be the best and safest route to inclusion in the melon-producing region. Ultimately, however, the difficulties faced by settlement residents in production and in life seem to derive more from the lack of external support and the harshness of the environment than from any alleged inefficiencies in small family farming.

Despite this adversity, the enterprising spirit of some rural settlement residents, aided by non-farm incomes (pensions, salaries, public service, commerce, etc.) allows some producers to enjoy a level of material comfort which, while far from the norm, certainly serves as an example and stimulus for other residents. On top of these individual actions, some entirely new forms of cooperation have taken

shape based on intimate social connections between residents, with Banco Gold as a notable example.

Residents of rural settlements reported proudly that some of their children had managed to move up in society, and have received college education (agronomists, lawyers), living in other parts of the country, which undoubtedly indicates progress. Residents also demonstrated the capacity for individual and collective learning and decision-making skills related to production decisions (what to plant, how to plant, how much to plant, etc.).

In terms of decent work, this study indicates that large private melon-producing firms, when compared with rural settlements, are better able to offer conditions of work environment, health, and occupational safety that are convergent with norms recognised by the ILO, as well as those specified in international certifications. Large private firms are also better at avoiding child labour and forced labour.

Considering the five principal demands of the Salary Campaign of 2015, this study concludes that AGRÍCOLA FAMOSA, the largest firm in the region, is an exception to the rule, given that, in 2016, no other firm provided a dining hall or housing for employees.

In all, reports were received of drastic work intensification during harvest (14 hours per day), serious illnesses resulting from exposure to pesticides and herbicides, physically demanding working positions, excessive dust, denial of relevant Ministry of Labour audit information to worker's unions, limited numbers of worker's complaints accepted by firms during collective negotiations (only two or three complaints out of a total of 50 submitted), and misleading improvements undertaken by firms at the time of audits.

Examining conditions for women through the lens of ILO/FAO norms, significant workplace failings were observed. It is clear that social protection and security is severely lacking, as is key infrastructure, such as health services. On top of this, women are subjected to a work environment in which they are denied leadership positions, and family environments marked by sexual divisions of labour that penalise women, most of all employed women, who are not even able to rest on Sundays. The path to decent work for women, as conceived by the ILO/FAO, thus appears long and arduous.

While challenges facing women are very real, women have nonetheless made many advances in their general condition and in melon production in particular. Women report that they are now able to enter banks, something which before was strongly discouraged. The arrival of the Mobile Unit buses to register and process reports of violence at the workplace; inclusion of women in legal land deeds from INCRA; implementation of Documentation Campaigns to stimulate acquisition of

basic documentation and citizenship; and employment conditional on undergoing sterilisation—all mark significant advances.

Finally, agricultural worker's representative organisations report increasing participation by women in leadership roles. With the help of quotas, women now hold 30% of the positions in local directorates. This marks an important milestone because women's commissions are responsible for the advocacy of worker's fundamental demands, such as women's health at the workplace, maternal mortality, violence, production and marketing (that is, public purchases), and job training.

Despite clear improvements from earlier conditions in melon production, all of these present problems indicate the precarious nature of work in this industry, even for salaried workers. Thus, decent work, as defined by the ILO and FAO, has yet to be realised in the Açu-Mossoró melon region. In comparison with neighbouring regions in Brazil's semiarid north-east, Açu-Mossoró's mix of large and medium agricultural firms as well as family and settlement farms, however, offers more opportunities and, therefore, attracts workers from near and far. Thus, much remains to be done to improve the working and living conditions of Brazil's north-eastern rural population.

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### 3. Women in Pakistan's Agriculture

Saira Akhtar

With a population of more than 195 million, Pakistan's economy is essentially dependent on agriculture, with 42.3% of its total labour force being employed in agriculture (Govt. of Pakistan, 2016). In agricultural households, women work in their own or in other farms after attending to the household chores. Yet, officially their contributions are not recognised as a labour force. The government publishes two measurements of labour force participation. The Crude Activity Rate for women and men in rural areas is 20.2% and 47.4% respectively whereas the Refined Activity Rate for women and men stands at 28.8% and 69% respectively (Govt. of Pakistan, 2016). This statistical omission of women's labour in agriculture is deliberate; it depicts the government's refusal to recognise the valuable contribution women's labour to the economy. Such an attitude, in turn, has led to policies that neglect women as an important human resource to the detriment of the overall economy.

This chapter emphasises on the contribution of women towards agriculture as well as their working conditions. The data was collected by a team<sup>14</sup> using a triangular approach. While qualitative data was gathered from eight focused group discussions in six sites, quantitative data was amassed through a cooperative-enquiry approach undertaking 150 questionnaire-based in-depth interviews. The analysis was done using Statistical Package for Social Sciences programme on computer; however, for Focused Group Discussions (FGD), a manual content analysis was undertaken. The respondents included women involved in vegetable farming in the districts Faisalabad and Sargodha; they worked either in their own fields or as waged labourers in other farms. It was difficult to collect data as owners and contractors at the commercial farms were reluctant to allow exclusive interviews with the labourers and was finally possible only when some women managers (in one instance also a farm owner's daughter) intervened and assured that the data was being collected for research work undertaken by government agents. The Punjab Rural Support Programme office also helped in this matter.

Our study depicted that women were much involved in farming, especially growing of vegetables; in some areas, they were also aware of tunnel and shed farming, sprinkler and drip irrigation. As they mostly worked as labourers, they did not have their own tunnels or sheds. Family farming was common but the women also worked in bigger, corporate farms. Farm visits during the survey revealed that they suffered from decent work deficit. At these farms wage rates were discriminated; women had to work for more working hours than men. Women

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<sup>14</sup> Dr. Saira Akhtar, Dr. Abdul Ghafoor, Asma Zafar, Muhammad Zeeshan

could get jobs only through a contractor, who, ensuring their employment, took a share of their wages.

Women had no role in marketing a product. They were mostly not allowed to bring their children with them and even had to forsake their wages if they did so. In most cases, a contractor did not provide a woman work if her children were dependent upon her. In this research, a farm could be located where women could take their children but there were no proper arrangements for the children, who played and moved around the mothers, exposing themselves to scorching sunlight and hazardous pesticides. In another farm, the farm owner provided a shaded place for children, as well as water and first aid facilities. However, the children were left mostly unattended; dangerous insects could harm them. Men were only involved in water-related issues and land preparations, such as bed making, ploughing, etc. Their work was better paid and their working days were shorter than their female teammates. The facilities offered to women were inadequate; for instance, the transportation facility was an open tractor-driven trolley, with no seats to sit on.

The chapter begins with a brief overview of the similarities and differences of the conditions of women in agriculture in the world and in Pakistan, followed by a description of Pakistani women's involvement in different agricultural spheres, off-farm, and domestic activities, the challenges and issues they face, and ends with policy suggestions for achieving decent work targets for women.

### ***Women in Agriculture: Developing Countries Scenario***

Globalisation and liberalisation are directly and indirectly affecting agriculture in the developing countries, with production system and household production relations undergoing constant changes. Meagre access to resources and weak participation in decision making are some of the obstacles in capacity building of women and improvement of their contribution towards agricultural work. In response to globalisation, skilled, well-informed, progressive and innovative farmers need to participate in agricultural development (Dawn, 2003).

In most developing countries, socially and culturally, women's work is not recognised and valued, especially in agro-based economies. Gender segregated data is not available; hence, prevalent policies do not reflect the role of women in agriculture. Such initiatives are not responsive to the needs and requirements of women' labour, thereby women have no legal protection, or provision of labour rights in agriculture. Women, being uneducated and less informed, lack awareness about their rights. Owing to poverty, their access to good quality education, knowledge and training is limited. Due to social taboos and patriarchal dominance, their work evokes much resistance in the community (Dawn, 2003).

Women face many constraints as both subsistence and waged labourers (Doss, 2002; Apusigah, 2009; Britwum, 2009). Literature reveals how gendered production relations underpin the access to and control over productive resources, farm activities, number of crops grown as well as the social positioning of each gender. Equity is questionable in societies where wages are differentiated on the basis of gender. Mostly females engaged in traditional sectors are not offered high paid jobs. So in most of the developing countries, especially in Asian economies, the most commonly available employment is in the agriculture sector (Briones and Felipe, 2013; Reardon and Timmer, 2014).

In highly gendered political economies of rural agricultural production systems in Asia, there is still a perception that ‘women are not farmers’ which has excluded women in agricultural research and related activities. In spite of the fact that women are making essential contributions to the agriculture and rural economies in all developing countries, their contribution to food production and rural economies generally remain undervalued if not invisible. This bears significant effects on farming efficiency, profits, and cost of production, which also needs to be investigated in detail (Smith and Haddad, 1999).

Agriculture is underperforming because most farmers, being women, do not have equal access to resources and opportunities. Different research studies have proven that division of labour and gender relations depend on socioeconomic status, cultural norms, degree of mechanisation, market orientation (subsistence and commercialised), and availability of male labour. Rural planners need to think about how to face the challenges of globalisation and the indirect effects of social factors on economic processes. Agricultural growth demands expensive infrastructure, which is not easily affordable for farmers from developing countries. This necessitates the need to explore ways and means through which growth in cash crops and subsistence farming can be combined without harming each other. This is required to balance and safeguard the interests of small farmers/marginalised communities with special focus on female participants (Horrell et al., 2008). For improving women’s productivity, there is need to design the interventions innovatively by recognising the role of women as the agricultural producer (Roudi-Fahimi and Valentine, 2003).

### ***Women in Agriculture: Pakistan’s Situation***

Pakistan is a country with diverse culture, attitudes, languages, practices, and traditions, which vary from region to region. Despite several commonalities, the role and obligations of women are generally defined by the set traditional values of geographic areas in which they reside. Due to the rigid cultural patriarchal system



of rural areas, women are considered as socially and economically dependent on men.

Furthermore, the status of Pakistani women is not homogenous across the regions because of the interconnection of gender with other exclusion factors prevailing in society. Women residing in urban areas or in the villages near city, where people are cosmopolitan, the situation is different as they possess some decision-making power. Lack of education and weak position in decision making are some of the factors responsible for the miseries of rural women (Bhattacharya, 2014).

Owing to socio-economic discriminations, cultural and political developments, and the impact of tribal, feudal, and capitalist social formations the status of women has been diverse, cut across various classes, regions, and rural/urban divide. Women farmers across Pakistan, hence, face different kinds of constraints such as lack of access to resources and being disallowed from making decisions, undergo discrimination in wage rates, more working hours, decent work deficit, harassment, mobility problems, etc. (Paracha, 2015). Despite their significant socioeconomic contributions as mothers, household labourers, social and production workers, their work remain undervalued. Dominated by men in social relations and the economic domain, they remain dependent (Critelli, 2010).

Women are actively engaged as labourers in growing crops like wheat, cotton, rice, maize, sugarcane, vegetables, fruits, etc. They are involved in most activities—from seeding to harvesting, preparation of the land for crops, peeling, baling, harvesting, applying pesticides, chemicals, fertilizer, etc. In case of watering, however, for lands which are irrigated by canal water they have minor roles. Also, they play the least role in marketing of crops (SOFA Team and Doss, 2011). The farm work of women is usually ignored by men and is not counted as an economic activity. They are generally taken as family workers, and this tradition has become an inhibiting factor for mental grooming and social growth of women in rural communities (Samee et al., 2015).

In livestock care and management, both men and women are involved. Women's participation in livestock development is significant and varies from region to region according to socio-economic, agro-ecological, ethnic, and religious factors. Women are responsible for 60%–80% feeding and milking of cattle. In some areas, livestock management has always been considered as the sole responsibility of women. These responsibilities include cutting fodder, cleaning sheds, milking dairy animals, processing animal products/value addition, and looking after the health of herds. Watering to livestock is also performed by 69% females (Arshad et al., 2010). In general, women have no say in selling and buying/production of animals in the rural context of Pakistan due to their lack of education and control over resources, limited mobility, low level of awareness of their rights, lack of

credit facility from the government. Most of these activities are not taken as 'economically active employment' in national accounts but still are essential for the well-being of rural households (Amin et al., 2010).

In rural economy, poultry farming is one of the major sources of earning and nutrition. Almost solely involved in household poultry management, women apply their own traditional methods of brooding, breeding, and management, mostly learned from the elders of the family. Major tasks performed by women in poultry farming are feeding, treating sick birds, breeding, etc. Commercial poultry farming in rural areas is handled by males and women are involved as workers. In such cases, women are involved in cleaning sheds or caring poultry birds. Due to long working hours, generally, owners prefer to keep male workers at poultry farms. However, there is a tradition of hiring a whole family as workers at farms; in such cases women work actively with men (Samee et al., 2015).

In Pakistan, women have limited role in forestry as they only collect medicinal herbs for treatment of family ailments and firewood for household use. Playing an important role in the social or community forestry, women are involved in nursery raising for agro-forestry, taking care of plots of trees in the community and making handicrafts from forest products (Evans, 2015).<sup>15</sup> The diverse horticulture of Pakistan provides opportunity to many people (especially women) for raising fruit orchards and vegetable fields and making value-added products. The Punjab province dominates in the production of fruits and vegetables. Women have a substantial role in all the steps and processes of fruit production, i.e., seed growing, watering, planting of saplings with hands, fruit collection from ground, drying and storing them. Traditionally, men were responsible for arranging plant seedling, irrigation, pruning, grafting, climbing trees, plucking and shaking of ripe fruits; transportation and marketing the same. In case of vegetables, women have been actively involved as field workers, performing tasks like raising a nursery, transplanting, picking vegetables, providing pesticides and fertilizers, etc. In some cases, they have been active sellers of vegetables in weekend markets like *Jumma* and *Itwar* bazaars. They are also involved in some sort of value addition activities, making jams, pickles, squashes at home and then selling them in local markets. Another activity which is on promotion in Pakistan is the sale of peeled vegetables like garlic, peas, beans, etc., and this is mostly performed by women (Akhtar, 2015).

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<sup>15</sup> See: <http://www.agriinfo.in/default.aspx?page=topic&superid=2&topicid=1684>

## **Challenges Faced by Women in Agriculture**

Most of the initiatives towards agricultural development as well as the betterment of working conditions of female agricultural workers and farmers in Pakistan are sponsored by vested interests; hence they are seldom need-based projects (Khanum, 2016). While some of these programmes proclaim gender sensitivity, their implementation does not effectively address women's conditions. This is also true for programmes initiated by the International Fund for Agricultural Development (IFAD) or those undertaken by Pakistan Agricultural Research Council (PARC) like the Olive Cultivation-Bringing Peace to FATA or Solar Energy to Exploit Horticulture Potential of Rain-Fed and Dry Regions.<sup>16</sup> They fail in upgrading women's livelihood because of non-practical policies, little regulation and commitment, unsatisfactory checks and balances, and no clear understanding of gender needs. The programmes offering credit to women are inadequately designed as they insist on guarantee requirements like personal and asset guarantees, pushing women again to dependent state of dependency. The evaluation of the staff is based upon maximum disbursement, so credit disbursement is not properly scrutinised and utilisation goes unmonitored, quantity supersedes quality. Mostly women take loan for their male family members, or in some cases, the taken credit is not allowed to be utilised independently.

With regard to **decent work deficit**, the overall condition of labour has not been satisfactory, thereby affecting the nation's GDP and GNP. The pillars of decent work agenda are (1) employment, (2) workers' rights, (3) social protection, and (4) social dialogue. In Pakistan, agricultural female labourers have no employment security; rights are a dream for them; and social protection and social dialogue are things that they have never heard about. A few employers while trying to compete with their business rivals and lure the female agricultural workers provide small benefits like lunch facilities; however, they would make them work for seven days a week.

In rural areas, women face acute shortage of proper **health facilities**. They suffer from malnutrition, often have to perform hard physical tasks, and in the process, overutilise their body potential. Such a situation exposes them to different stresses and diseases. This situation aggravates in the absence of a proper balanced diet. Various studies show that only a small proportion of the total family expenditure on health is spent on women (Samee et al., 2015).

Though **education** is universally recognised as an important tool for human resources improvement, in many parts of rural Pakistan, families still prefer to educate their sons. They are not interested in girls' education rather keen in their

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<sup>16</sup> see <http://www.parc.gov.pk/index.php/ur>

early marriage. According to them, primary education is considered to be adequate education for girls. Non-availability of educational institutions in the neighbourhood, lack of transport facilities, and high educational expenses are also some other reasons for the low level of female education in rural areas (Hill and Vigneri, 2009).

**Skilled female labour** is scarce in Pakistan's agriculture. It is difficult to enhance women's skills through training because their participation rate is low. Questions about — where the training would be organised; who would be imparting the training; how long would the sessions be; and would children be allowed at the training or need to be left at home — need to be addressed. Chances of attending the training sessions would be more if they are held near their homes. Also families seem to be more hesitant to allow women to attend the training lessons if there are male trainers. Again, women find it difficult to participate in such programmes if they have a higher number of kids. So, such issues need to be addressed by organisers before planning training sessions for the rural female workers (Batool and Nosheen, 2015).

Samee et al. (2015) criticised the fact that training on the use of latest technology and other means of productivity enhancement have always been provided to men; women are neglected or they get secondary knowledge of it. Further, as most women are engaged as farm workers, such technical knowledge is not put much utilised. However, a certain degree of training and awareness is needed for them to inculcate certain business skills which can make their livelihood more secure in agriculture.

As discussed earlier, two main factors are responsible for the low level of women's participation in skill development—cultural and social. Trainings are not designed keeping in view the female group or a mixed group. Women's contributions consciously and unconsciously go unacknowledged and their terms of payment are discriminated by delayed salaries, harassment issues, and unguaranteed job duration. Mostly such women are exposed to hazardous work too like spraying of pesticides and application of fertilisers. Also, most of the times, they work without any written agreement (UIL, 2013).

Land, capital, inputs, and water as **productive resources** are far from the reach of women. Men hold the rights over land. Even if women own agricultural land, it is rare that they cultivate it. Their husbands or brothers or other male members usually handle the land. With increasing awareness regarding Islamic principles and rules of the state, such garbled traditions are getting weak and policy makers are trying to enhance access of such female workers to reliable and meaningful resources (Aslam et al., 2012). Basic information and data are required to draw some inferences about ground realities which shape the policy formulation of these

sectors. Unfortunately, the required **data** is not available in the desired format, especially on gender differences. In the recent past, many initiatives have been taken to raise women's participation rate even in the national assembly. Unfortunately, similar initiatives have been lacking in the agriculture sector (Yasmeen, 2011).

**Culture** seems to be stronger than religion in rural areas. In many cultural issues, traditional practices dominate Islamic provisions. Social norms do not allow women to raise voice for their rights and against exploitation. So, they are trained in a way which sets their behaviour as being recipients, who would need to ignore hardships and cultural abnormalities (Maslak and Singhal, 2008). Poor health conditions, low literacy rate and awareness rate, social and cultural taboos make it hard to ensure equal rights for women in agriculture. Rural women in Pakistan are overburdened by **household management and farm operations** as compared to their men counterparts. Women's involvement with household affairs is considered as their foremost responsibility not a contribution (Khan, 2015). Though a woman's work is never recognised, she is seldom allowed any leisure time. However men remain socially active with surrounding inhabitant farmers, visit local markets, attend meetings in the towns, and indulges in wasteful expenses by pursuing in activities like smoking, drugs, gambling, etc. Though women in urban areas are in a better position than their rural counterparts, unless equality in all forms is ensured, it is hard to expect any development in women related issues and this is true for all developing countries and regions (Jamali and Khowaja, 2015).

Rural women have limited **access to credit** due to lack of collaterals. The financial institutions need to change their focus and policies by undertaking financial ventures in the agriculture sector. Women are also engaged in various enterprises like embroidery, preparation of processed food (jam, jelly, tomato ketchup etc.), but have restricted access to the market due to limited mobility. All these issues keep them engaged in family affairs, thrusting them to a state of constant miseries and financial dependence (Samee et al., 2015).

An important element of decent work is **occupational health and safety** for the workers, which is absent in the agriculture sector, especially for female workers. Wages and rights of the labour are other important components of decent work which is discriminated for females as they have almost no rights, no policy, no say, etc. On an overall basis, decent work means exercising rules, regulations, traditions, and norms according to ethics and labour laws.

Pakistan's national GDP depends on agriculture and this sector heavily depends on the performance of its workers where the role of women is crucial. Landowners, many a time, pay women wages in kind and not in cash. In some rural places, a feudal system is still prevalent and women labourer/ families remain absolutely

dependent on the owners. It is almost impossible to get this class engaged in any sort of social development or capacity building. Discriminated access to decent work is not only based on gender but also on factors like education, ethnicity, and age. The government of Pakistan acknowledges that absence of land reforms and land tenure systems and unavailability of social justice have been creating problems (Govt. of Pakistan, 2012).

### ***Organising Women in Agriculture—Some Policy Recommendations***

One of the most difficult tasks is to confront ongoing traditions and social values. This is even harder to realise in rural communities where rate of acceptance to any new idea is relatively low. Having looked into the real issue and challenges, some policy recommendations are presented for the promotion of rural female workers in agriculture:

1. Basic facilities like health, education, skill development, etc., and at least one elementary health unit with female staff should be provided to each village. Education up to higher secondary school certificate should be made compulsory for every female. The government should announce incentives for promoting female education like fee waivers, scholarships, etc. Such interventions will enable them to perform their work more efficiently.
2. Though there are provisions in the existing rules and regulations offering women ownership rights on productive resources like land, the implementation is rather poor. Violations in the execution of such regulations should be handled strictly. The system of justice should also be paced up.
3. In order to encourage female contributors in agriculture, their access to institutional support should also be ensured by granting provisions of credit, extension services, market for their produce, etc. Concessional offers to female applicants for loans on priority basis and technical guidance should be made.
4. Social safety nets through on job placement of good business practices are to be made mandatory for female workers. Discrimination in nature of work should strictly be prohibited. A compulsory written work agreement will be a good start in this direction. A minimum wage rate of Rs. 15,000 per month should be announced for rural female labourers.
5. Some success and exemplary case studies of women's success in agriculture should be made part of primary education so that the younger generations are sensitised about the issue and show reverence towards the contribution

made by female workers. Documentaries and TV programmes would also be helpful.

6. The right and appropriate use of true traditional values in rural Pakistan can only be ensured by following Islamic principles. Islamic leaders should be motivated to speak on equal rights for women quoting the examples of Holy Prophet (PBUH).

## **Conclusion**

This chapter showcases women's participation in Pakistan's agriculture sector and the meagre returns they earn despite the immense efforts they undertake working in unfavourable and the harsh conditions. Quite similar to other developing countries, women have limited access to productive resources, their contribution goes mostly unacknowledged, and the workload is multifaceted. The basic facilities are frequently denied; discrimination is rampant; and little efforts are made to develop their skills. Many slogans for raising women rights are heard but seldom are those found to be effective. Unless work contributed by female workers is duly acknowledged, no development agenda can be realised at the macro level. In countries like Pakistan where traditional and social taboos are embedded in the overall social attitude, it is hard to sensitise communities for equal gender rights. Though social change is a slow and difficult process, certain meaningful measures and their consistency can change the status quo. Policy makers need to seriously think about the practical realisation of their goals in terms of ensuring good education, health benefits, work conditions, and equal rights for female workers.

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## **4. The Persistent Decent Work Deficit for Women in the Cashew Industry of Goa and Maharashtra**

Varsha Ayyar and Sasmita Palo

Cashew processing is an old industry with its origins in Goa. Post independence, Kerala became a leading production site. It is suggested that due to militant unionism resulting in high wages, Kerala witnessed a gradual decline in processing (Menon 1990). The production shifted mainly north to Goa and especially to Maharashtra, where since the early 1990s (i.e. post liberalisation) cashew cultivation and processing have exponentially grown. In 2016, cashew production reached 235 million tonne, whereas Kerala produced only 80 million tonne cashew nuts (Elakkiya et al., 2017: 1821). While Kerala's cashew industry has received generous academic and policy attention (Kanan 1978; Thresia 2007; Lindberg 2001a, 2001b), Goa and Maharashtra have received less attention from academics, trade unions, and policymakers.

This study undertaken in cashew nut factories in Maharashtra and Goa is one of the first attempts to examine cashew clusters and factories, working conditions—the precariousness and decent work conditions in these two states. This study also focuses on mapping cashew supply chain and underpinning the labour condition in these under-researched non-southern terrains of India—Goa and Maharashtra. The research used socio-anthropological research methods, namely, observation and in-depth interviews with different stakeholders, which were carried out on site, in factories, and administrative offices.

Our findings in the cashew processing industry of Maharashtra and Goa suggests that the decline in Kerala cashew factories is linked with geographical shift of cashew processing and the upsurge in emergence of new cashew clusters in coastal Maharashtra post liberalization. The findings also corroborate to previous research on other cashew producing Indian states (Lindberg 2001a, 2001b; Harilal et al. 2006; V.V. Giri National Labor Institute 2014), i.e., despite much public deliberation and several government reports (e.g. Government of India 1982), the working conditions in the processing industry have not improved in the last four decades. The study underpins continued feminisation of labour, precariousness, and job insecurity. In both states, factory owners paid below the stipulated minimum wages. Even factory work is casual, seasonal, and temporary. A few hundreds were employed in factories on a permanent basis but even then, there was absence of employment protection, social dialogue and social security. Cashew nut processing continues to be a feminised and labour-intensive industry. Yet, special provisions such as maternity leave, crèche, regulation of working hours, adequate health protection, and occupational safety were absent.

## ***Cashew Production in India: An Overview***

India is a key player in the global cashew industry with a share of 65% of the world's total export of processed cashew nuts. In 2013–14, India generated revenues of 825.89 million USD (IBEF 2014). India exported 437,223 million tonne in 2014. Cashew exports have doubled in less than 10 years. The USA is the main destination, followed by China, Netherlands, Germany, and UAE (Nuts and Dry Fruits Global Statistical Review 2015).

According to the Department of Agriculture and Cooperation (Horticulture Division) in terms of area, productivity, and cashew yield in 2012–13, Maharashtra, Andhra Pradesh, Odisha, Kerala, Karnataka, Tamil Nadu, and Goa were the top performing states.

Cashew plantations are spread over the western and eastern coastal regions of India. The eastern coastal belt is a promising new frontier of cashew cultivation. The climatic conditions of the western–southern region are supportive of cashew cultivation; it also has a longer historical tradition of cultivation, processing, and exporting. These states include: Goa, Maharashtra, and Kerala. Enriched with oral histories, narratives and varied practices deployed in cultivation, processing and consumption, cashew nut and its history dates back to over two centuries. Unlike Kerala cashew nut processing, the Goan cashew, its consumption, processing and origin is traced back to 200 years, rich with several historical accounts and marked by distinct colonial underpinnings (Fieldnotes).

A typical supply chain from farm to table entails starts with raw cashew apples harvested from homesteads, plantations and jungles. This stage is one of the most labour-intensive and the most precarious one. Children, tribal and nomadic communities (migrant labourers), women of lower caste are often involved in picking cashews. Minor injuries while harvesting and collecting cashew is regarded as routine and normal work hazard. Snakebites, serious and minor injuries from handling the cashew bulb (that has acid) while harvesting cashew fruit are commonly heard of. Since the focus of our research was mapping the supply chain from factories/homes/processing units to markets and decent work conditions, we were not able to record narratives and interviews of those involved in harvesting.

Post harvest, the entire cashew fruit is sold in the local market. Cashew apples are also sent to Mangalore port. The cashew bulb is not used in Maharashtra. It is discarded or sold in the market, near the border of Goa-Maharashtra. The local Goan traders buy the cashew apple/bulb to make an extremely popular fermented alcoholic drink, Feni. The price of raw cashew nut is between Rs. 90–115 per kg. The local informal bazaar generally has the first buyers — agents, factory owners, local traders from the local and neighbouring states. The sellers of raw cashews are

small-moderate or big farmers, small and petty traders, individuals, and co-operatives. Even children sometimes sell raw cashew for some money either in local markets or at small shops.

Besides the locally harvested raw cashew, African raw cashew nuts are imported and processed. The current practices of cashew processing and labour employment are in most places still traditional, informal, and complex. The processing of cashew nuts itself is broadly distributed in two interlinked spaces: within the factory (semi or fully organised) and the household (unorganised/informal) under four marked employment relations.

- (1) Formal-semi formal factory (which may have formal and informal relations),
- (2) Co-operative processing units (farmer's co-operative but employs informal labour) and
- (3) Self-employed (own account work/outsourced work)
- (4) State-owned factories (as found in Kerala)

Interestingly, all these spaces capital and labour workflows do not operate in separate spaces but intertwined. For instances, agents who import raw cashew from Africa are also money lenders who maintain close contact with the factory owners. Big factories often outsource processing to small and medium size units. There are units as found in western Maharashtra who outsource the cashew processing to home-based workers. Also, it is very common for a home-based cashew processor to find seasonal employment during peak summer months in factories on daily wages. Similarly, an egalitarian farmer's co-operative employs daily wage labourers. The local stockist, agents, and traders, labourers often exchange information and rely on each other for trade, services and labour.

Another interesting characteristic of cashew processing factories are the heterogeneity of cashew processors in both the states. In Goa, factories operate on a small and medium scale with low capital. The numbers of factories in Goa are on the decline due to feasibility, labour shortage and stagnation of wages. Cashew processing is a cumbersome process and the state is experiencing widespread shortage of labour. There are fluctuations in prices and tax policies. In contrast, Maharashtra is witnessing a boom in 'cashew-processing clusters' in Ratnagiri and Kolhapur districts particularly after the neoliberalisation. There are few co-operatives in western Maharashtra. There are about 200 processing units in the Ajra, Kolhapur district of Maharashtra, which is now regarded as the emerging

cashew processing cluster.<sup>17</sup> The processing units in clusters such as in Ajra are typically small dingy structures and operate by compromising safety standards. These units offer processing services for bigger factories and have established their brand names. In contrast to these units, there are bigger cashew factories and exporters. Zantey Cashews are world-renowned for their quality cashews and have factories in Goa and Maharashtra. Zantyes are the leading Goa-based exporters; have invested in upgrading technology and maintain quality standards. It runs semi-automated factories, employs more than 200 women workers, and exports to foreign markets such as USA, Saudi Arabia, and Japan.<sup>18</sup>

Another important feature within the supply chains in both states is the strong presence of brokers or commission agents. Their presence is marked almost at all stages. They have emerged as an important player for several reasons—the brokers are also importers of raw cashew. This specific service of providing raw cashew makes them a reliable partner in the production process. Brokers also own storage facilities, making it easier for processors to buy on demand. Besides these brokers give informal loans and are assured buyers (Interview with factory owner in Goa, September 2017).

### ***Caste–Gender Segregation***

According to V.V. Giri National Labour Institute (VVG NLI 2014) in a critical report on ‘Employment and Social Protection of Cashew Workers in India with Special Reference to Kerala’ underlined significant share of workers belongs socially and economically disadvantaged sections— 31 per cent of workers belonged to the Scheduled Castes (Ex-untouchables/Dalits/SCs), 35 per cent came from other backward communities (OBCs)” (VVG NLI 2014: iv). Predominance of low-caste Hindu women in the cashew processing industry is one of the salient characteristics of the cashew Industry in Kerala; this social pattern is historically embedded tradition and a distinct characteristic of India’s informal sector (Harris-White 1994). The share of women workers in the cashew processing industry has increased over the years; with whopping 94% workers continue to be women (VVG NLI 2014: 12).

The processing of cashew is organised on the lines of gender–caste stratification. Often lighter subtasks such as operating machines, loading of cashew trays for over roasting, packaging, and supervisory work are done by men. Supervisors often are relatives of the factory owner and belong to upper caste. Segregation of work

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<sup>17</sup> Government of Maharashtra (n.d.) Department of Agriculture, World Bank assisted Maharashtra Agricultural Competitiveness Project (MACP) Report available at: [http://macp.gov.in/sites/default/files/user\\_doc/Kolhapur%20MSS.pdf](http://macp.gov.in/sites/default/files/user_doc/Kolhapur%20MSS.pdf) accessed on 1 October 2017.

<sup>18</sup> See Zantye Cashew website for more details at <https://zantye.com/>

based on caste was noticed where precarious tasks such as cutting, shelling of cashew was done by untouchable caste women workers. Supervisory roles and advanced tasks were carried out by men or upper caste women often relative of the factory owners.

Although caste and social background of labour is often discussed (Government of India 1982; Lindberg 2001a, 2001b; Theresia 2007), the owners' castes are rarely highlighted in previous studies. Most of the factory owners in Goa are Gaud Saraswat Brahmin (GSB). In Maharashtra, most of the factory owners are Marathas, a land-owning non-Brahmin, dominant<sup>19</sup> caste. The brokers/stockists are of the same caste — Marwaris and non-natives predominantly from communities in Rajasthan and Gujarat; however, the lowest strata of Hindu society constitute the feminized labour.

### ***Social Profile and Working Conditions***

#### *Social Composition of the Workforce*

The cashew processing is dominated by women, highly labour intensive and feminized. Most of women workers belong to economically and socially disadvantaged strata of Hindu society. The age of average female workers were between 25–40 years. On an average 80% women were married. The casual, seasonal, and temporary nature of work is considered as flexibility by women workers, who work in factories during peak season and look after fields in the lean season. A few young female workers have also joined factories while completing their graduate studies out of economic necessity. Some of the workers were fairly aged, i.e., above the age of 60 and have worked for more than four decades. Since there is no apprenticeship or special training provided, experienced women workers facilitate and train the novice, and this informal training newly entrant is neither compensated nor appreciated.

A sharp gender-based task allocation is the standard practise. Women's tasks are: shelling, peeling, grading, and packing of cashew nuts. Men are mostly assigned tasks like loading, operating machines, oven-roasting cashews, supervisory roles, and drivers and security guards. In one exceptional case, we encountered a woman Manager-cum-Supervisor in Maharashtra but she was a relative of the factory owner. Men dominate non-processing tasks such as marketing and selling of cashew nuts, or dealing with local traders. Women are nearly absent and are never given tasks that deal with interacting men, involving financing, accounting, etc.

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<sup>19</sup> The concept of 'dominant caste' is crucial to the understanding of rural social life which consists of non-Brahmins. They are numerically populous, though ritually of a lower rank, but enjoys dominance through sheer number and ownership of land (Srinivas, 1959)

### *Insecurity of Work and Wages*

There is no stability and job security as the industry is seasonal in nature and demand driven. Shelling and peeling are sections where the largest numbers of workers are employed. The workers are paid on piece rate basis. In shelling process, workers are paid on the basis of weight of dried cashew. Since broken kernels are considered of low quality, the task of shelling cashews is unpaid. The task of peeling commands slightly higher wages than shelling as the former requires nimble finger, intricate skills, and experience. The other tasks such as packing cashews are paid on the basis of number of packets prepared and tins filled. With the introduction of automation that has lessened the burdens of the workers but displaced female workers. Besides, division of labour on gender are clearly marked where most of the men work in capacities such as supervisors, watchmen, drivers, managers and paid monthly salary.

The stipulated wages, i.e., employment in cashew factories and establishments are considered as 'Scheduled Employment' under the Minimum Wages Act, 1948. As per the Act, the workers belonging must be paid as per different categories:

Grader, roaster, packer, dryer (bhattiwala), soaker, carpenter, stencillor, bag carrier, general worker, peon, watchman, and all other employees, called by whatever name and doing the work analogous to the work done by the category of employee above are to be paid Rs. 215 with a workload of 100 kg per day. Further, the supervisor (grading) and all other employees, called by whatever name and doing work analogous to the work done by a supervisor are paid Rs. 223 per day. A clerk with qualification (S.S.C.E. and above), typist, cashier, storekeeper, and any other employee doing clerical or any other work analogous to the work done by the categories of employees mentioned above will be paid Rs. 223 per day; the same is stipulated for the driver.

However, the sheller and peeler, who need to complete a workload of 15kg of unbroken kernels within 8 hours, are paid Rs. 14.34 per kg only on completion of 78% of the workload within the stipulated time frame.

Most workers were reluctant to reveal the actual wages paid to them. Fortunately, a few workers gave a detailed account of their wages/pay. Some of the graders, roasters, packers, and peelers mentioned that on an average they receive in the range of Rs. 125–Rs. 150 per day. This is considerably less than the minimum rate of wages. Thus, a significant difference exists between the stipulated and real wages.

Women workers, in addition, had to ensure that they shell and retain the whole cashew kernel as it fetches higher price in the end market than the broken pieces known as pakli/petal or tukda/broken and are considered inferior, fetching lower

price. The work is done on piece-rate basis (weight/kilogram/nut count of shelled cashew). Only the whole cashew kernels make to the weighing scale and eligible for the payments. The broken pieces of cashew, although needs similar kind of labour input for shelling and are sold in the end market, do not fetch the workers any compensation.

### *Working environments*

Our field research revealed variation in factory size, kitchen and lavatory facilities and ventilation. Overall ventilation at the factory was fairly sufficient (where factories were spread out over several acres and not cramped and dingy) though dusty, safety measures were inadequate. In most cases, toilet facilities were available. In two cases, we also observed, they were provided with a thatched hut for urination. Occasionally, women workers were forced to use open spaces.

In terms of decent work conditions: social security was inadequate, minimum wages were violated, and social dialogue non-existent. An idiosyncratic feature found in the study was the absence of trade unions in both states. There was no collective bargaining or representation of women workers as a collective. All work-related issues and complaints were redressed through supervisors. The physical infrastructure of factories varied and there was no uniformity or maintenance of minimum standards. For instance, a factory in Ponda village of South Goa, spread over an acre was spacious but in terms of minimum safety standards the factory failed to meet even the basic requirements.

Another factory in North Goa was cramped, dingy, and lacked proper ventilation. The temperature inside the processing unit was hot and humid and got worse during peak seasons in hot summers. There were no fans, air conditioners, or proper personal and other safety equipment.

In contrast to these, export-driven factories of North Goa maintained high international standards in terms of provision of personal equipment and safety gears given to women workers. Factories that cater to organic and regular cashews to foreign markets, engaged in direct export to foreign markets follow international standards of safety and hygiene and have certifications from Star-Kosher Certification, USDA ORGANIC, ISO-2200 etc. The working conditions in such export-driven factory may be of high standards but the labour welfare could be severely compromised, in the absence of adequate and implementation of social protection laws and adherence to decent work frameworks. For instance, the presence of trade unions, following registers, invisibility of the labour, social security benefits and lack of social dialogue and representation through unions was nearly absent in the factories that were surveyed.



Overall, the physical infrastructure and working conditions in cashew factories vary but overall it lacked proper ventilation, and safety and hygienic environment. Considering this agro-produce is exported and consumed directly from farm-to-table, the supply chains and factories surprisingly lacked hygienic standards. The element of labour exploitation was also systemic.

### *Working hours*

The duration of work is not fixed in most processing units. In general, women workers start work at 8a.m. and continue till 5–5.30p.m. The employer makes travel arrangements for workers making access to factories convenient for them. Transport facilities are regarded as positive factor for women enabling to commute and join the labour force despite extra time required for commuting. Women have to wake up early, do the chores and ensure they do not company transport. Missing the company transport also means loss of wage so women. All workers bring lunch boxes with them. There are no canteens or designated dining areas. Although there is a lunch break for about 30 minutes, the piece-rate systems at work indirectly force the workers to take short breaks. No crèche (childcare) and canteen facilities are provided for women workers. In many units the employer provides tea. On an average, a worker works nine hours a day. During the busy sultry peak seasons, the working hours exceed 10 hours. There is no record of overtime payments. On an average it takes 15 days' time for workers to get used to and learn the entire processing. Most factories remain open on Sundays particularly during the peak season. Even on festival days and national holidays they operate. Since work in these factories is treated as seasonal, the mandatory rule regarding allotment of stipulated days of leave is not followed.

### *Health and Safety*

Previous studies have highlighted causes of health risks for workers in the processing plants from: cashew nut shell liquid (CNSL), cashew nut smoke, and posture stress. During shelling, CNSL comes into contact. CNSL is dark reddish brown viscous liquid found in the nut. It is often used for unsaturated phenols. This liquid if it comes in contact with skin burns the fingers leaving skin with black spots. As per the Factories Act 1947, each shelling worker is to be provided with gloves, oil, and soap for washing their hands. But such facilities were not provided in all the factories visited. Instead of using gloves and washing hands with soap to protect from the poisonous oil; women workers were given castor oil, wrapped fingers with shreds of plastic bags and washed hands with soap nuts. In general, rarely did women workers have access to personal protective equipment like gloves, bouffant caps, eye protection, footwear, and masks.

Cashew nut smoke (CN smoke) is produced during the roasting of nuts. In the roasting process, workers inhale the smoke that comes out and get exposed to respiratory troubles in absence of protective gear. The smoke emitted from the factory also contributes to lung diseases (VVGNLI, 2014).

Studies done by Kanan (1978) and Varghese et al. (1986) previously underlined severe body pain as a common condition faced by workers stemming from incorrect posture, squatting/sitting on the floor during the course of the working hours and prevalence of oral submucous fibrosis among cashew workers. Ravi (2013) pointed out that the rudimentary seating arrangement contributed to lower body pain with long-term effects on reproductive health of women workers (see also VVGNLI 2014). Women workers reported severe back pain. Another critical study by Thresia's (2007) not only underlined the poor working conditions in cashew factories but also highlighted inaccessibility to health care facilities combined with pervasive domestic violence as contributing to severe mental and physical stress suffered by cashew workers in Kerala. In our study in Maharashtra and Goa, women workers complained of body ache, postural stress, peeling of skin on palms, finger deformities, blurred vision, pain and stiffness.

Reporting of major or minor accidental injuries was almost zero, presumably under-reported, minor injuries such as cuts, abrasion, burning were considered routine, as part of the job. Exposure to heat, CN smoke causing respiratory and other illnesses, are not reported. Women workers in most factories and units still squat on the greasy floor (indicating low levels of industrial infrastructure) to shell the cashew. Raw cashew is handled without using gloves and eye gear. First-aid facilities were also not available in some of these factories.

Overall, working conditions in cashew industry are very poor and vary in hierarchical order. Physical environment, work conditions gets slightly better as the cashew acquires its edible value. At the first stages of processing—shelling, cutting (where market values get determined) is also the most unclean hazardous tasks, had worst physical environment and largely untouchable caste women workers were involved in these tasks. As the cashew underwent further processing; work conditions got slightly better. In one big-sized factory in Maharashtra, women workers were provided aprons, caps, and worked from a designated table and chair. The ventilation was better in these sections and the floors relatively free of grease from the cashew shell oil. However, the gloves were not given to any workers nor eye gears or masks.

### ***The Negligent State(s)***

As mentioned earlier, the distinct yet interlinked spaces where cashew processing majorly takes place were: factories/processing units and homes. In Kerala, the

Kerala State Cashew Development Corporation (KSCDC) owns and runs factories. But over the last two decades, it has ceased to operate, citing reasons such as lack of working capital and high processing costs (Nair 2015). The KSCDC Chairman emphasised that its motives was to provide employment to poor women in rural areas. They operated on ‘social, cultural, humanitarian considerations than profit motives’ (ibid.). The Corporation suffered losses since 1969 due to buying of raw cashews on credit which means higher prices. Also, for advanced prospective buyers the state sold cashews at lower prices. Apparently, the state-run factories continued its operation due to its obligatory and altruistic role of keeping women employed. In order to make this sustainable, it was suggested that such factories be given to private companies where revised wages were not to be implemented so that the factories could be restored (ibid.).

In contrast to KSDC, in Maharashtra and Goa, there is no state obligation to own cashew factories or any apex body is appointed to supervise the welfare of cashew nut workers. Under the Labour Jurisdiction, labour is a subject in the Concurrent List (Ministry of Labour and Employment 2017). This enables the state and central government to bring in legislation. Ironically, the registration of factory is imperative making it a legal entity in the eyes of the state but the obligation to meet minimum labour standards or the current labour practices of hiring and labour laws are flouted, bypassed, and marked by casual approach. For instance, outsourcing the cashew processing work, circumventing labour laws and rampant informalisation within the factories, whether private or co-operative, is widely regarded as a norm.

The current condition encourages informality of labour. The state and the private factory owners thus exploit the informality of labour, which is based on gender-caste stratification. The lack of intervention of state to give visibility to women’s labour signifies the state’s complicities in expanding and deepening the exploitation of women’s labour and devaluing women’s work in the cashew processing industry.

Although study reports conducted under Ministry of Labour and Employment and other several academic studies on cashew nut processing have pointed out poor work conditions and state of precariousness in cashew processing yet there is lack of adequate measures taken to improve the lives of women workers. Except for the state of Kerala (which has trade unions, welfare board) there haven’t been major initiatives from other cashew processing states according recognition, visibility, and dignity to women workers. The feminised labour force behind cashew nut is yet to receive adequate attention even from the local unions in state of Maharashtra and Goa.

### ***Why Women Workers Keep Enduring Bad Working Conditions***

One of the key questions that arise is why do women workers choose to work in this sector despite its low pay and poor working conditions? Why do women continue working under these precarious conditions?

Most women workers pointed out ‘lack of livelihood options as the prime reason’ for choosing factory (cashew nut) work and not absolute poverty that drove them to this work. In the lean season when majority factories are shut down, women worked on their own field, if landless worked on other people’s fields or just took a seasonal break. More than home-based work, factory work was relatively a preferred choice due to relatively better wages. Although the work was painstaking and low paid, women still chose to work. They joined factories in hope of getting some social security. Women who face cultural barriers to work outside their homes, home-based cashew processing work for them, as an option is available. This region of coastal Maharashtra is synonymous with men’s migration, which also meant there were fewer jobs in this remote location and women had to find additional employment or work from home, manage agricultural work, domestic duties and earn income to support their family. It is only recently local industries and horticulture has developed. Due to the historic male migration from coastal Mumbai, women were left behind to take care of the family. For them, any kind of employment, informal and home-based, was beneficial. Historically, the Konkan region enjoyed a rich legacy of vast trading with other civilizations. But in colonial era, this area came to be well known for being a main supplier of labour to industrial centres in and around Bombay (Heredia and Srivastava 1994). Now in the neo-liberal era, Mumbai has witnessed de-industrialisation resulting in reverse migration. Horticulture and cashew nut processing remain a lucrative option for investment for the returning migrants (who own land/have capital/assets). But for women who face immobility and restrictions of out migration, cashew nut factories were always the jobs that were easily available and provided them support, a sense of belonging, community, and support system. Factories also gave a sense of workers identity, offered support, which is lacking while working from home. The work itself is highly seasonal but offered enormous flexibility making the entry and exit easy for women. Due to lack of other employment opportunities in the region, coupled with socio-cultural and economic factors, women preferred to work within their region than migrate for jobs to the cities. Working in factory was still considered better than sitting idly and was a source of steady and assured income. Women workers were also ashamed to talk about their household income and did not want to identify themselves as low-income or poor.

Remarkably, ‘flexibility’ is the key point for women to enter and continue with this precarious work. It is women’s caste, village, and kinship networks that work as

pathway for other women seeking work opportunities. In addition, factory owners provide transportation and prefer women workers considered as docile, subservient and sincere workforce. The work is feminised, therefore, deemed as 'safe.' There are less entry barriers. Educational qualification or skills are not required. Informal village and/ or caste and kinship network essentially gets access and a job in the factory. Upward mobility within the factory depends on several social-interpersonal factors and skills but often limited. Overall, the livelihood options for women in this region are restricted and thus jobs in these factories (regular/seasonal/piece-rate) which has remarkably low entry barriers, offering facilities such as transportation, is a heavily feminised space enables and retains feminisation of workforce. Also, smaller factories and processing units shut down during the monsoon. Women then take longer, recuperating monsoon break and work on their paddy fields. If they have land, they work on their farms and, if landless, they find employment or simply take a break, embroil in domestic life which entails preparation for one of the biggest and most important Hindu festival, worshipping the elephant God, Ganesha. This is also the time, when the male migrants return to their home villages for the festival or relatives from the cities come back home to celebrate Ganesh festival. These cultural arrangements work well for women, factory owners, and give women workers the much-needed break from monotonous work and recovery time from the excruciating body pain.

### **Summary**

Indisputably, cashew has central importance in domestic and global economy. Lindberg's study (2001b) demonstrated that cashew nut processing not only has a long history but also is remarkably a feminised activity, accentuating caste-based social stratification. Caste and gender remain as the two most embedded features of this industry. Gender-caste-based occupational segregation prevailed extensively in the cashew-processing industry. Most women workers work on casual basis, for long hours, and the work conditions do not meet the minimum standards. For example, women workers squat and shell cashew, use castor oil instead of gloves. The physical environment in cashew factories is toxic, harmful and does not have highest safety and hygiene standards. Processing of cashew is still carried out in primordial ways and traditional methods are being followed. There is absence of even first-aid, accidental insurance, and basic sanitation facilities. Though some of them are entitled to state labour hospitals but pensions, gratuity, bonuses are nearly absent. In terms of sex-based segregation, women workers rarely handled machines. These were operated by men. Selling, marketing, supervisory roles were inadvertently deemed as 'man's work'.

From the ‘Decent Work’ point of view, the cashew nut industry is marked by indecent work conditions. The work itself is seasonal and uncertain. Only few factories with higher working capital manage to keep their factories running throughout the year. Shutting down of factories in the monsoons and during off-season, or due to bankruptcies filed by factory owners is common. State intervention is nearly absent. In terms of safety standards, factories did not meet the minimum safety features. Despite the overwhelming presence of women in the workforce, there are no mechanisms to protect women workers from sexual harassment at the hands of supervisors/factory owners or measures to protect from discrimination based on gender and caste. The labour also lacks adequate social protection. There were no registers that maintained over time or leave registry. The working hours were long during the peak season with no adequate rest or break. Overall, there was no stability and security of work, working conditions were compromised on several levels and women workers did not have the basic social security. The state with its invisibility is complicit in exploitation and devaluing women’s labour. It has failed to bring out concrete measures such as welfare boards, social security and highlight visibility and dignity to women’s labour involved in cashew nut processing.

The supply chain of cashew in both the states suggests the presence of hybrid-integrated model. From fragmented processing units to small factories, then to big factories owned by states (only in Kerala), and private companies having control over direct export of organic cashew—all of this demonstrates the variety and complexity of Indian cashew supply chain. For instance, Zantyes’ is one of the largest Goa-based player exporting organic and top-quality cashews to countries like Japan. It is also a common practise for big factories to procure processed cashew from smaller units or outsource cashew processing to smaller factories and processing units who employ women on piece-rate basis. Production, processing, and supply of cashew are entangled, interdependent, and labour continues to be feminised and sustained on informality of work, caste, geographical, village and kinship ties. The chapter concludes underlining the deficits of decent work, negligent states, and suggest that there is not only ‘decent work deficits’ but also ‘decent work framework’ is inadequate to capture women’s body pain, local social contexts, and long-term effects on women’s health as unaccounted and uncompensated. Lastly, the tendency of rural women as poor and dependent on these employments is misconstrued. In reality, it is these hardworking women’s labour who work on depressed wages, have stunted bodies, malnourished, and dedicate their time, energy and labour have built the ‘brand’ of Indian cashew nut (India Brand Equity Foundation 2014) and yet these women workers and their labour is continuously invisible, devalued, underpaid, and exploited.

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## 5. Informalisation of Tea Labour: From Plantations to Small Tea Gardens

Debdulal Saha

In India, tea has traditionally been grown in large plantations that cover several hundred hectares. This industry is in the formal sector and it employs a little over 1 million permanent workers, making it the largest employer in the formal private sector. These are situated in mainly four states in the country, namely, Assam and West Bengal in Eastern India and Kerala and Tamil Nadu in Southern India. Assam is the largest tea-growing area and it produces 50% of the country's tea followed by West Bengal, who makes up 17% of the tea produced. Tea plantations employ labour who usually resides within the plantation. The Plantation Labour Act (1951) makes it mandatory for the plantation management to provide workers with various economic and social entitlements such as minimum wage, bonus, ration, provident fund, education, and healthcare facilities. However, several studies illustrate that the workers, on the contrary, are subjected to exploitative work pattern and severe control mechanism, low wage payment, deplorable housing and living conditions, inadequate supply of drinking water, poor level of welfare benefits, with no provisions of collective bargaining (Bhowmik 1981; Bhowmik, Xaxa, and Kalam 1996; Xaxa 1997; Guha 2012).

The dichotomy in the tea plantations in India lies in the fact that while significant number (around 43) of tea estates/factories are either closed or abandoned since 2007 (CEC 2017), especially in West Bengal, Kerala, and Tamil Nadu, various tea board statistics show that the total production of tea has been increasing since 2009–10. The increase in demand for tea is not serviced by an expansion of plantations but by the growth of self-employed tea cultivators, known as small tea growers (henceforth STGs). These are peasant farmers who have less than 10.12 ha of land for growing tea leaves. Some cultivate their own land using family labour while others employ wage labour. About 35% of the total green leaves are contributed by STGs in 2016. These growers are unorganised as they are unaccounted and fragmented in nature and also do not have any support from the state or any formal financial institutions. Though it is difficult to find the exact number of growers, as per Tea Board report (2016), around 152,000 are small growers. Around 88,000 and 10,000 STGs exist in Assam and West Bengal, respectively (Tea Board 2016). Besides, a large number of wage workers are employed in independent tea cultivation.

Little is known so far about these new tea cultivators, what their motivation is, what their and their workers' income and working conditions are, and to what extent they have been able to organise themselves economically and politically.

Therefore, the chapter aims to understand how these growers combine different factors of production (land, labour, capital, and entrepreneurship) and how (if at all) this is different from large plantations; analyse whether this livelihood option is sustainable; and also, examine whether this sets in motion a process of social upgradation of the rural economy as a whole or is limited only to the economic enhancement of tea garden owners. The concept of ‘decent work’ has been taken into account as an analytical framework of this study. It focuses on ‘the conditions of freedom, equity, security and human dignity, in which rights are protected and adequate remuneration and social coverage are provided’ (ILO 1999: 3). Employment opportunities, employment structure, labour relations, and role of social organisations in augmenting rights and bargaining power are considered in order to understand ‘decency’ and ‘upgradation’ of work.

The study not only tries to explore the reason behind the growth in number of STGs but also examines why and how small tea cultivation is becoming a sustainable livelihood option in rural economy. A mixed methods research approach was adopted in the study. Both secondary and primary data were used. A general overview of the development of STGs based on the Tea Board data was analysed. To understand the nature and types of employment pattern, a survey was conducted with 300 tea growers as well as 60 wage workers, of which 200 and 100 growers were drawn purposively at random from Assam and West Bengal, respectively. Besides 300 tea growers, 60 casual workers were also considered from Assam and West Bengal during 2016–17. A semi-structured schedule was used to conduct the interview. Along with interviews with growers and casual workers, key informants from growers, workers, government officials, and leaders from different associations and societies were interviewed. Group interviews (GIs) and focused group discussions (FGDs) were conducted.

The chapter is divided into four sections. The first section begins with growth and current development of the tea growers across India. The socio-economic background of the growers are discussed which is based on primary data. In this region (mainly Assam and West Bengal), tea cultivation along with other traditional crops is an emerging trend, which is related to the land holding pattern. This pattern has been illustrated in this section. The last sub-section discusses about tea cultivation as the provider of employment opportunities and related prospects. One of the objectives of this study is to show the plight of wage workers engaged with tea growers. The second section discusses about the working and living conditions of farm labour. Recent innovations and instruments introduced by the Tea Board of India and how different types of organisations are strategizing in mobilising tea growers are critically examined in the third section. The concluding section puts forward the ways for future of this tea plantation.

### ***Tea Cultivation as an Employment Option: Is It Sustainable?***

With a total production of 1.2 billion kg tea, India is the world's second largest tea producer and it is believed that the rise in production is due to the rapid proliferation of STGs since 2000. Historically, they were found in the Nilgiris district of Tamil Nadu, Goodalur district of Kerala, and Palampur district of Himachal Pradesh. Since 1994, a large number of STGs are mushrooming in the states of Assam, West Bengal (mainly northern part of the Bengal), Bihar, Arunachal Pradesh, Tripura, and Meghalaya. Small growers do not have the advantage of processing their tea leaves, hence, they have to depend either on large plantations or on private tea factories that are set up especially to procure tea leaves from the growers. These factories are known as Bought Leaf Factories (BLF) as they do not have their own plantations and buy leaves from the growers. There are a number of BLFs in regions where STGs proliferate. Nilgiris, Kerala, and Himachal Pradesh also have co-operative tea factories that were set up to ensure that the growers earn a fair price. This section presents the growth of STGs and descriptive statistics of sample respondents of tea growers. The data reveals some interesting facts about the socio-economic background of these growers.

#### ***Growth and Development***

There is dearth of data related to tea growers. However, limited data from Tea Board of India reveals that around 58% of the tea growers belong to Assam followed by 27% in Tamil Nadu in 2015–16. In West Bengal, it is around 6% of the total growers. While growth (2015 to 2016) of tea growers in South Indian states such as Tamil Nadu (31.45% to 27.15%) and Kerala (5.03% to 4.40%) is declining, growth of tea cultivators in Assam (53% to 58%) and West Bengal (4.7% to 5.65%) is increasing. The annual growth results show that West Bengal has the highest annual growth of STGs (47%) followed by Assam (32%). The Tea Board of India is undertaking a progressive step by providing growers with a so-called smart card that contains their registration number and allows them in theory to access loans and other government schemes. In fact, the rate of smart card distribution has also been drastically increased from 2014–15 to 2015–16 (see Table 5.1). States like West Bengal and Assam, however, have yet to provide every STGs with such smart cards to avoid land disputes and regulate land holding through proper registration.

**Table 5.1 Growth and Development of Tea Growers**

State	2014-15			2015-16			Overall Growth in growers
	No. of growers (%)	No. of smart card holder	Smart card holders to total growers (%)	No. of growers (per cent)	No. of smart card holders	Smart card holders to total growers (%)	
Assam	66,700 (53.6)	42,890	64	87,816 (57.9)	53,211	61	32
Tamil Nadu	39,166 (31.5)	12,772	33	41196 (27.2)	18,102	44	5
Kerala	6,265 (5.0)	1,407	22	6671 (4.4)	2,756	41	6
West Bengal	5,848 (4.7)	0	0	8568 (5.7)	3,863	45	47
<b>Grand Total</b>	<b>124,546 (100)</b>	<b>57,449</b>	<b>46</b>	<b>151741 (100)</b>	<b>82,332</b>	<b>54</b>	<b>22</b>

Source: Annual Reports, Tea Board of India (2015 and 2016)

Note: values within parenthesis represent percentage.

#### *Background of Tea Growers*

This section presents the findings of the primary survey data. Men in the age group of 22 to 50 years are the predominant owners of the tea estates. A small percentage of growers are older than 65 years in Assam (see Table 5.2). These growers had started cultivating tea after their retirement from regular jobs. In both states, majority of the growers (70% in Assam and 57% in West Bengal), possess up to 12 years of schooling as educational qualification, and 19% in Assam and 15% in West Bengal are graduates. This signifies a trend whereby many claim that conversion into small tea cultivation has opened up an avenue for self-employment, securing self-reliance among the unemployed.

**Table 5.2 Socio-demographic background of STGs in Assam and West Bengal, survey data**

Socio-demographic Indicators	Indicators	State		Total
		Assam	West Bengal	
Sex	Female	19 (9.5)	0 (0)	19 (6.3)
	Male	181 (90.5)	100 (100)	281 (93.7)
	Total	200 (100)	100 (100)	300 (100)
Educational Qualification	Illiterate	9 (4.5)	2 (2)	11 (3.7)
	Can sign only	8 (4)	22 (22)	30 (10)
	Up to IV/V/IX	64 (32)	34 (34)	98 (32.7)
	Up to Secondary	76 (38)	23 (23)	99 (33)
	Graduate	38 (19)	15 (15)	53 (17.7)
	Above Graduation	5 (2.5)	4 (4)	9 (3)
	Total	200 (100)	100 (100)	300 (100)
Age Distribution	22-35	44 (22)	53 (53)	97 (32.3)
	35-50	101 (50.5)	36 (36)	137 (45.7)
	50-65	48 (24)	11 (11)	59 (19.7)
	65-83	7 (3.5)	0	7 (2.3)
	Total	200 (100)	100 (100)	300 (100)
Occupation before Tea Production	Agriculture	122(61)	85(85)	207(69)
	Business	23 (11.5)	10 (10)	33 (11)
	Casual labour	16 (8)	2 (2)	18 (6)
	Government job	24 (12)	0	24 (8)
	Students	15 (7.5)	3 (3)	18 (6)
	Total	200 (100)	100 (100)	300 (100)

Source: Field Survey

### *Land Holding Pattern*

Land holding pattern defines the size of tea cultivation and nature of employment. The land holding pattern among tea growers in Assam and West Bengal has many similarities. Registration of the growers with the Tea Board of India is under process. As of March 2016, 61% and 45% of the growers are registered with Tea Board in Assam and West Bengal, respectively (Tea Board 2016). However, from our sample, it is seen that 52% and 38% of the growers are registered in Assam and West Bengal, respectively. This registration implies only recognition and inclusion of the growers in governmental records. Registration of land will not make the growers eligible to access different government schemes, particularly from the tea board. About 95% growers in both states have private ownership over their land of cultivation. Only 5% in case of Assam and 2% in West Bengal, either possess less

land to expand their cultivation or no land for cultivating tea, or have leased-in land for carrying out their tea cultivation.

The unregistered growers are basically marginal growers who possess small land holdings for their tea cultivation. A major portion of the growers, around 39% in both states, possess land in the category of 0.10–1 acre. This group implies a marginal set of growers who have limited access to means of cultivation and in many instances they are seen to be dependent on the local agents for supply of cash during lean season or for supply of fertilisers and medicines that are not accessible to the growers. Another major group of growers, comprising 26.5% in Assam and 25% in West Bengal, is seen to be in the category of 1.5–3 acre of land. Very few of the growers possess land of more than 10 acre in both the states. However, around 2.67% growers, who possess more than 10 acre, dominate in price settings and other innovations. The percentage of land utilisation for tea cultivation is high. More than half of the STG owners use more than half of their land for tea (see Table 5.3).

Not surprisingly the majority in the sample had engagement with agriculture before (see Table 5.3), though in around 46 per cent of the cases, no activity had been carried out in the land prior to tea cultivation. What is interesting, however, is that about a third of the growers in the sample moved into tea growing from other occupations.

The reason for a shift in cultivation ranged from market instability to environmental factors. Most of the land conversion took place about four decades ago. The reason could be decline in food price during the 1980s and rise in price in tea during the same period. Growers claimed that growing tea was more profitable compared to other food or cash crops. As in the case of Dibrugarh district of Assam, people previously engaged in bamboo cultivation reported about the declining demand for bamboo in the region owing to people's growing preference for concrete houses. The same reason was cited by cultivators of all the districts of West Bengal. Marginal growers claimed that growing tea was a better option as it was a one-time investment and required less effort compared to the high maintenance cost and effort required for growing other food crops. Moreover, many of the growers are seen to be swayed by the trend of small cultivation; they learn the art of such cultivation through their neighbours and friends. At present, many growers own such plots of land where they had started with the cultivation of different food and cash crops. However, not the entire land was converted for tea cultivation as it required substantial amount to be invested. Thus, the land which was slightly elevated was converted from food crop to tea cultivation and traditional food crops were grown in other portions of the land. The growers did

not have to invest heavily on land filling as the cultivation was done on elevated lands.

**Table 5.3 Land Holding Pattern of Tea Growers across Assam and West Bengal**

		Assam	West Bengal	Total
Registration	Yes	104 (52)	38 (38)	142 (47.33)
	No	96 (48)	62 (62)	158 (52.67)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>
Type of land holding	Private ownership	187 (93.5)	98 (98)	285 (95)
	Lease-in	10 (5)	2 (2)	12 (4)
	Government land: Encroached	3 9 (1.5)	0 (0)	3 (1)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>
Land under tea cultivation (in acre)	0.10-1.00	78 (39)	40 (40)	118 (39.3)
	1.00-1.50	17 (8.5)	13 (13)	30 (10)
	1.50-3.00	53 (26.5)	25 (25)	78 (26)
	3.00-5.00	31 (15.5)	10 (10)	41 (13.7)
	5.00-10.00	15 (7.5)	10 (10)	25 (8.3)
	10.00-25.00	3 (1.5)	2 (2)	5 (1.7)
	25.00-100.00	3 (1.5)	0 (0)	3 (1)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>
Percentage of land utilisation for tea cultivation (Land under Tea Cultivation *100/ Total Land Holding)	3.5-10	6 (3)	0 (0)	6 (2)
	10-25	36 (18)	7 (7)	43 (14.3)
	25-50	56 (28)	30 (30)	86 (28.7)
	50-75	43 (21.5)	21 (21)	64 (21.3)
	75-100	59 (29.5)	42 (42)	101 (33.7)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>
Activities before Tea Cultivation	Bamboo	32 (16)	1 (1)	33 (11)
	Paddy	67(33.5)	31 (31)	98 (32.7)
	Vegetables	15 (7.5)	17 (17)	32 (10.7)
	Nothing	86 (43)	51 (51)	137 (45.7)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>

Source: Field Survey

#### *Employment Opportunities and Prospect*

Growing tea has proven to be an important employment strategy among locals. At the initial stages of tea cultivation, growers were doubtful about its prospect. However, in due course of time, growers have acquired confidence and want their succeeding generation continue doing the same. Tea cultivation has the capacity to

absorb a significant amount of rural workforce. Data reveals that over 70% tea cultivators have taken tea cultivation either as the main occupation or as primary occupation. About 28% and 56% of the tea growers have chosen tea cultivation as the main and primary occupation respectively in West Bengal, whereas 14.5% and 49% of the tea cultivators have selected tea cultivation as the main and primary occupation, respectively in Assam. Interestingly, 36.5% farmers grow tea as a secondary crop in Assam. These growers are either government employees or businessmen or large farmers growing different food crops. They call it secondary occupation because they spend less time on it but the income from tea has been increasing, even higher than that obtained from their primary occupation. The practice of multiple farming or multiple occupation acts as a cushion for the growers. However, for about 19% growers who rely only on tea cultivation as the source of income, the prime concern is to survive and make their workers survive. This is one of the reasons why many marginal workers prefer to engage their family in their cultivation. There are inter-state variations in case of the first and second group (Table 5.4).

**Table 5.4 Occupational status of tea growers**

		<b>Assam</b>	<b>West Bengal</b>	<b>Total</b>
Occupational status of the STG	Tea Cultivation as Sole	29 (14.5)	28 (28)	57 (19)
	Tea Cultivation as Primary	98 (49)	56 (56)	154 (51.3)
	Tea Cultivation as Secondary	73 (36.5)	16 (16)	89 (29.3)
	<b>Total</b>	<b>200 (100)</b>	<b>100 (100)</b>	<b>300 (100)</b>

Source: Field Survey

Educated youth having little savings are found to take up tea cultivation as a prospective occupation in rural economy. In Assam, 45% and 34% growers have opted for tea cultivation as the sole and primary occupation, respectively, possessing educational qualification till the ninth standard (see Table 5.5). They are followed by 31% and 39% growers in sole and primary occupation, respectively, having education qualification till the secondary level. Tea cultivation as secondary occupation is more for the growers having qualification up to secondary education (up to 12 years of schooling). In case of West Bengal, tea cultivation as sole occupation is seen to be higher (32) for growers who can sign (see Table 5.5), followed by growers having studied till higher secondary level (32%) whereas tea cultivation as primary and secondary occupation is high only for the category of growers having studied till the ninth standard. While 19% growers have done graduation and higher level of education, 29% and 19% cultivate tea along with other profession in Assam and West Bengal, respectively. In the context of land conversion and the educational status of growers, it can be



generalised that tea farming is considered as a lucrative employment option for rural households. Sometimes it is difficult to differentiate between primary and secondary occupation among these growers. School teachers, doctors, and many other government employees who possess land are seen to cultivate tea.

**Table 5.5 Educational Qualification and Occupational Status of STGs**

Education	Assam				West Bengal			
	Occupational status of the TC*			Total	Occupational status of the TC*			Total
	TC as Sole	TC as Primary	TC as Secondary		TC as Sole	TC as Primary	TC as Secondary	
Illiterate	2 (6.9)	4 (4.1)	3 (4.1)	9 (4.5)	0 (0)	0 (0)	2 (12.5)	2 (2)
Can sign only	3 (10.3)	3 (3.1)	2 (2.7)	8 (4)	9 (32.1)	10 (17.9)	3 (18.8)	22 (22)
Up to IV/V/IX	13 (44.8)	33 (33.7)	18 (24.7)	64 (32)	7 (25)	21 (37.5)	6 (37.5)	34 (34)
Up to Secondary	9 (31.0)	38 (38.8)	29 (39.7)	76 (38)	9 (32.1)	12 (21.4)	2 (12.5)	23 (23)
Graduate	2 (6.9)	17 (17.3)	19 (26.0)	38 (19)	2 (7.1)	11 (19.6)	2 (12.5)	15 (15)
Above Graduation	0 (0)	3 (3.1)	2 (2.7)	5 (2.5)	1 (3.6)	2 (3.6)	1 (6.3)	4 (4)
<b>Total</b>	<b>29 (100)</b>	<b>98 (100)</b>	<b>73 (100)</b>	<b>200 (100)</b>	<b>28 (100)</b>	<b>56 (100)</b>	<b>16 (100)</b>	<b>100 (100)</b>

Source: Field Survey, \*TC: Tea Cultivation

The BLFs and estate claim that independent tea growers keep good margins of profit although smaller growers see it differently. It is calculated that cost of production is Rs. 11 to produce 1kg of green leaves in the year 2015–16. An annual average price received from estate/BLF is Rs. 15. Thus, the profit margin for a tea cultivator is between 31% and 35% to produce 1kg of green tea (see Table 5.6). Further, it is estimated that BLF spends Rs. 55 to prepare 1kg of processed tea. The average auction price of 1kg processed tea for BLF is around Rs. 125. Thus, the profit margin per kg of processed tea produced by BLF is about 127%–130%. If BLF sells through private buyer/retailer profit, the margin comes around 140%. This is the main reason why BLF prefers to sell through retailers. Considering the low rates for tea leaves, many marginal tea growers prefer to lease out their cultivation to other growers as they are unable to bear the expenses towards the maintenance of their plantation. In this scenario, the growers who

actually cultivate have no right over the price-fixing mechanism. It is the factories or the big estates who dominate the market. Furthermore, the rates fixed by Tea (Marketing) Control (Amendment) Order (TMCO) has been criticised for its substantially low rates. Quality percentage rates have the following pattern: 55%–60% fetch Rs. 20 per kg; 60%–65% is expected to earn Rs. 22 per kg; and 65%–70% is stated to earn Rs. 25 per kg. Growers cannot even afford to follow these rules and neither do estates/factories follow the rates prescribed by the growers. Amidst low rates, the tea growers cannot even think of reducing the cost of production where wages for labourers form a major portion of the expenses incurred.

**Table 5.6 Cost, Price, and Profit of Tea, 2015–16**

	Indicator	Value
Green Leaf	Cost of Production/Kg (in Rs.)	11
	Price received from Estate and BLF/Kg (in Rs.)	15
	<b>Growers' profit share/ Kg (per cent)</b>	<b>30.78</b>
Processed Tea at BLF	Cost of Production/Kg/p.a. (in Rs.)	55
	Price/Kg/p.a. from auction (65 per cent of total production) (in Rs.)	125
	<b>BLF's profit share from auction (per cent)</b>	<b>127.23</b>
	Price/Kg/p.a. from wholesaler (35 per cent of total production) (in Rs.)	140
	<b>BLF's profit share from retailer (per cent)</b>	<b>154.6</b>

Source: Primary data and various data from Tea Board

#### *Farm Labour: At the Margins*

There are mainly two broad activities in tea gardens, namely, plucking the leaves and manuring the land during off-season. During off-season, the main activities undertaken are pruning, irrigation, drainage, and shade tree management. At this time, big estates usually keep their regular labour and remove the casual labourers. But tea farmers (mainly those having more than 10 acres of land) prefer to retain their labourers even during off-season as they are afraid of losing the labour to other farmers of the region. During the period of the flush, tea growers need a significant number of casual/regular wage workers. Growers (mainly those who possess less than 1 acre of land) use family labour. The employment relations in small tea cultivation are completely non-standardised as it dwells on employment of casual labourers. More than 60% casual workers are women (see Table 5.7). Further, 50% of the workers possess no educational qualification and 41.9% of them were educated up to the ninth standard. There is not much inter-state variation in terms of educational qualification of the workers; however, a few

workers in Assam have educational qualification up to the higher secondary level and, in one of the cases, the worker seemed to be a graduate. This was mainly because at times students pluck leaves during their vacation to earn some pocket money.

Caste composition reflects ethnicity of farm workers especially who are they and where are they coming from. 55% workers are Adivasis followed by STs and SCs. The labourers mostly come from nearby tea estates or local areas with distinct plucking or working capabilities. The Adivasi community is considered to be more efficient in all types of work associated with tea cultivation whereas the local workers are claimed to be haphazard in plucking as well as in the maintenance of the gardens. In other words, Adivasis are preferred for plucking leaves. Workers from the Adivasi community is claimed to have played a pivotal role in promoting tea cultivation. The growers across states and districts have learnt their initial cultivation system mostly from the estate labourers. However, the pioneers, who have spread such practice, are now seen to be engaged as labourers in others' gardens. Even when few of the wage and casual labourers of such tea estates practise marginal farming within their own residential premises, they do it in a very small scale which in turn restricts their economic expansion or social upgrading.

In terms of gender-based distribution of activities, plucking is largely done by female workers; 97.3% labourers surveyed is seen to be engaged in plucking whereas only 2.7% undertake plucking with pruning activities. Pruning is not common among female workers as it requires tremendous physical labour to cut the bushes manually; 52.2% male workers are involved in pruning and spraying activities.

Payment is either made on wage basis or on piece rate basis. Inter-state comparison of data reveals some variations. In case of West Bengal, 59% workforce is seen to be earning a daily wage rate of Rs. 100 whereas about 34% workers in Assam receive a wage rate of Rs. 120. In West Bengal, the income of around 4.5% of each category of marginal workers falls in the wage bracket of Rs. 120 to Rs. 130. As per distribution of wages in terms of sex, there is a wide variation between the two states. For female workers, the general earning rate is Rs. 100; 51% female workers earn within this range. Around 32% of them are also seen to be earning at a wage rate of Rs. 110 per day, followed by marginal workers earning Rs. 120 per day. However, in case of male workers, 39% of them are seen to be earning Rs. 120 per day followed by 30.4% of the workers earning up to Rs. 150 per day. This wage rate is related to plucking activity only. This shows that there is wage discrimination in terms of sex (see Table 5.9).

The payment of wage in case of plucking activity is also done on piece rate basis. Piece rate plucking is seen predominant in the places where labour shortage is prevalent. Owner always prefers daily wage than piece rate. As an example, in case of Bordikorai village of Sonitpur district in Assam, both the methods are applied. The average plucking rate per labour is around 20kg to 30 kg on wage basis during March to July and again in November to December. However, the average plucking capacity is claimed to increase in the months of August to October where the payment mechanism shifts to piece rate basis (Rs. 4 per kg). In case of pruning, contract system is followed, where the rate for LP<sup>20</sup> is Rs. 2000–Rs. 2500 per *bigha*<sup>21</sup> and MS<sup>22</sup> and DS<sup>23</sup> is charged at Rs. 1500 per bigha. However, in some of the villages, pruning rates are based on per plant basis where the workers are paid either Rs. 300 or Rs. 500 for pruning around 1000 plants. In certain villages, labourers are given bonus on monetary basis or clothes during festivals. In case of Sonitpur and Udalguri districts of Assam, bonus was seen to be calculated as a deduction of 0.25 paisa per kg during the entire cycle of plucking by the labourers and the amount so collected was distributed as bonus during Puja. In case of Udalguri district, many children worked on plantations during their vacation to earn an additional income; however, there seems to be no distinction in payment rate for the same. Other benefits are usually not applicable; there are few owners who provide tea and drinking water to labourers during work. Many casual labourers who come from nearby estates are seen to be carrying their estate's umbrella and apron to work in the plantation of tea growers. Marginal growers, who cannot afford labour cost, usually depend on family and self labour in their gardens. A few growers even make their domestic workers work in their gardens with no payment or additional benefit for the same. It is difficult to explain the standardised explicit employment relation in small tea cultivation.

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<sup>20</sup> Light Prune: Tea bushes are usually pruned every three or four years at 4–5 cm above the last pruning cut. This type of pruning is called light prune (LP). The time period from one light prune year to another is called one pruning cycle and LP is thus, natural sequence given at the end of a pruning cycle. It helps to renew the wood, regulate crop distribution, reduce pests and diseases and maintain the ideal frame height of the bushes.

<sup>21</sup> Bigha is the local measurement of land. One bigha is equal to 3 acre of land.

<sup>22</sup> Medium Skiff: Medium skiff (MS) is normally given at 5 cm over last Deep skiff mark. The objective of MS is to regulate crop distribution, reduce the ill effects of drought, reduce the incidence of excessive banji formation (dormant shoots) and the height of plucking table

<sup>23</sup> Deep Skiff (DS) of tea bushes is done between 12–15 cm above the last LP mark. The DS helps to regulate crop distribution and to reduce the ill effects of drought, excessive creep and the height of plucking table.

**Table 5.7 Social Background of Wage Workers**

		State		Total
		Assam	West Bengal	
Sex	Male	13 (34.20)	10 (45.5)	23 (38.30)
	Female	25 (65.8)	12 (54.5)	37 (61.70)
	Total	38 (100)	22 (100)	60 (100)
Education Level	Illiterate	18 (47.4)	12 (54.5)	30 (50)
	Can sign only	7 (18.4)	6 (27.3)	13 (21.7)
	Up to IV/V/IX	9 (23.7)	4 (18.2)	13 (21.7)
	Up to Secondary	3 (7.9)	0 (0)	3 (5)
	Graduate	1 (2.60)	0 (0)	1 (1.7)
		38 (100)	22 (100)	60 (100)
Caste	General	2 (5.3)	0 (0)	2 (3.3)
	SC	7 (18.4)	1 (4.5)	8 (13.3)
	ST	5 (13.2)	12 (45.5)	17 (28.3)
	Adivasi	24 (63.2)	9 (40.9)	33 (55.0)
		38 (100)	22 (100)	60 (100)

Source: Field survey

**Table 5.8 Activities of Workers**

Activities	Sex		Total
	Male	Female	
Plucking	11 (47.8)	36 (97.3)	47 (78.3)
Pruning and Spraying	12 (52.2)	1 (2.7)	13 (21.7)
Total	23 (100)	37 (100)	60 (100)

Source: Field survey

**Table 5.9 Wage of workers by sex**

Wage rate/ day (in Rs.)	Sex		Total
	Male	Female	
90	0 (0)	1 (2.7)	1 (1.7)
100	4 (17.4)	19 (51.4)	23 (38.3)
110	0 (0)	12 (32.4)	12 (20.0)
120	9 (39.1)	5 (13.5)	14 (23.3)
130	3 (13)	0 (0)	3 (5.0)
150	7 (30.4)	0 (0)	7 (11.7)
<b>Total</b>	<b>23 (100)</b>	<b>37 (100)</b>	<b>60 (100)</b>

Source: Field survey

### ***Innovations and Instruments in Promoting Tea Farming: Role of Organisations***

In the move towards small tea cultivation, many growers of Assam and West Bengal are forming societies or associations to protect and promote their interests. One of the major problems in tea farming is the existence of a large number of middlemen (popularly known as leaf agents). Small farmers sell their leaves to these middlemen. As a result, the farmers get less than the market price and also do not have any market information. These middlemen often lend money to the growers. In the process, many tea farmers (particularly marginal and small) often fall into a debt trap or are made to sign bonds with these leaf agents. Different society and self-help groups (SHGs) have been formed to abolish these agents and also to maintain parity in price. The state through Tea Board and nationalised banks by means of various loan schemes and financial inclusions are seen to be promoting tea cultivation and employment in rural economy. Looking at the global production demand, green and organic tea is being promoted. State and other stakeholders (like Centre for Education and Communication) are trying to introduce different innovations and instruments in making green and organic tea in some of the places in Assam. Tea board has separate funds for STGs under tea development and various promotional schemes. This section attempts to critically examine how different organisations through its various innovations are trying to mobilise the workers and promote tea in global production. The two case studies on large and small societies have been illustrated.

#### ***Role of Large Producer Society: How inclusive is it?***

The Tea Board of India has taken many initiatives to promote STGs to work as collectives, by forming producer societies or self-help groups (SHGs), for sustainable green tea leaf trade business, especially since 2005. There are over 1200 SHGs in the tea sector in India and most of them depend on BLFs to sell green tea

leaf of their members. Three SHGs from West Bengal— *Jai Jalpesh*, *Panbari*, and *Nabajagaran*—are noteworthy as they have more than 1,100 growers. They have also showcased their teas for the first time during World Food Moscow in Russia in September 2016 (*The Hindu* 2016). Our field research covered one of them: Jai Jalpesh SHG from West Bengal. We conducted s with its members, group discussions and in-depth interviews with officials. We were especially interested in their membership criteria, internal governance and the benefits for their members. Thus, this case tries to examine how large society strategies are functioning and mobilising STGs.

Jai Jalpesh Self-Help Group was registered under West Bengal Society Act XXVI of 1961 Society Act and was set up in the year 2004. This society starting with a membership of around 10 STGs has expanded to 522 STGs as of 2016, owning collective land of over 2000ha. For being a member of this SHG, the STGs need to possess at least 1 acre of land under tea cultivation in Jalpaiguri district. The main objective to start this society was to collectively place their demands before the government. Within this SHG, there are 17 groups, each comprising 30–31 members, and headed by an elected member known as the group leader. This society has an Executive Body (EB) with 17 elected members and a General Body (GB) with 522 members. The leaves are collected together and taken to definite centres where they are weighed. Thereafter, it is taken to factories and the payment is received by societies after 15 days. Then the SHG transfer the amount to individual growers' accounts. In this transaction, the society deducts around 20 paisa per kg from the leaf rate and saves the amount for a different fund. During off season, the amount is disbursed as loan at no interest to the growers to be returned within one year. To expand this system further, the SHG started thinking of setting up a factory and approached the Tea Board to help them. However, when the Tea Board did not agree to provide the entire money, the SHG decided to gather funds by increasing the number of its members and raising more money from them. The group collected Rs. 20 million from its members. With this money, Tea Board granted permission to set up the factory. The Board also granted Rs. 20 million to this group and the SHG took Rs. 10 million loan from a nationalised bank.

The emergence of this SHG is indeed an example of successful collective organisations and there are many groups which are aspiring to form their factories in order to process tea across India. However, the members of this SHG criticised the organisational structure of the society and how it functions. They pointed out that all elected group leaders are big growers who possess more than 10 acre of land and these growers thrust their own demands. The small and marginal growers (having less than 1 acre) are not in fact aware of the price-setting mechanism. The

factory needs to run to utilise its capacity; so if members have no sufficient green leaves, the society buys green leaves from outside its members. It has been reported that the SHG acts as an independent BLF. This deviates from its objective. This also raises the question on inclusivity and the mechanism and ethos of cooperative society. Forming a mini factory with less capacity is being promoted both by the tea board and associations.

*Emergence of Small Producer Societies in Assam: Is it a feasible alternative?*

Besides society with large members, societies with smaller members have been emerging in both the states. We have visited one such society in Udalguri district of Assam—the Rodomukhang Small Tea Growers Society. It was established on 9 September 2012. It was formed with 52 members that now stand to be around 45. This society cultivates around 33.3ha with a minimum 0.33 acre and maximum of 3.33 acre of land per member. The drop in membership rate has been attributed to the denial of growers to follow certain rules and regulations laid down by society. The main reason for forming the society has been attributed towards difficulty in securing individual agreement by marginal growers with the estates for selling their leaves. This society was formed with the aid of Centre for Education and Communication (CEC) to unite and seek registration for the same. Each member had to contribute around Rs. 200 towards registration.

Initially, the growers relied upon agents to sell their leaves but since 2013 they are selling their leaves to the nearby Dimakuchi Tea Estate through their society. There is a deduction of Rs. 2 from the factory rate. The break-up of such deduction is claimed to comprise maintenance cost of around Re 0.95, deduction by factory from cess of Re 0.35 and the rest as savings for the society. Savings are to be used for the society like building of tea shades, and so on. The growers are required to bring their leaves to the society and from there it is taken in society's auto van to the estates. The society is managed by six members and an elected president and a secretary to look after financial decisions. The society arranges meetings at an interval of two to three months and organises training sessions for application of pesticides, spraying, and so on. Officials from the Tea Board and estates come to train the growers. It has a Revolving Fund whereby it lends out funds for pruning activities of the growers. The society is strict in terms of leaf quality as the estates lay clear guidelines in this regard. In this society, generally, groups of four to five members are created for shortage of labour. Accordingly, the labourers are shared between the four respective members and plucking takes place on a rotation basis. The average wage of this region is around Rs. 130 and pruning is done on *theeka* (contract) system. Majority of this village has paddy and betel nut trees as subsidiary crops. They have not converted their entire land to tea as few plots of land are considered to be low land. In order to process green and organic tea,



manual labour and smaller investment are required. CEC along with Tea Board and banks are trying to introduce mini factory which would process green and organic tea. The main thrust of such society is not allowing many members in the society. It is early to comment whether this alternative model would succeed or not, as these growers would be targeting only the international market. Officials from the confederation and different societies support smaller society as their members are more dedicated to address issues of small and marginal growers.

### ***Plantation Economy: Where Is It Heading?***

Independent tea cultivation is undoubtedly an important source of rural livelihood in India. It also provides employment to a large extent. In current development trajectories, nature of work, employment, and labour process across the world have been changing, especially in developing nations, including India, in forms of contractualisation, casualisation, and informalisation. In India, about 92% of the total working population is deriving their livelihood from various informal sources, of which around 56% are engaged in self-employment (Saha 2017). The share of self-employment is higher than that of regular and casual wage work. In addition, one of the current employment strategies in India is promotion of entrepreneurial skills and enhancement of self-employment options. Tea cultivation seems to be a viable own account option of self-employment in rural economy. However, it will lead to further informality in the rural economy. Increasing self-employment in the tea cultivation sector is indeed an indication of structural changes in plantation economy, or rather as an outcome of structuralisation of the tea industry.

The industry has witnessed many changes in terms of market and production process through globalisation of its production network. Process upgrading (Barrientos, Gereffi, and Rossi 2010) in terms of introducing new methods of production or tools used in plucking, pruning and processing of leaves and product upgrading, involving a shift towards organic production or certification schemes like ISO (22000: 20005) are taking place in ensuring food safety management system and other such criteria in this sector. Moreover, a number of global governance initiatives in the tea sector like that of multi-stakeholder roundtables and certification schemes have been introduced as part of upgrading. The market share of such certified tea has risen from a mere 1% in 2007 to around 12% in 2012 (Potts et al. 2014). In this, the Ethical Tea Partnership (ETP), working at each end of the supply chain with a set of fundamental principles that are in direct reference to ILO's Decent Work Agenda, requires its members to report annually on the same.

Fair trade is another instrument to achieve popularity as a certified system for agricultural commodities. In this system, the tea employers are required to comply

with fair trade standards set for hired labour in terms of payment as per country's minimum wage level, assuring access to safe living and working conditions and adherence to minimum environmental norms (Oxfam 2015). In addition to this, certifications like that of SA 8000 based on principles of international human rights, ILO conventions, Universal Declaration of Human Rights and UN Conventions on the rights of the child seek to introduce economic and social upgrading of the tea plantation workers. Thus, as far as self-employment generation, profit, innovation, and state support are concerned in rural economy, tea cultivation has its own pace. Interactions with different stakeholders and key informants have revealed that dwelling conditions, independent earnings, status of health and children's education of growers have improved; socio-economic conditions of each village have also received a boost.

Tea growers do not convert the entire land for tea cultivation. It takes place in phases. As mentioned earlier, the portion of the land which is slightly elevated gets converted from food crop to tea cultivation. This is also because cultivating tea needs investment and production starts only after 18 months. Registration with the Tea Board (mainly in West Bengal) is a problem and as a result tea growers do not get any formal financial institutional help. The lack of such credit facilities for unregistered tea growers makes the growers depend on informal means. Many of the growers also take advances from their local agents either in the form of cash during off season or through supply of fertilizers and medicines owing to lack of access to such markets in certain villages. It binds the growers to the agents as the amount is deducted only at the time of selling leaves to the agents.

There are many associations (mainly SHGs), different innovative methods, and active state initiatives focusing on the promotion of tea cultivation by independent self-employed tea cultivators. However, marginal tea growers (about 75% of the total growers having less than one acre of land) still rely on middlemen or leaf agents. They do not have access to market, information, and adequate space to raise their issues at collective organisations. The collective bargaining space is dominated by large growers (about 3% of the total growers) who overpower organisational innovations, namely, associations, SHGs, and cooperatives, and pushing the interests of the small cultivators further to the margins. The condition of wage workers under self-employed tea cultivators is deplorable. Their wage is much lower than the minimum wage prescribed by the state. Most of these workers were ex-tea estate workers belonging to the indigenous/tribal community. These workers transfer their knowledge on tea cultivation and plucking to the locals. Despite their importance in tea cultivation, neither any association nor the state addresses the concerns of these workers. There is no discussion on how to protect casual workers from the hands of the growers or to ensure that they obtain their

minimum entitlements such as minimum wage, social protection, or basic rights. Smallholders and labour working under independent tea growers remain in the margins in terms of price setting, collectivisation, and wage payment; their position can be argued to be at 'deficit' as per decent work conditions. In a situation where marginal growers are themselves struggling to achieve a state of self-reliance, the scope for promoting social upgradation of its workers in both quantitative and qualitative terms, seems to be at stake.

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## Part II: Drivers of the Decent Work Deficit

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## 6. Measuring Value Capture along the Brazilian Melon Value Chain

Thales Augusto M. Penha, Walter Belik, João Matos Filho, Guilherme Medeiros Oliveira

Melon production is one of the most important economic activities in the state of Rio Grande do Norte, situated in north-eastern Brazil. It began in the mid-1980s with international trade as its main marketing channel. Brazil is one of the five largest melon exporters in the world (Faostat 2015). The key location for melon production is Polo Açu-Mossoró in Rio Grande do Norte. Over the last three decades, this area has undergone several production transformations. Since the mid-1990s, a process of improvement of the technological base had unfolded, along with the creation of a new institutional environment, which had originated from the reforms undertaken in the Brazilian economy focusing on the reduction of agricultural funding and the imposition of new regulations, such as enforcing more rigorous supervision of labour conditions in agriculture. These changes had an impact on both the production system and on labour relations. An example of this change is the introduction of collective bargaining between employers and rural workers' unions (Oliveira 2011; also see Apolinário et al. in this volume).

The melon produced in Rio Grande do Norte has a strong presence in international markets and recently, in domestic markets as well. It is, therefore, necessary to understand how the costs and margins of melon production operate in these two different markets. In this context, the following questions arise: How does the process of value-addition function throughout the melon production chain in Polo Açu-Mossoró? What links in the production process are absorbing most of the value generated within the chain?

This chapter aims at identifying the contribution of the production factors (including labour of field workers, inputs, mechanised operations, and administrative expenses) towards the assessment of the final selling value of the melon produced in Polo Açu-Mossoró, as negotiated by the producer in both international and domestic markets.

The methodology focuses on measuring the added value. The literature addresses the analysis of global value chains from three major methodological frameworks: (i) general equilibrium models; (ii) economic and financial accounting models; and (iii) econometric models (Faße et al. 2009). Though the economic and financial accounting models analyse the flows that occur between the productive stages, keeping its focus on the product, the works that examine global chains from the financial point of view of added value has given little attention to the impact of the trade on the distribution of value within the chain, and more specifically the links

that occur in the international transaction. Therefore, this chapter tries to fill in this gap regarding the impact of the transactions on the commercial links in the chain. The methodology applied in this chapter allows the estimation of the proportion of how much each link of the value chain appropriates from the final value of the product. Data on production costs of melons produced in Polo Açu-Mossoró were obtained from the Brazilian publication of *Agriannual*. In the analysis of the domestic melon market, the annual average price per kg of melons sold in Brazil was used to determine the margins, as well as how much value is added at each value-chain stage. Evaluation of the international market, however, was more complex, as it included assessment of the margins of freight, insurance, and tariffs levied on melons sold in the UK. From the analysis of export values, it was possible to register the actual amount being received by the producer and establish the share of operations in melon production. The entire methodological steps will be detailed in the methodological procedures section.

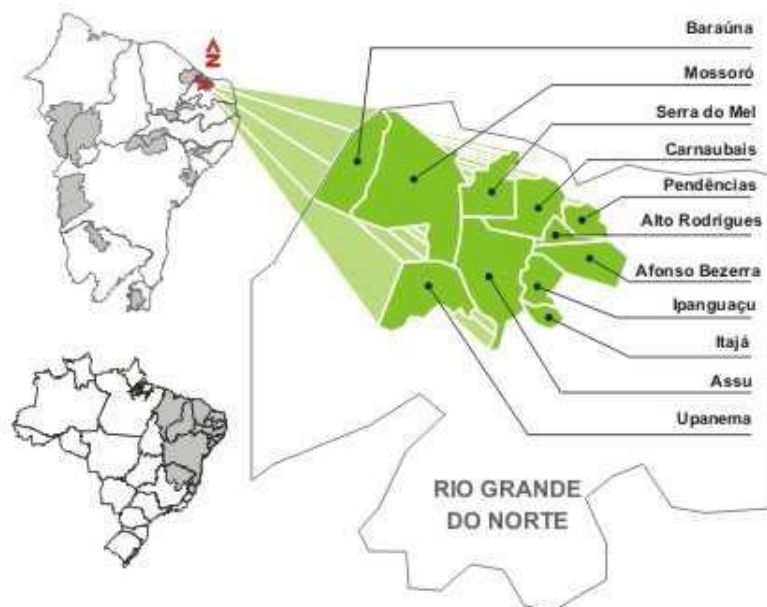
The findings of this work highlight that the power of supermarket chains in agricultural markets is higher in the case of melons sold in small, sliced portions. In this case, supermarkets hold on to approximately 72% of the value of these semi-processed products, and reduce the producer's profit margin and the contribution of labour, which, in this case, happens to contribute less than 1% to the final value-added. In view of this, it can be observed that European supermarkets can regulate the global value chain with greater power. Therefore, we recommend that Brazilian producers leave this chain of unequal power relations. Instead, they should focus more on the national market or try to export to countries in the Southern Hemisphere where they can capture more of the value generated along the chain.

### ***Origin and some features of melon production in the Polo Açu-Mossoró Region***

The Polo Açu-Mossoró is made up of 11 municipalities. Regional area occupies 8,040 km<sup>2</sup>, which corresponds to 15.23% of the total area of the state of Rio Grande do Norte, as shown in Fig.6.1 (Nunes and Schneider 2008).

The Polo Açu-Mossoró region became an important agricultural location in the 1970s. The military government's Integrated Rural Development Plan (PDRI) included several projects, which ranged from land reform and farmer settlement to irrigation projects. The PDRI sought to improve the agricultural sector in the north-east of Brazil and boost the establishment of agribusinesses in the region (Nunes 2009).

**Figure 6.1 Location of Açú-Mossoró Region**



*Source:* Nunes and Schneider (2008).

One of the important projects contemplated by the PDRI was the POLONORDESTE, which focused on developing dynamic production areas integrated with food industries and markets. However, the implementation of POLONORDESTE depended on the success of infrastructure projects in the region, which began in the late 1960s under the National Integration Programme (PIN). This programme was intended to solve the problem of irregular rainfall in the north-east of Brazil through the development of several hydraulic public works projects. Because of the complementarities between the POLONORDESTE and PIN programmes, the latter was integrated within PDRI (Heinze 2002).

The hydraulic public works implemented under the PIN programme were essential for the establishment of agricultural producers in the north-east. In Polo Açú-Mossoró, the main objective was the creation of a water reservoir which was fulfilled by erecting the Engineer Armando Ribeiro Gonçalves Dam along the Açú-Piranhas River in 1983.

The installation of north-eastern agribusinesses, as outlined by the PDRI, was possible due to tax incentives, as well as owing to the availability of abundant credit to finance various agribusiness programmes, including POLONORDESTE, which aimed at the integration of markets as well as export promotion. These programmes aimed to improve agriculture by fostering cohesion between input suppliers and sectors along the agriculture value-added chain; the federal

government used tax exemptions as one of its primary tools to facilitate the installation of companies in the north-east (Belik 1992).

In the mid-1980s, irrigated fruit production began to enjoy more prominence through the entire Brazilian north-east. As Silva (2001) described, this movement resulted from the crisis in the agro-industry, which had begun to suffer from cuts to tax incentives caused by the Brazilian hyperinflation crisis of the 1980s. This crisis shifted the focus of economic policies towards the generation of foreign exchange in order to stabilise the balance trade. The introduction of fresh tropical fruits into international export flows was one of the various initiatives intended to promote exports. Parallel to these domestic developments, important changes also occurred in international agricultural trade during the 1980s, which allowed greater integration of new production areas and new products into the global food market (Funcke et al. 2009).

The emergence of melon production in Rio Grande do Norte was strongly linked with the setting up of large companies and farms. These companies specialised in melon production which was particularly oriented towards the international market. As shown in Table 6.1, the main representatives of this consolidated production model were two companies—Maisa and Frunorte (Nunes and Mello 2007).

**Table 6.1 Total Area of Production and Irrigated Area (company-wise) in 1996**

<b>Company</b>	<b>Municipality</b>	<b>Total Area (ha)</b>	<b>Irrigated Area* (ha)</b>
Maisa	Mossoró	30.000	3.000
Frunorte	Carnaubais	11.500	1.628
Faz. São João	Mossoró	5.000	604
P. S. Nordeste	Ipanguaçu	850	250
Agricol	Baraúna	700	258
Fruterra	Ipanguaçu	620	240
Twa	Baraúna	320	250
Agrosafra	Baraúna	120	80
Agrifruti	Baraúna	118	99

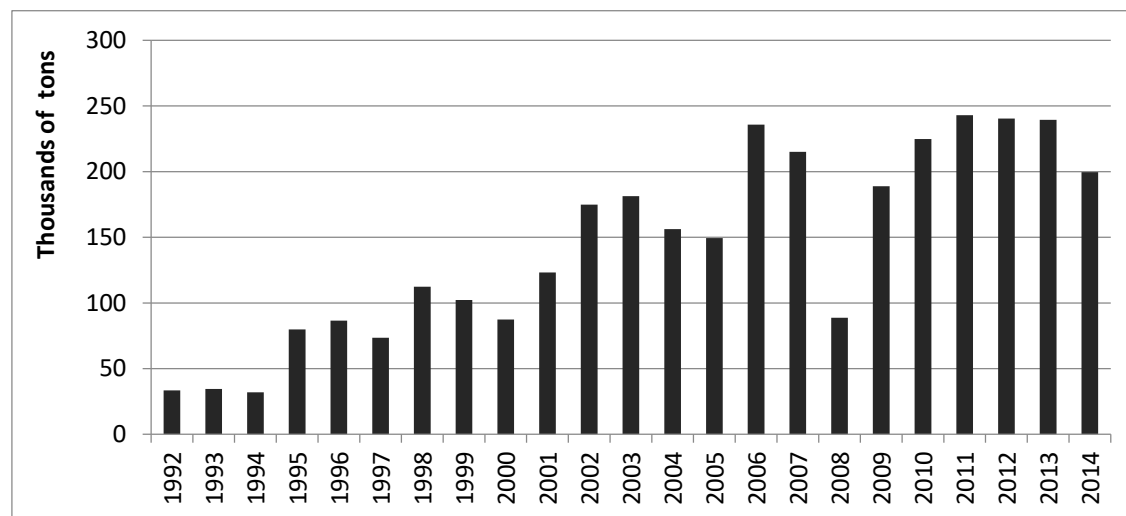
\*Corresponds to the irrigated area per year, which includes the same amount of area for harvest.  
*Source:* Silva 2004.

These companies increased melon production in the region, as shown in Fig. 6.2, and, after the first half of the 1990s, the region already exhibited melon production



levels of nearly 40 thousand tons per year. Total melon production grew more than eightfold over the 1990s and 2000s.

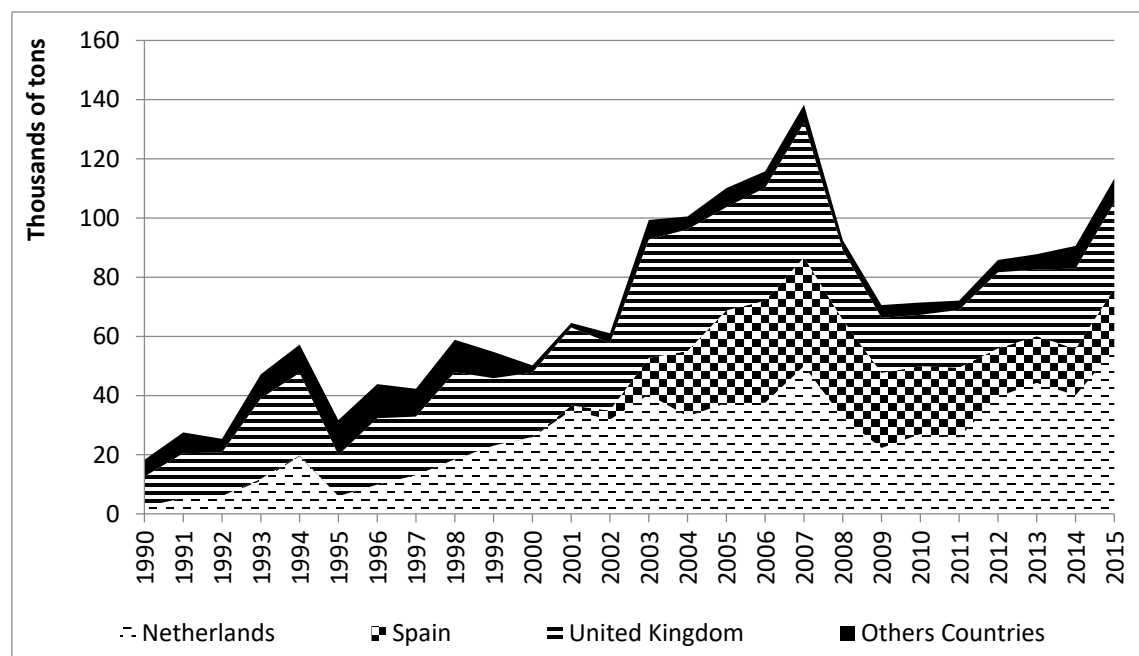
**Figure 6.2** Quantity of melon produced in Polo Açú-Mossoró, 1992–2014



Source: Brazilian Institute of Geography and Statistics (IBGE) 2016.

Of all the production from Polo, a substantial part is destined for the international market, as illustrated in Fig. 6.3. The primary export destinations are the United Kingdom, the Netherlands, and Spain.

**Figure 6.3** Melons from Polo Açú-Mossoró, and primary destinations, 1990–2015



Source: AliceWeb (2016).

In the previous two figures (6.1 and 6.2), we observe strong growth during the 2000s, both in production and exports. This remarkable expansion was

spearheaded by the two largest companies, Maisa and Frunorte. Ironically, these companies suffered bankruptcy only a few years after this growth spurt. The bankruptcies were largely due to changes in the institutional environment in which they were embedded, the end of tax subsidies, new rules of international trade combined with the inability of management to adapt with the new circumstances.

It is important to highlight these changes in the institutional environment because they defined the new standard practices within the Agrifood System, beginning in the first half of the 1990s. The intensification of the integration of agricultural markets, which began in the 1980s, increased competition among countries, which in turn created an important debate around the need to return to the protectionist policies adopted by developed countries. But only in 1995, at the Uruguay Round of GATT negotiations, did countries commit to reduce agricultural subsidies. At the time, health rules were also established in order to improve compatibility with trade norms between countries (Burfisher 2000; Busch and Bain 2004).

This new context of reduced protectionism in agricultural markets allowed for a significant expansion in the international trade in the second half of the 1990s and early 2000s. Nevertheless, the opening and expansion of markets for agricultural products was only possible due to the increased supply capacity provided by technological advances in harvest and post-harvest techniques (Silva 2001; Wilkinson 2008).

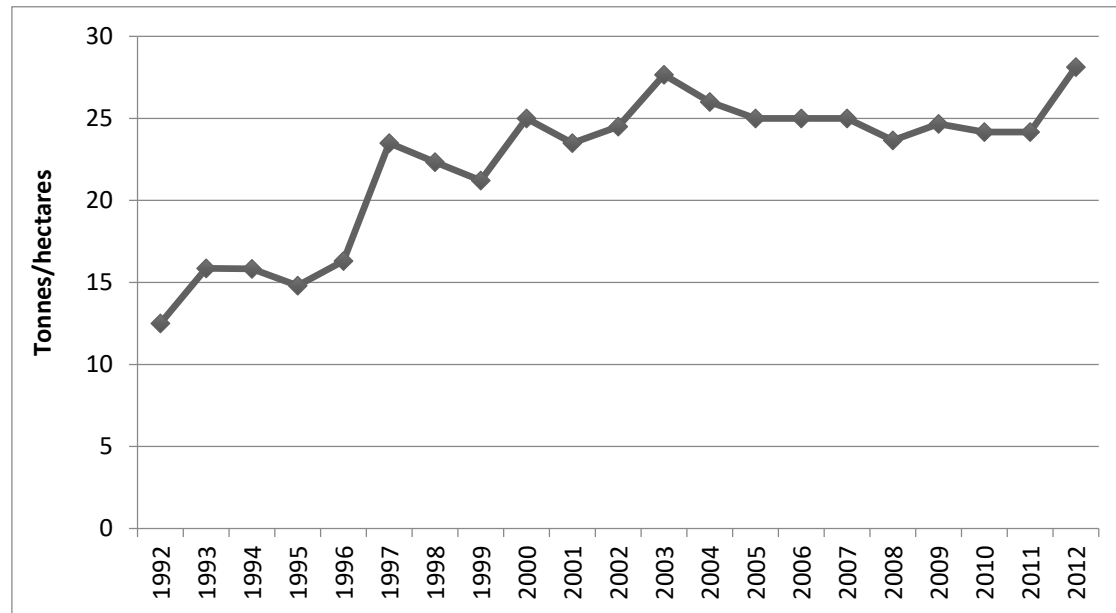
At the end of the 20th century, a new scenario emerged. If, on the one hand, agricultural markets had become more integrated due to the reduction of protectionism, on the other hand, an international debate regarding health rules was unfolding. New concerns over food safety were emerging from changes in demography, culture, and income, particularly in developed countries (Friedmann 1993; Belik 2009; Raupp 2010). Consumer demand for quality culminated in the emergence of several certificates acknowledging product characteristics. This phenomenon sent ripple effects throughout the agri-food supply chains, as producers had to reorganise their production routines in order to adapt to new certification requirements (Wilkinson 2008).

Certification is achieved as a result of successful monitoring of agricultural practices, labour standards, environmental regulations, and product characteristics. In Brazil, this process was carried out in part by state agencies, although private actors, including international groups, now play a large role. For example, large distribution centres, supermarkets, and agencies representing global retailers began to disseminate their own certifications guaranteeing quality criteria according to their own rules, which are not always homogeneous. This ground-up process has culminated in the emergence of dozens of certifications (Busch and Bain 2004).

Thus, the production of food for distribution has moved away from the old mass-production model towards a more flexible, demand-pull system, inspired by just-in-time production models in which producers offer differentiated products in rapid response to demand specificities (Wilkinson, 2008; Belik 2009). Given the higher demand for quality, consumers made room for large distribution retailers to play the main role in trade of fresh products on the global stage (Belik 2009). This change in market composition had a direct impact on the coordination of agro-food commercialisation. The new flexible model that they have adopted calls for new forms of coordination to manage transactions between producers and buyers (Belik and Chaim 1999; Menard and Klein 2004; Wilkinson 2008).

A new pattern of production was consolidated in the 2000s, with the region enjoying a production of approximately 25 ton of melon per hectare (as show Fig. 6.4), which is substantially larger than the 15 ton per hectare norm of the previous decade.

**Figure 6.4 Melon yield (ton/ha), 1992–2012**



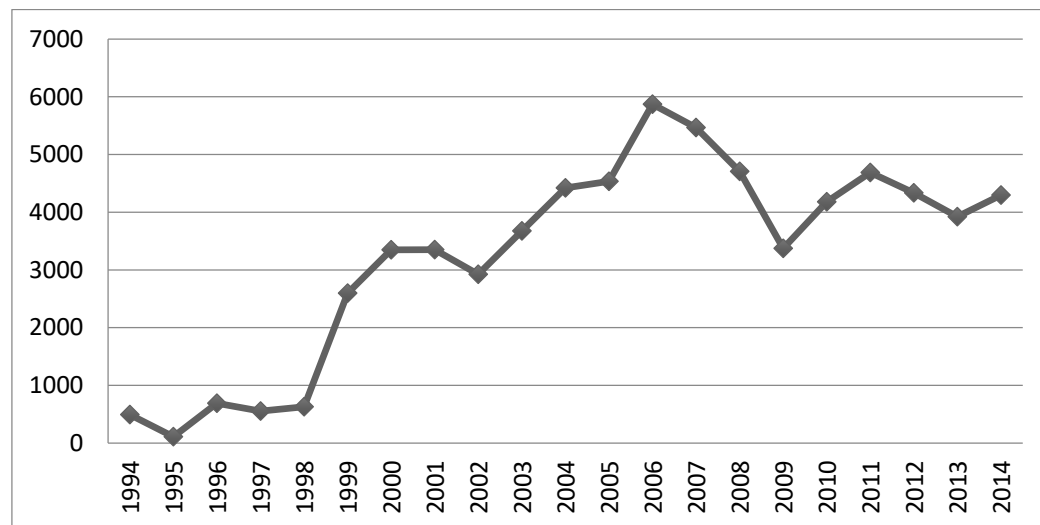
Source: Brazilian Institute of Geography and Statistics (IBGE) 2016.

This expansion in melon production impacted the region’s labour market in a good way. Fig. 6.5 indicates the growth of formal employment in relation to the production of this temporary crop.<sup>24</sup> Around the turn of the 2000s, the quantity of formal workers increased by more than 400%. This expansion continued until

<sup>24</sup> Although the data is aggregated for all temporary crops of the region, there are no other relevant temporary crops besides melons that could cause a serious distortion of the employment statistics.

2006, when the financial international crisis affected the dynamics of melon exports, significantly decreasing the demand for labour.

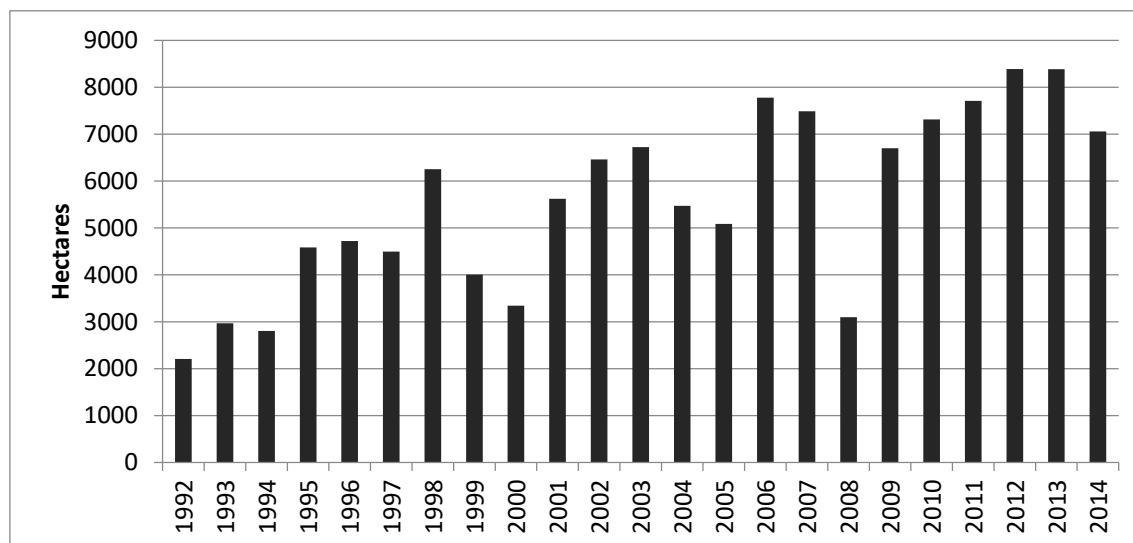
**Figure 6.5** *Formal employment in temporary crop region—Polo Açu-Mossoró (number of employees), 1994–2014*



*Source:* Relatório Anual de Informações Sociais - RAIS (2016).

Analysing Fig. 6.5, three important points about the production process and labour relations emerge. First, one should note the sharp employment growth between 1998 and 2000. This growth in the number of formal workers occurred in the same period in which the acreage of the crop in the region experienced a decline of 47% when compared with data from 1998 to 2000 (see Fig. 6.6). This process indicates that there was, indeed, no increase in the quantity of workers, but rather a process of employment formalisation by which workers who had formally been employed informally gained formal status.

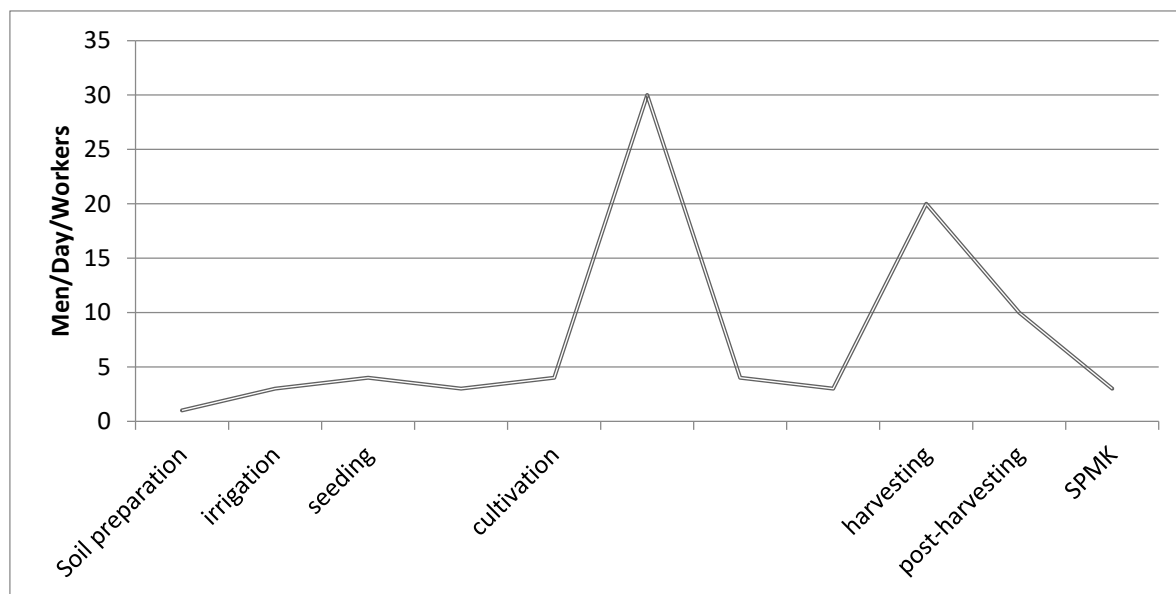
**Figure 6.6** *Planted area (in hectares) in Polo Açú-Mossoró, 1992–2014*



Source: Brazilian Institute of Geography and Statistics (IBGE) 2016.

The second issue of note is the impact of yield productivity gains on workforce demand. As illustrated in Fig. 6.7, the most labour-intensive stage of melon production is cultivation. The decline in demand for workers was thus due to the mechanisation of some stages of production, especially during soil preparation and post-harvest.

**Figure 6.7** *Workforce demand for melon production*



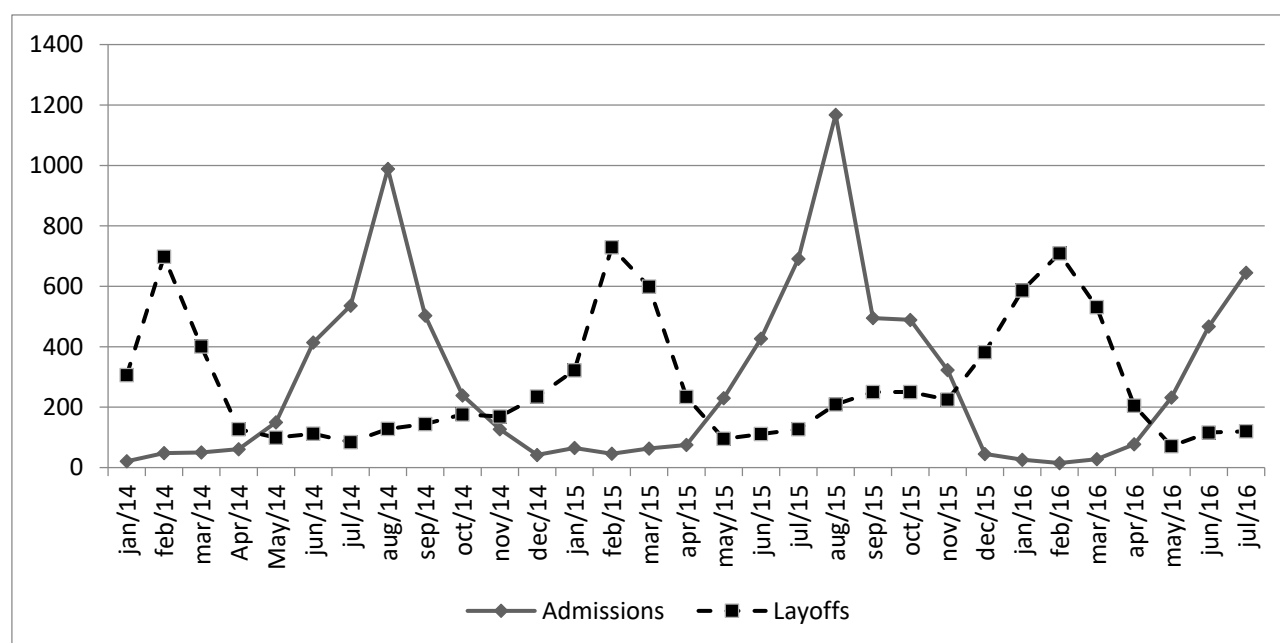
Source: Agriannual 2016.

The third point of note refers to the pattern of regional production throughout this period of increasing labour formalisation and decline in total cropping area. These

trends coincided with growth in total regional yield, as shown in Fig.6.4. This phenomenon is in part a consequence of the intensification in deployment of labour-saving technologies that reduced demand for workers, which partially explains the decline in labour demand over the years.<sup>25</sup>

In spite of the overall increase in formal employment, this sector undergoes cyclical oscillations in hiring and layoffs. As shown in Fig.6.8, admissions and layoffs occur at specific times of the year. Recruitment is usually done between May and October, while layoffs occur between November and April.

**Figure 6.8** Seasonality of formal jobs in fruit production, Polo Açú-Mossoró, 2014–16



Source: Cadastro Geral de Empregados e Desempregados - CAGED (2016)

This cyclical quality of the region’s labour market for melon production is a consequence of international market coordination. As pointed out by some exporters (Interviews, July 2016), the supply of melons in European markets follows a particular schedule: the main suppliers to the market between September–January is the Polo Açú-Mossoró region; February–April, it is Central America; and May–August are Spain, Israel, and Morocco.

As discussed earlier in this chapter, the main destination of melon produced in the Mossoró region is the international market. Thus, production follows the

<sup>25</sup> This insight is confirmed by the president of the agricultural workers' union of the state of Rio Grande do Norte, who has been active in the region since the beginning of the 1990s (Interview, May 2016).

international supply schedule, and the labour market follows production, exhibiting a cyclical pattern due to global market coordination.

It is also possible to observe in Fig. 6.6 that during the 2000s, there were a variety of trajectories occurring in the region. The first half of the decade is marked by significant growth in production and export of melons, which reinforces once again the importance of international markets to the dynamics of the region. However, from 2007 onwards, the amount of melon produced dropped steeply, reflecting the first signs of an international crisis that spread around the world towards the end of the 2000s. Thus, there was a decline in crop production, resulting in some companies (farms) leaving the business; as well as a falloff in the total number of formal jobs, as indicated in Figs 6.5 and 6.6.

As exhibited in Fig.6.2, the recovery of the international market began only in 2012, despite the recovery in production volume to have begun as early as 2009. This change highlighted a new horizon for the melon's destination: the domestic market. Rising income levels throughout Brazil's population, especially in the lower portions of the distribution (as demonstrated in the study of Neri and Souza 2012), had an important influence on the consumption of fruit. This fact is indicated by the survey conducted by the National Agriculture Confederation—CNA (2011), which showed that the lower-income group of the Brazilian population spends a large proportion of their total income on food, therefore, they possess a stricter budget constraint for purchases of fruit. Studies by Hoffmann (2007; 2010) corroborate this hypothesis using data from the Expenditures Survey (POF)'s<sup>26</sup> for 2002–3 and 2008–9. Hoffmann calculated the elasticity of income–expenditure, and showed that, in general, fruits have a high income elasticity among Brazilian families of all social strata. However, it is in the lower strata that income elasticity appears to be greatest.

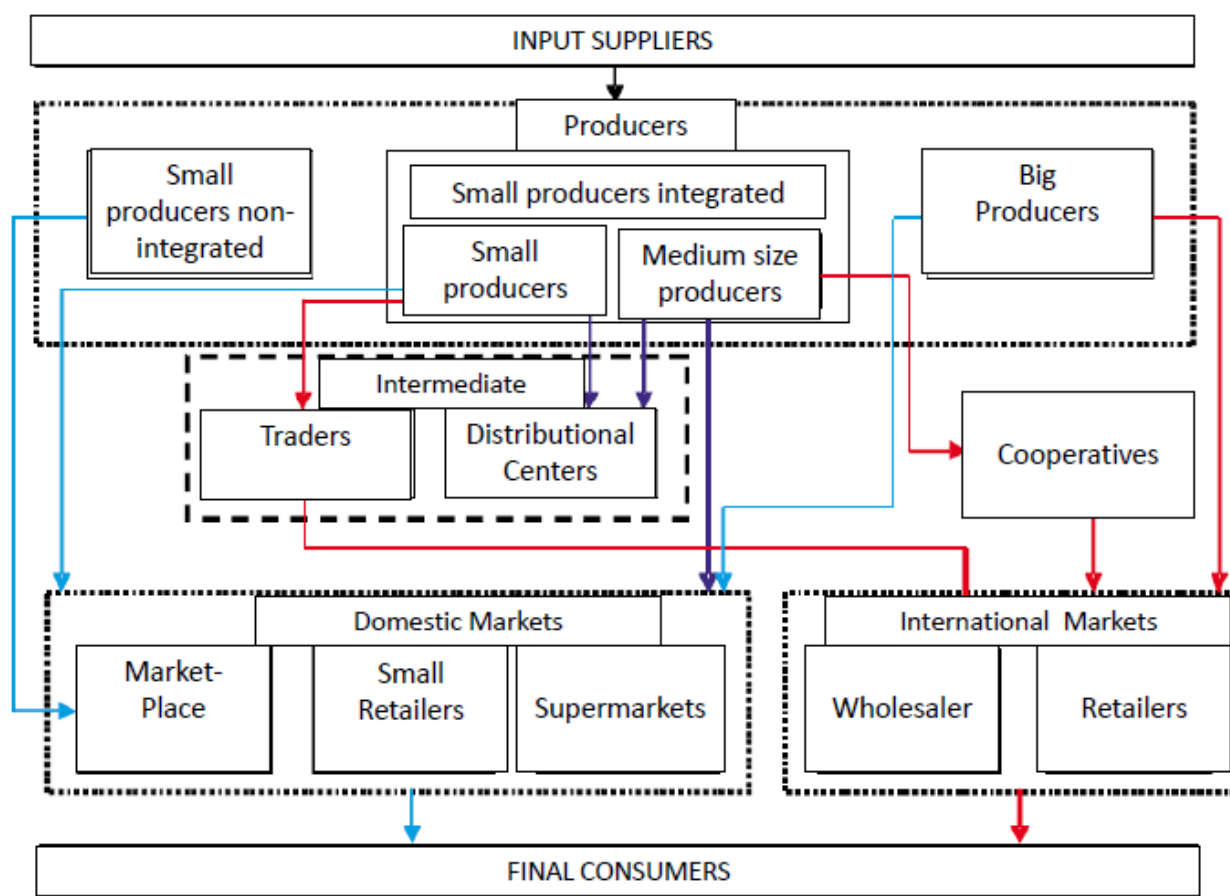
This increasing dynamism in the domestic market allowed some producers to redirect their production, softening the impact of the international crisis on their businesses. A study conducted by Oliveira (2011) on the flow of melon produced in Polo Açu-Mossoró revealed that small producers directed their production to Public Wholesale Food Markets (CEASAs) and local markets, while large producers exported about 80% of their yield.

This structuring of the melon production chain is outlined in the work of Velloso and Primo, cited by Araújo and Campos (2011), and illustrated in Figure 6.9.

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<sup>26</sup> POF refers to the expenditure survey conducted by the Brazilian Institute of Geography and Statistics (IBGE).

**Figure 6.9 Production chain of irrigated fruit culture, Brazil North-East**



Source: Velloso and Primo (2011).

In terms of commercialisation, exports remain the main driver of the region's economy, despite the domestic market presenting itself as a viable alternative during the period of international recession. However, in view of these findings, it is important to investigate how such a productive melon chain, as described earlier, has added value in these different markets, and how the factors of production have been paid. The following sections explain the methodological approach in understanding this process.

### **Methodology for Measuring Value Capture**

The debate on the analysis of productive chains originates from two strands: the first is based on the French concept of *filière*<sup>27</sup>, and the second is based on the work of Wallerstein (1974) that develops the concept of commodity chains from

<sup>27</sup> *Filière* is concept of the French School of Industrial Economy. It is applied to the analysis of the integrated production process that encompasses the various stages ranging from raw material capture to the final transfer to the product made available to the consumer.



the dependence theory. However, owing to the intensification of globalisation, the concept of global value chains as developed by Gereffi broadened the view about relations among firms by highlighting four central elements: (i) structure of the input–output relationship; (ii) international structure; (iii) institutional framework; (iv) governance structure (Kaplinsky and Morris 2001; Faße et al. 2009).

There is a need to develop tools to analyse the impacts and dynamics of global value chains throughout their stages. Thus, some methodologies have been developed and these efforts can be systematised into three major methodological frameworks: (i) general equilibrium models; (ii) economic and financial accounting models; and (iii) econometric models.

The general and econometric equilibrium models try to capture the economic performance of the sectors through the behaviour of the economic variables (Faße et al. 2009). The economic and financial accounting models analyse the flows that occur between productive stages by focusing on the product. However, there is a subdivision that allows to highlight on two different aspects of the chain. These methodologies are divided into financial analysis and economic analysis. The economic analysis is based on methodologies that measure the induced impacts along the productive links of the chains in society and in the economic system in general. In this way, the chain is analysed as part of the national economy. Thus, it shows how the sectors integrate, in order to measure how the expenditures at each stage overflow to all sectors of the economy. For this analysis the input–output methodology has been widely used. For analysing how the values are distributed among the families, companies, government, and other agents, the social account matrix methodology has been used, which allows to observe how the income generated in the sector is incorporated by the agents (Faße et al. 2009).

In turn, the financial analysis is carried out focusing on the individual agent in order to identify the added value throughout the production process (Tallec and Bockel 2005). In financial analysis, the value added along the chain is given as follows:

$$VA_{chain} = Y_{chain} - II_{chain}$$

So the intermediate consumption ( $II_{chain}$ ) used in productive activities should be subtracted from the final value ( $Y_{chain}$ ) of the product in each analysed link. This difference represents the value added by the agent ( $VA_{chain}$ ) in every process throughout the production of the product or service. Therefore, with this methodology, it is possible to identify which stage has the highest share of value added (Tallec and Bockel 2005).

However, as Faße et al. (2009) emphasise, the works that analyses global chains from the financial point of view of added value has not focused on two important aspects: the consumption of natural resources and the analysis of environmental impacts and has given little attention to the impact of the trade on the distribution of value within the chain, more specifically the links that occur in the international transaction.

This chapter tries to fill the gap regarding the impact of the transactions on the commercial links in the chain, observing the participation of wholesalers and retailers and how they capture value in the chain.

The study of value addition along agricultural chains refers to the analysis of how the process of production and marketing adds value to the product throughout the various stages within its supply chain. Each production step involves a process of investment, cost, and profit. Thus, as pointed out by Araújo (2007), the added value incorporated into the product is linked directly to any increase in the sophistication of the product. In agricultural chains, this process of value creation may result in the presentation of the product *in natura*, highlighting some specific desirable feature, or in an adapted form to better fit consumers' preferences.

In the melon production chain, value accrues primarily according to the intrinsic aspects of fresh fruit (such as taste, size, and origin) and consumers' preferences for these aspects. Consumer perception of these attributes tend to vary from one market to another, such that the final market destination determines the product price and also the added value related to each stage of the production chain.

From these considerations, the next section analyses, the value-adding process of melon produced in the Polo Açu-Mossoró region, from the perspective of both national and international markets.

#### *Analysis of International Market*

Analysis of the international market requires further treatment. Spain, United Kingdom, and Netherlands feature different coordination mechanisms, which have influenced their production and distribution routines. However, due to the accessibility of data, only the UK market is analysed in this chapter. To determine the value added at each stage of the melon production and distribution system destined for the British market, the following methodological procedures were used: For melon sold as whole fruit:<sup>28</sup>

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<sup>28</sup> The price per unit paid by the final consumer was collected from the website <<http://www.mysupermarket.co.uk>>, which provides data on price variations in the main supermarkets of UK, including the average price of the last 12 months of 2015. The supermarket's profit margin is calculated by the deduction of the wholesale prices from the

$$(1) \quad \text{Supermarket Margin} = \text{Final Consumer Price} - \text{Wholesales Prices}$$

In turn, the wholesaler marketing margin is calculated as the difference between the selling price and the cost, insurance, and freight (CIF) price of melon imported from Brazil. In the case of international transactions, the value of a given trade flow is presented in two ways. The first shows the value of the transaction without insurance costs, customs duties, and freight (Free on Board -FOB).<sup>29</sup> The second method of reporting international transaction costs is by incorporating cost values and freight rates (Cost, Insurance, and Freight–CIF).<sup>30</sup>

Therefore, as shown in Equation 2, the difference between the CIF and FOB value are spending on freight, insurance, and fees.

$$(2) \quad \begin{aligned} & \text{CIF value} - \text{FOB value} \\ & = \text{costs of freights, insurances, and taxes} \end{aligned}$$

FOB and CIF values were obtained from the Comtrade Database, which discloses the total quantity exported and the amounts declared for both FOB and CIF.

By dividing the total value of exports from country ‘i’ to country ‘j’ by the total quantity exported, it is possible to find a proxy for price per kg of melon traded, according to FOB and CIF, in the manner detailed in equations 3 and 4.

$$(3) \quad \sum \frac{x_{i,j}}{q_{i,j}}$$

Analogously, it is also possible to define the proxy price paid by the importer:

$$(4) \quad \sum \frac{x_{j,i}}{q_{i,j}}$$

Thus, the FOB price is considered to be the value received by the producer.<sup>31</sup> Another feature of the process of value-addition is the analysis of production costs inside the farm. Production costs data employed in this chapter

amount paid by customers, as shown in equation 1. The prices charged by wholesale in the international market were based on monthly reports from the International Trade Center (ITC), an agency under the joint authority of the UN and WTO.

<sup>29</sup> Free on board information is published by the exporting country, which declares values from this perspective.

<sup>30</sup> Its value is normally issued through statements from the importer.

<sup>31</sup> According to authors’ interviews, the export contracts of a cooperative of medium-sized producers in the Mossoró region are carried out in FOB value. However, this agreement is made only if the seller (in this case the producer) sells a whole shipping container, since the fees are charged by containers, not by transacted unit.

were drawn from the publication of *Agriannual*, which contained information about melon production costs for the year 2015 in the Mossoró area.

From the data, it is possible to estimate the production costs per kg of melon produced. Subsequently, by subtracting from this value the price received per kg of melon (that is, the FOB value), it is possible to identify the margin of the producer.

After disaggregating these steps, it is possible to calculate and indicate the share that each stage in the melon production chain occupies as a proportion of final values (margins, inputs, labour), and to recognise which agents are appropriating most of the total.

There is one noteworthy subtlety in the UK melon market. If we analyse carefully, it's possible to divide the market into two types—one who sells the whole melon and the second who sells the melon integrating small sliced portions. The share of melons sold as a whole unit averaged at a price of US\$1.20 in 2015, according to the data obtained from [mysupermarket.com.uk](http://mysupermarket.com.uk). The other segment of the melon marketed in the UK goes through minimal processing and is sold in small portions. In this case, the price per kg experiences a considerable rise, averaging US\$ 4.31 in 2015. In this latter case, the margin of the supermarket also involves other operational costs, such as packaging and the employment of skilled labour throughout the process. In order to properly evaluate the value-added qualities of melons from Polo Açú-Mossoró that are marketed in the United Kingdom, these two cases should be analysed separately.

In order to achieve a standardised analysis and allow comparisons between all the values along the entire production chain, all monetary information has been converted into US dollars. Therefore, information about production costs gathered in Brazilian real(R\$) were converted into US dollars in accordance with the average exchange rate from 2015. FOB and CIF values obtained from the Comtrade database were already in US dollars. Additionally, the data from the ITC wholesalers and prices from UK supermarkets were originally listed in British pounds, and therefore were also converted to US dollars, in accordance with the average pound/dollar exchange rate from 2015.

#### *Domestic Market*

Wholesale market data from the Cepea database (ESALQ/USP) were used for the analysis of the domestic melon market. These data provide the prices of melon produced in Polo Açú-Mossoró region, as registered at several Public Wholesale Food Markets (CEASAs). To calculate the profit margin of wholesalers (also from Cepea data), producer prices were taken into consideration. The difference between the wholesale price and the producer price is the marketing margin of wholesalers.

Production costs are subtracted from the prices paid to producers analogously to the method described in the analysis of the aggregated price on the international market.

### ***Analysis of the Results***

All whole melons produced in the Mossoró region come from essentially similar production systems, albeit with variation in the size of property and type of enterprise involved. During field research conducted by the authors in the Polo Açu-Mossoró region, it was observed that there is a considerable degree of technology diffusion, with family farmers adopting commercial or proprietary techniques, specific seeds, or even the use of seedlings produced in greenhouses, as well as mulching,<sup>32</sup> to improve productivity.

According to the Brazilian statistics institute in 2014, 7,103 hectares were planted with melon in the region, and just one company, Agrícola Famosa, accounted for approximately 80% of total production, with the remaining portion resting in the hands of a group of medium-sized producers and a few small producers (IBGE 2016).

Melon is a short-cycle fruit that allows at least four production cycles per year. Its demand for water is very high, which makes access to this resource a critical determinant of the value of the location of the property. Properties must extract water from the soil for irrigation, which makes upkeep costs (equipment, depreciation, and electricity) very high (about US\$ 75 per hectare). There is, however, no charge for the use of water, as it is considered a public good (Agriannual 2016). In preliminary calculations, land costs were not considered, and there is thus no feedback from the cost of the land.

Another important observation is that all assets and capital goods used in the production are considered to be available to the producer. No financing costs of inputs or lease costs of machines were considered, although maintenance costs were considered when dealing with these machines.

As shown in Table 6.2, the production factor exhibiting the highest cost is agricultural inputs. About 80% of these costs come from seeds (ranging from US\$2,000–6,000 per kg depending on the type of melon, produced by the Syngenta company) and fertilizers. Seeds are not commonly planted directly on the field. Instead, they normally germinate in trays made of polystyrene or plastic, and are

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<sup>32</sup> The mulching technique is to use plastic to cover the soil and protect the melon to increase productivity and reduce the use of inputs (water, agrochemicals, and labour).

only later moved into the soil. This improves performance by allowing greater effectiveness of seed germination.

**Table 6.2 Melon Production Costs in 2015**

	Field workers	Machines	Agricultural inputs	Administrative staff	Agronomist	Field technician	Taxes/fees	Total
R\$/Ha*	2,655.54	3,118.86	12,056.57	992.61	472.80	70.79	782.00	20,149.17
R\$/Kg	0.11	0.12	0.48	0.04	0.02	0.01	0.03	0.81
US\$/Kg**	0.04	0.04	0.16	0.01	0.01	0.01	0.01	0.26

Source: Agriannual 2016

\*Melon productivity in Mossoró region is 25,000 kg / ha

\*\* The dollar ratio considered was the average annual change in 2015 plus the variation between the months of August to November 2014, since many contracts were still valid at the end of the last year.

It is observed that field workers represent only 14% of the total costs, thus constituting the lowest cost of production, comparable with the usage of machines (which corresponds to 15% of the production costs). This highlights the trend of technology intensification in melon production, including high use of agricultural machinery and agrochemical inputs. At the same time, it illustrates the low value of labour in the production process. In the following subsections, the share of value added by each factor of production in the final value of products sold in various markets is discussed.

#### *UK Market*

As established in previous sections, the UK is one of the main consumers of melon produced in Polo Acu-Mossoró. Accordingly, this section analyses the participation of each link in the melon value chain, considering the final price paid by British consumers.

As shown in Table 6.3, the final average price paid in UK supermarkets in 2015 was around \$ 1.20 a unit. It is notable that as a result of the low value charged by supermarkets when fresh whole melons are sold, only US\$ 0.02 accrues to supermarkets per kg. In Europe, the wholesalers extract the largest share, roughly equivalent to US\$ 0.16 per kg.

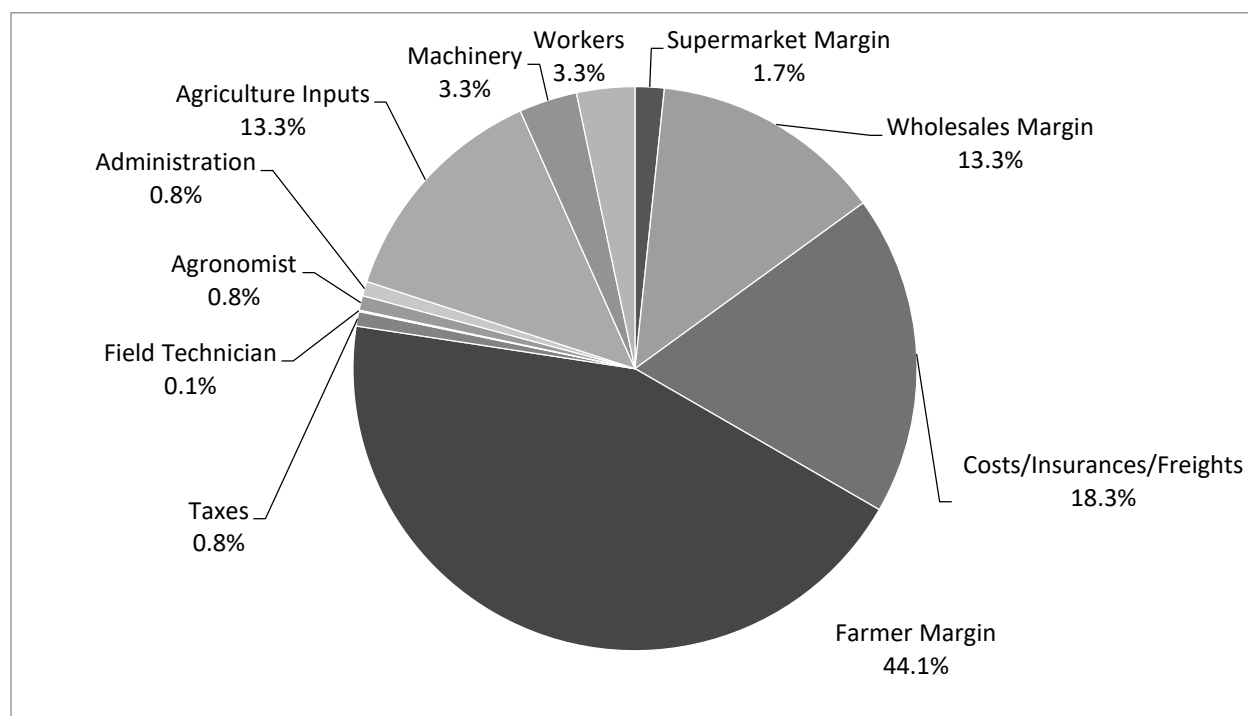
**Table 6.3 Value Added along the whole melon chain with final sale in United Kingdom (US \$ 2015)**

<b>Agents</b>	<b>Values</b>	<b>Data source</b>
Supermarket price	1.20	my supermarket
Supermarket profit margin	0.02	
Wholesale price	1.18	Intracem
Wholesaler profit margin	0.16	
CIF	1.02	Comtrade/Coopyfrutas
Insurance, freight and fees	0.22	
FOB (producer price)	0.80	Comtrade
Producer margin	0.54	Comtrade/Agrianual
Taxes/Fees	0.01	Agrianual
Field Technician	0.00	Agrianual
Agronomist	0.01	Agrianual
Administration	0.01	Agrianual
Agricultural inputs	0.16	Agrianual
Machinery	0.04	Agrianual
Field workers	0.04	Agrianual

*Source:* Prepared by author.

Figure 6.9 presents the proportion of value constituted by each link of the UK-destined production chain. It is observed that 66% of the final value is generated on the farm, and much of this value remains with farmers as the producers' margin. In contrast, less than 3% of total value is paid as compensation to workers.

**Figure 6.9 Value-added of fresh whole melon consumed in the UK, 2015**

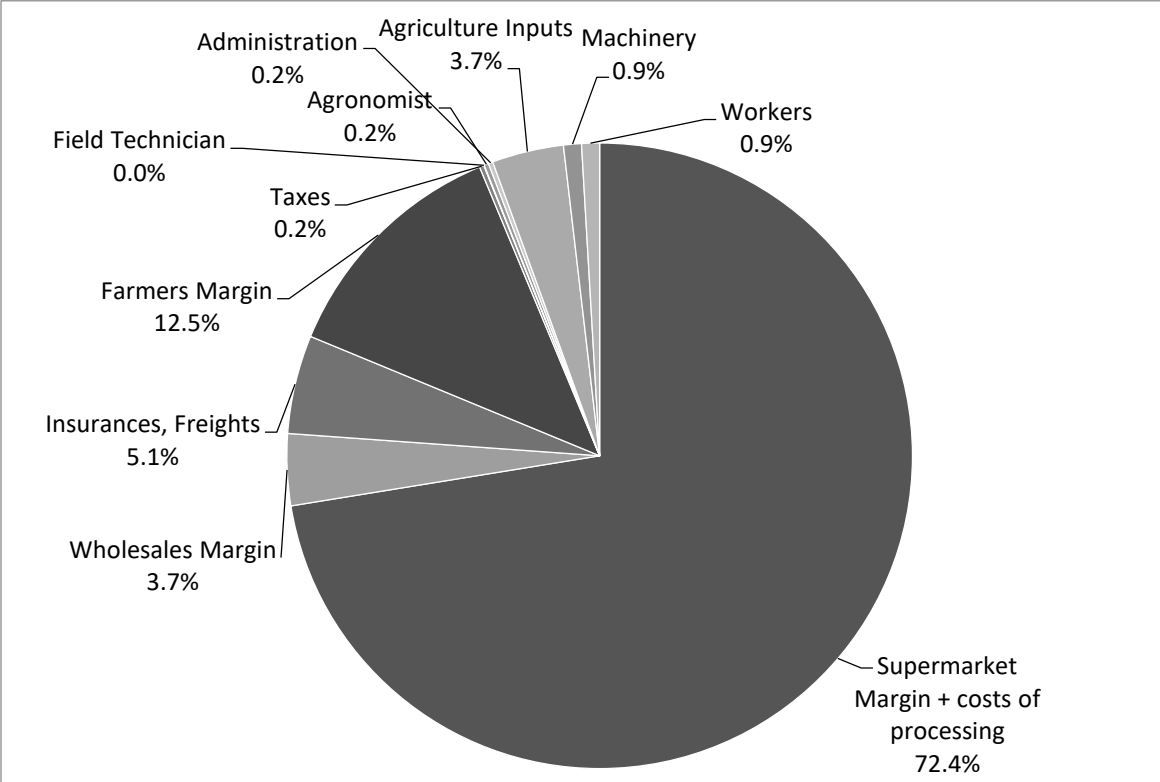


*Source:* Prepared by author.

The low value added at the level of the supermarket serves as a counterpoint to the proposition that supermarkets occupy a dominant position in agricultural markets. However, it is important to note that melons consumed in European markets are rarely acquired in their whole form. With smaller, cut portions of melon, the marketing margin of supermarket chains grows significantly, almost quadrupling the final value of the product in relation to fresh whole melon. Thus, by performing this minimal processing, supermarket chains are able to retain over 70% of the final value of the product. Meanwhile, the producers' share of total value added is reduced to 10% approximately. The situation of workers in this market appears to be even more dramatic, as their remuneration is less than 1% of the final value.



**Figure 6.10 Value-added for fresh sliced melon chain sold in the UK, 2015**



Source: Prepared by author

It is noteworthy that some of the farmers’ inputs are imported. In doing this they index the cost-price relation to the current exchange rate. This indexation softens the impact of currency exchange fluctuation, as it equally affects revenue and expenses proportionally. Moreover, producers and buyers share an expense-cutting agreement for the packaging.

*Domestic market analysis*

Less than 20% of the melon produced in Açú-Mossoró region is destined for the domestic market, largely because of producers’ strong connections with the international market and the presence of a large company that has Europe as its main market. Nevertheless, some medium and small producers also prefer the domestic market due to the lower transaction costs<sup>33</sup> involved. This is because the Brazilian market has lower requirements for certifications; in addition the costs of marketing and contact with buyers are much lower. The melon production intended for Brazil supplies both regional and south-central markets in the country. In this domestic marketing process, the Public Wholesale Food Markets (CEASAs) are

<sup>33</sup> Transaction costs emerge from the economic interaction in trade; these are informational costs that are often not available or even known homogeneously, i.e. there is asymmetrical information about some aspects of the transaction.

the main transaction points, and this marketing process is often managed by middlemen who have contacts in different places.

At the CEASAs in 2015, the average price of the melon from Polo Açú-Mossoró was US\$0.77, as shown in Table 6.4. The price paid to producers, according to data from CEPEA, was US\$ 0.58, constituting 24% of the final value of the product, as seen in Fig. 6.10.

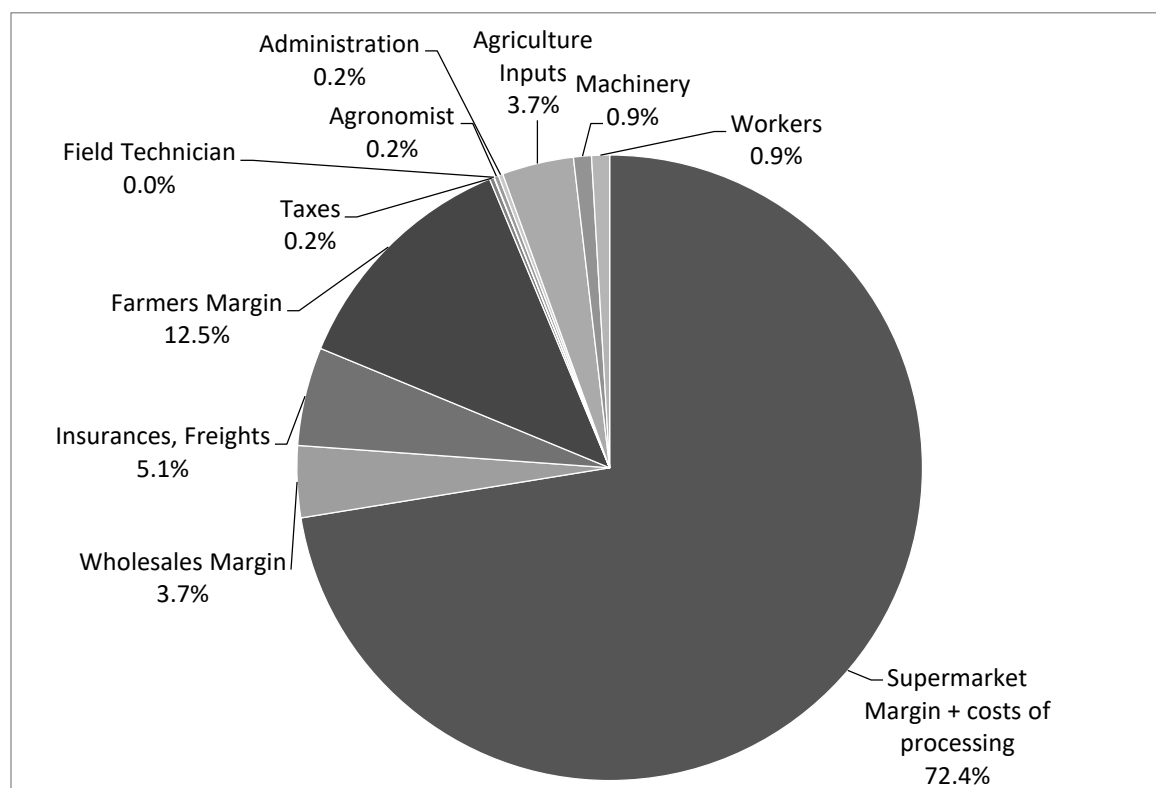
**Table 6.4 Value-added along the whole melon chain for Brazilian market**

<b>Agents</b>	<b>Value in US\$</b>	<b>Source</b>
Wholesale price	0.77	Cepea
Wholesale profit margin + Shipping	0.19	
Price Producer	0.58	Cepea
Producer Profit Margin	0.32	
Taxes / Fees	0.01	Agrianual
Field technician	0.00	Agrianual
Agronomist	0.01	Agrianual
Management	0.01	Agrianual
Agricultural inputs	0.16	Agrianual
- machinery	0.04	Agrianual
Worker	0.04	Agrianual

*Source:* Prepared by author.

It is also observed that domestic producers still maintain a good contribution margin, with workers' participation appearing to be approximately 4 percentage points higher than that of workers' contribution in international markets. Nevertheless, workers' share in the domestic sector remains very low.

**Figure 6.11 Value-added along the whole melon chain, sold in Brazil, 2015**



*Source:* Prepared by author.

Regarding labour relations, it is noteworthy that due to gains by trade unions and pressure coming from strict certification requirements for the products destined for international markets, producing companies and farms now face entirely new costs of compliance with labour laws and sanitary control bodies. Such costs did not exist before the year 2000. This has resulted in negligible wage gains for workers, although they have secured some additional earnings (for example, weekly paid rest, holidays, subsidised meals, etc.; see Apolinário et al. in this volume). For employers, this has resulted in a clear squeeze on their margins. Further studies can establish whether an increase in employer's expenses is compensated by gains in labour productivity stimulated by better employee welfare.

### **Concluding Remarks**

Our field research aimed at analysing the melon production chain in the Polo Açu-Mossoró region. It began by clarifying some basic aspects of the evolution of the region's productive structure over the past few decades. It was observed that Polo Açu-Mossoró's production systems were based upon public investments in water infrastructure that ultimately attracted private groups and stimulated further development. Melon production was consolidated in the early 1990s, and was

structured around large companies that produced melon for exportation in large irrigated areas.

However, despite the fact that the two largest melon-producing companies had declared bankruptcy by the late 1990s, the Polo area retained its attractiveness, as the old businesses were replaced by new agents. These new agents have incorporated new technical standards that enable greater productivity, even with the reduction of the cropping area. Furthermore, this period witnessed a significant increase in formal employment.

After laying out this brief history, the chapter focused on analysing how technical details in marketing chains affect the final value for the end-consumer. To this end, both domestic and foreign markets were assessed. For foreign markets, the United Kingdom was analysed since it constituted one of the main destination countries for melon exports. The contribution of each step in the production chain to the final price paid by British consumers was analysed.

A special feature of this market was noted. Supermarkets operated on a very tight margin when retailing whole melon, while the agricultural company retained more than 60% of the value (40% of which was profit). For these producers, agricultural inputs and machinery incur the highest production cost, leaving the workers with a small portion of just around 3% of the final value. Therefore, it seems that our findings contradict the claim of other studies of the supermarket chains' power in agricultural markets. However, as evidenced by the fact that a large part of the melon consumed in the UK is sold in small, sliced portions that has a price per kg reaching more than three times the whole fruit, supermarkets hold on to approximately 72% of the value of these semi-processed products, and reduce the producer's profit margin and the contribution of labour, which, in this case, happens to contribute less than 1% to the final value-added.

Finally, when the value-adding process is analysed in the domestic wholesale market, which makes up the main domestic marketing channel, greater participation of the labour factor was measured (approximately 4% of total value). Nevertheless, this contribution remained well below the profit margins of producers and wholesalers.

So, it was observed that European supermarkets can significantly regulate the global value chain of fresh fruits, specifically Brazilian melons. Therefore, one strategy available to Brazilian producers is to develop an alternative to this chain of unequal relationships such as the national market or markets in closer countries in the South Hemisphere, where there is greater bargaining power in capturing the value generated along the chain.

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## **7. Access to Finance in Indian Cultivator Households: Informal Sources of Credit**

Shika Saravanabhavan and Meenakshi Rajeev

In India, agriculture remains the mainstay of livelihoods in the rural areas, and it employs more than 50% of the total workforce. The 70th Round of National Sample Survey Office (NSSO) data for the year 2013 shows that 42% of the households are self-employed in agriculture and 16% of the households are engaged as casual labourers in agriculture. However, this sector contributes to only around 18% of the country's GDP in 2016. This gap between agricultural share in GDP and employment is a worrying feature of the economy, and it indicates that agricultural sector remains backward and poor while the non-agricultural sector has pushed ahead (World Bank 2008).

To stimulate and sustain agricultural investments, access to credit is crucial as most of the agricultural households have small or marginal landholdings and are usually poor with little or no savings (Bhattacharjee and Rajeev 2014). Needless to say, finance eases the capital constraints of these poor households and also provides funds for their day-to-day working capital expenditures. Thus, timely access to formal credit is a decisive factor for an agricultural household. Another aspect of importance is that it enables households to invest in better technology which in turn raises its labour productivity. Hence, over the years there have been several interventions by the government, and welfare-oriented policy changes have been brought into the formal agriculture credit market. As a result, the ratio of agricultural credit to agricultural GDP has increased over the recent decades; it was 12% in 2001 and has risen to 40% in 2016–17 (GOI 2017).

However, the level of credit inclusion remains unequal across regional, social, and economic divides. The supply side data from RBI shows the severe disparity in the distribution of agricultural credit. For instance, in 2016–17 the credit disbursal was low especially for eastern and the north-eastern regions. Of the targeted credit amount of Rs. 87,370 million in north-eastern region only Rs. 47,560 million has been disbursed (GOI 2017). Also if we look at the geographic penetration of banks we see that for every thousand square kilometres there are around 59 bank branches in the southern region while the same indicator is lower especially in the North and North-East with just 34 and 14 branches respectively for every thousand square kilometre. Similarly when we look at the demographic penetration of banks, we see that even in the Southern states and Northern there are only 14 bank branches for every 100,000 adult population while this indicator gives a lower value for the Eastern, North-Eastern and the Central regions with 7 branches each for every 100,000 adult population. Given such macro-level observations, this



paper seeks to highlight this disparity through a demand-side analysis using the latest available household survey data (70<sup>th</sup> Round NSSO-All India Debt and Investment survey). Such a disaggregated household level analysis provides a micro level perspective and helps us understand whether the disparity exists only across regions or is it prevalent across economic and social categories based on caste and gender too. Through this analysis, we hope to identify the groups that need special attention of policymakers and formal financial institutions.

We focus here particularly on the persistence of non-institutional credit in the rural sector. By non-institutional loans we mean loans taken from moneylenders, input suppliers and traders, friends, relatives, etc. Previous studies based on older data (Chattopadhyay 2011; Rajeev and Bhattacharjee 2012) have shown that non-institutional sources are an important source of loans for the rural poor. Other studies have shown that it is typical for households in developing countries to resort to multiple sources of finance, hence, there is usually a coexistence of formal and informal financial institutions (Besley et al. 2001; Giné 2011). From our data, we see that the incidence of indebtedness<sup>34</sup> of the rural sector from non-institutional credit agencies is 19% as compared to an indebtedness of 17% from institutional or equivalently formal agencies. Thus, in the Indian scenario too there is a coexistence of formal and informal credit markets and the dependence on informal credit remains a reality in rural areas.

In this backdrop, the main purpose of this chapter is to assess and document the level of disparity that exists in accessibility to finance, both formal and informal, across cultivator households. The main line of discussion will be on the persistence of informal credit in rural India, despite continued efforts of the government. One of the questions that we will look into is if cultivator households, especially small and marginal households, have gained better access to formal credit or not. To assess this, we will compare access to credit over a decade using the NSSO 59th and 70th Round data. Another concern that we will address in this chapter is the significance of social disparity in gaining access to financial help, thereby analysing if traditionally oppressed groups such as Scheduled Castes and Scheduled Tribes<sup>35</sup> are still far behind in comparison to other categories.

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<sup>34</sup> The NSSO considers a household to be indebted if it has any cash loan outstanding as on the date of reference

<sup>35</sup> The categorisation of castes into General, Other Backward Castes and Scheduled Castes, and Scheduled Tribes is followed by the Indian Government for administrative purposes. Amongst these categories, the Scheduled Castes and Scheduled Tribes encompass a large group, which have been historically disadvantaged both socially and economically. These were first scheduled under the Government of India ACT, 1935. Post-independence, the Government has continued to follow this schedule, and Article 341 and 342 of the

The next section provides the main theoretical viewpoints which are followed by a description of the data used. In subsequent sections the prevalence of informal sources of credit in rural areas and how access to credit has changed over the recent years, especially for small and marginal farmers, has been examined. This section is followed by a discussion on the social and gender dimensions that impact access to credit, as well as the influence of terms and conditions of the loans on borrowers. The last section summarises and presents the conclusions.

### ***Theoretical viewpoints on the coexistence of formal and informal finance***

Most developing countries, including India, have stipulations on the interest rates that can be charged by banks to certain priority sectors (agriculture being prominent among them); banks are required to lend at low/subsidised interest rates to these sectors for production. In these markets, as interest rates are lower than market rates, there are several borrowers, who are essentially small amount borrowers. Due to the substantial transaction costs that are incurred to service large a number of small borrowers, lenders find it unprofitable to service them. This necessitates the rationing of credit by banks in the market and in many cases complete denial (Federet al. 1990; Kochar 1997). In effect, this leads to a shortage of credit which imposes a constraint on the productive capacity of the farmers as they are forced to use less than optimal levels of inputs which in turn results in decreased output (Feder et al. 1990) and reduction in the overall efficiency (Besley 1994).

We now look at some of the theories that explain credit rationing and most of these are based on the central concept that the risk involved cannot be adequately assessed by banks as a result of the information asymmetry between the lender and the borrower (Stiglitz and Weiss 1981). High interest rates often demotivate the borrower, leading to lower efforts in production. Also, in some cases, borrowers may divert the loans towards non-income generating purposes which increase the risk of the deal. The lender often cannot correctly assess why the returns are low for a borrower and why a default has occurred. These are cases of moral hazard, and it acts as a deterrent for banks to lend to borrowers whose creditworthiness is not known. Another possible risk for the lenders if they charge high-interest rates is the possibility of attracting riskier borrowers and thus resulting in an adverse selection of clients. So the lenders may prefer to keep their interests rates lower, however, rationing the credit disbursed to keep the risk level low (Ghosh, Mookherjee, and Ray 2000; Stiglitz and Weiss 1981). Thus, in a situation where

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constitution confers on the President and the Governors of the states, the responsibility of compiling this schedule and also the power of amending it as required (Dushkin 1961; Jadhav 2008).

there is limited access to formal credit, people approach informal credit markets and it is assumed that the spill over from the formal sector goes to the informal lenders (Kochar 1997; Mohieldin and Wright 2000). In most developing countries, this results in a coexistence of formal and informal credit agencies.

However, these informal contracts are generally marked by high-interest rates even though the cost involved in monitoring and risk assessment is lower because of the informal lenders' physical proximity to the borrowers hence, the advantage of gaining information about the borrowers (Bose 1998). Several theories explain the high-interest rates charged by informal lenders. For instance, informal rate is said to be higher to cover the risk of default (Ray 1998). There may be only a few informal lenders and switching from one to another may prove to be too costly for the borrower. So the moneylenders adopt a high monopoly pricing technique (Banerjee and Duflo 2011).

Collateral is an important determinant of access to credit especially in emerging economies (Menkhoff et al. 2012; Swaminathan 1991) where credit information systems are weak. So collateral is demanded by the banks to gauge the creditworthiness of the individual and to reduce the risk involved for the lender (Zeller 1994). The requirement of collateral as a pre-condition for obtaining credit from formal institutions may, however, discourage the poor, especially the small and marginal farmers, from approaching formal institutions. They do not have appropriate assets to offer security and also there is a lack of well-developed property rights (Besley 1994). On the contrary, informal financial markets adapts itself to the local needs and conveniences (Adams and Fitchett 1992) and do not demand security, instead use other means such as social ties and social sanctions to curb non-repayment (Besley 1994).

Informal credit markets are characterised by long-standing relationships and repeat lending is common (Bell 1991; Ghosh et al. 2000). Trust and reputation and even coercion and violence are used by informal lenders to ensure repayment (Ayyagari et al. 2010). The fear of not obtaining future credit also acts as a deterrent to non-repayment of loans (Bhattacharjee and Rajeev 2013b). Also, it might be possible that even though the poor do not have the right kind of collateral for the formal banks, the informal lender might accept various types of collateral. Besides, the information advantage helps informal lenders to assess the value of the collateral to the borrower and thereby reduces the chances of delinquency (Bose 1998; Ray 2007).

## **Sources of Data**

We use two rounds of NSSO All India Debt and Investment Survey data—the 70th and the 59th Round. The 70th round survey was carried out during the period January–December 2013. This survey was conducted by NSSO on assets, investments, and debt. The total number of households was 62,135 in rural India and 48,665 in urban India. The 59th Round survey was carried out during January to December 2003. Around 1, 43,285 households have been surveyed out of which 91,192 are rural households. The information in these surveys regarding credit (loans taken) is collected in two visits from the same households. According to NSSO, the survey is done in two visits to reduce the recall error. NSSO also publishes a few key indicators such as incidence of indebtedness and average amount of debt based on the data obtained from the first visit itself. In our paper also, we have used the data from Visit 1 which in itself gives a comprehensive picture of access to financial services, the household characteristics, and the asset position of the household. Visit 2 collects data on a few variables only and provides subsequent information regarding loans and repayment during the period between Visits 1 and 2. The methodology of this paper is mainly descriptive in nature with cross tabulations, graphs, and percentage analysis enabling us to bring out a coherent analysis.

Throughout this paper, households are said to have access to credit if they have borrowed any money over time till the date of survey. However, the loan amount is recorded in the survey only if there is an existing loan (i.e. credit outstanding). In order to understand change over the decade (between 59th and 70<sup>th</sup> round), we have considered only loans taken over a fixed period of one year which is the latest year for the respective surveys so as to exclude loans that are outstanding for an extended period. This we believe makes the data more comparable. This is primarily because, surveys provide data only on outstanding loans, with no information on the loans that are already repaid. Thus, some households may have accessed loans and repaid over the period and hence may not have outstanding loan on the reference date of survey. If we consider only one year (i.e., the latest year) we reason that the number of loans that are repaid will be very few during the same year, hence, this would be a better and a more comparable measure to understand *change* in access to credit between the two rounds.

We have restricted our analysis to rural cultivator/agricultural households. A household is said to be a cultivator/agricultural household if they have operated any land for agricultural activities in the last one year. These households are further divided into small, marginal, semi-medium, medium, and large farmers according to the area of land being operated. The small farmers have less than 1 hectare, marginal farmers have 1 to 2 hectares, semi-medium farmers have 2–4

hectares, medium farmers have 4–10 hectares, and large farmers have more than 10 hectares.

There are two categories of finance that we study here—formal/institutional (these two terms will be used interchangeably) and informal/non-institutional. An informal credit source is outside the regulation of the government and the Central Bank. In India, it mainly implies credit from moneylenders, input suppliers, relatives and friends, landlords etc., while formal finance includes credit from banks and cooperatives, bank linked self-help groups, government credit programmes etc.

### ***The prevalence of informal sources of credit in rural areas***

Compared to several other developing countries, India has a better network of bank branches. From an early period itself, the Indian government realised the importance of the banking sector for the overall development of the country, especially for the under-developed rural areas. In 1969, the banking sector was nationalised with the main aim of rerouting resources to underdeveloped regions and sectors. The nationalisation of banks was followed by several other measures during the seventies and eighties, which were mainly directed towards improving credit access in the rural areas. The primary initiatives were the 1:4 bank licensing policy, the lead bank scheme, the introduction of Regional Rural Banks, the reservation of 40% total credit to the priority sectors which includes agriculture, small business, etc. (RBI 2008). Later, in 1997, it was mandated that of the 40% allotted to the priority sector, 18% has to be reserved for the agricultural sector (GOI 2002). Further, in 1999 the Kisan Credit Card (KCC) scheme was rolled out under the aegis of the National Bank for Agriculture and Rural Development (NABARD) to cater to the credit needs of the small and marginal farmers (GOI 2000). A significant advantage of this scheme was that it did away with a lot of cumbersome loan re-applications procedures, thereby reducing the workload of banks and inconvenience caused to the borrowers. Once the farmer is issued a Kisan Credit Card, there is no need to reapply every year, or for every other season, the farmer is automatically eligible for the period for which the KCC is valid. In 2006–7, the government introduced the interest subvention scheme which ensures that interest rate charged on farmers for short-term credit is only 7% and a further interest subvention is made available to the farmers to encourage timely and prompt repayments (GOI 2008). This scheme has continued over the years with slight changes in the subvention rate every year.

In spite of the various initiatives taken by the government over the years, informal lenders continue to persist in rural India, and formal credit exclusion remains high. A primary survey in Karnataka finds that 50% of the farmers still depend on non-

institutional sources of credit (Rajeev and Vani 2011). Another field study in Hooghly district in West Bengal shows the rise of input traders as informal lenders (Deb and Rajeev 2007). This implies that in spite of the supply side efforts, there are other factors playing a critical role in credit exclusion (Bhattacharjee and Rajeev 2013a).

**Table 7.1 Percentage of rural agricultural households accessing credit\***

<b>Wealth Decile class</b>	<b>Access to institutional credit</b>	<b>Access to non-institutional credit</b>	<b>Overall access (Either institutional or non-institutional)</b>
<b>1</b>	20	36	43
<b>2</b>	15	33	41
<b>3</b>	18	35	44
<b>4</b>	21	36	48
<b>5</b>	26	34	49
<b>6</b>	30	35	51
<b>7</b>	38	38	57
<b>8</b>	44	35	61
<b>9</b>	50	32	63
<b>10</b>	54	25	62
<b>Total</b>	34	34	54

\* Households are said to be accessing credit if it has outstanding loan amount

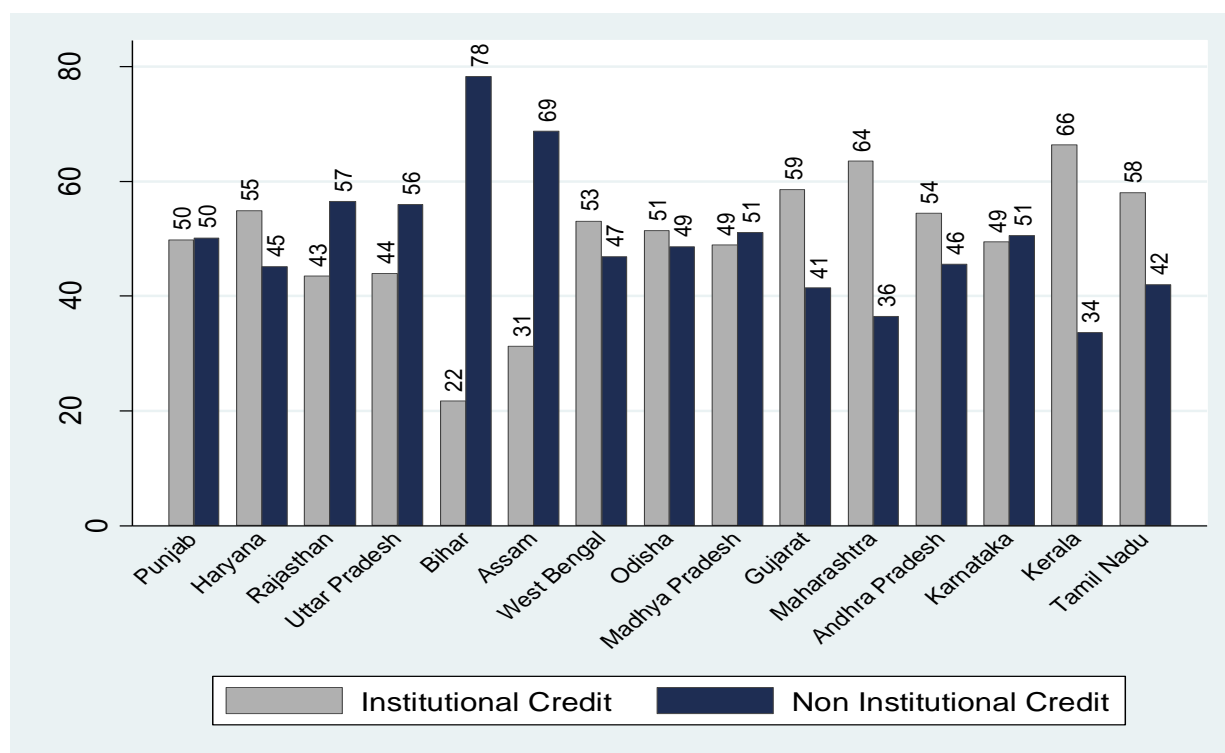
Source: Calculated by authors using 70th Round NSSO unit record data

We now present a comparative analysis of the formal and informal credit markets in India. For our study, we have divided the households as belonging to different wealth classes. The survey does not provide us with the income of the households, so we use the total assets owned by the households as a proxy measure of wealth. From Table 7.1 we see that, as expected, the households in the higher deciles of wealth have higher access to institutional credit. Subsidised agricultural credit programmes have come under criticism, and there is a viewpoint that subsidised credit programmes have failed to uplift the poor, and that the government interventions have only benefitted the wealthier households in the developing countries (Gonzalez-Vega 1984; Besley 1994). It is evident from Table 1 that overall access to credit, whether institutional or non-institutional, is the highest for

the wealthiest decile class. Around 54% households in the 10th decile class access credit as compared to 20% in the lowest decile.

Also, we see from our data that of the total number of households who access any credit, 37% accesses only non-institutional credit and the proportion of households having only non-institutional credit is higher for the lower wealth classes. Moreover, from those agricultural households that access any credit in our sample, 26% households access both formal and informal institutions. This is in tandem with the evidence from other emerging countries that people resort to multiple sources of finance (Barslund and Tarp 2008; Besley et al. 2001; Giné 2011).

**Figure 7.1 Percentage of rural agricultural households accessing institutional and non-institutional credit across major states**



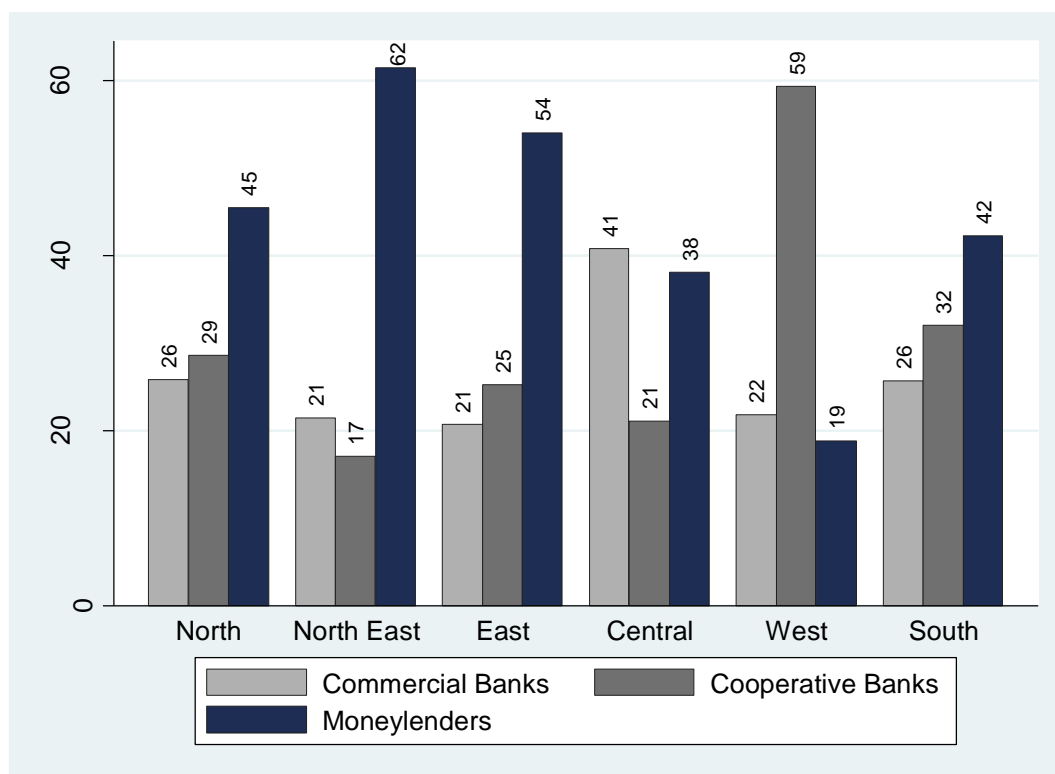
\*Households are said to be accessing credit if it has outstanding credit.

Source: Calculated by authors using 70th Round NSSO data

We now look at inter-state variation in access to credit. From Fig.7.1 we can see that most of the states have a sizable proportion of households using informal credit. Only a few states such as Maharashtra and Kerala have more than 60% of the agricultural households accessing credit from formal sources. Bihar and Assam have the highest proportion of households being financed by non-institutional sources.

The most important credit agencies for the agricultural sector are the commercial banks-along with the Regional Rural banks, cooperative banks and non-institutional moneylenders. We see from Table A.1 in the Appendix that cooperatives are still an important source of credit for agricultural households. The Government of India has historically supported the cooperative banking system by providing subsidised financial support and has used it to “channel its development programmes” to the poor, as these institutions have a strong network in the rural areas. Today, cooperative banks are primarily supported by state (provincial) governments who are also the stake holders. However, the cooperative system has not been performing well in the recent years on account of poor governance, inefficient internal mechanisms, non-recovery of loans, etc. (RBI 2012). Even then, from our data, we see that the proportion of households accessing credit from cooperative banks is especially high for states such as Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Maharashtra and Punjab. Also, the dependence on moneylenders is also high for many states, such as Andhra Pradesh, Karnataka, Tamil Nadu, Rajasthan, Bihar, and Punjab (See Table A.1 Appendix).

**Figure 7.2 Percentage of rural agricultural households accessing loans\* from the major credit agencies across administrative zones**



\* Households are said to be accessing credit if it has outstanding loan amount.  
Source: Calculated by authors using 70thRound NSSO data



The high dependence of the southern states on informal sources is an issue of concern (see Fig.7.2). The geographic penetration of banks is higher in the southern areas, however, we see that a large proportion of households depending on money lenders in the southern states, especially Andhra Pradesh and Tamil Nadu, with 58% and 42% dependency on moneylenders. Of the total number of households accessing credit, around 44% of the households from the southern states are dependent on informal lenders and this is quite contrary to what is expected.

### ***Small and marginal farmers' access to agricultural credit***

An important characteristic of the Indian agricultural sector is the dominance of the small and marginal farmers. According to the Agricultural Census 2010–11, the small and marginal holdings constitute about 85% of the total farm holdings in India. If the small farmers are to contribute positively to the overall economic growth and the government to succeed in poverty reduction, these small holdings need to sustainably intensify their production, and this requires access to the right production inputs and technology (Poulton et al. 2010; World Bank 2008) for which finance is necessary as they do not possess enough savings. However, the small scale of these farms and the characteristic poverty of these households increase the transaction costs for obtaining finance and other required services (Poulton et al. 2010).

In this section we will look at how access to credit has changed over the recent years. From Table 7.2 we see that access to institutional credit for small and marginal farmers have increased for all the states; however, the increase is meagre for states such as Uttar Pradesh, Bihar, Haryana, Assam, etc. When we look at non-institutional credit, overall, there is an increase in the percentage of small and marginal cultivator households who are accessing credit from non-institutional sources in rural India. There is a high percentage increase for states such as Rajasthan, Assam, Odisha, Maharashtra, Andhra Pradesh, Karnataka, and Kerala. So, in spite of the various government initiatives to disburse formal finance to the agricultural sector, informal finance continues to persist in many of the states at a high percentage.

**Table 7.2 Percentage of small and marginal agricultural households accessing credit in rural India**

States	Institutional								Non-Institutional	
	Overall		SCST***		OBC		General		2003*	2013**
	2003*	2013**	2003**	2013*	2003**	2013*	2003**	2013*	2003*	2013**
Punjab	13	18	8	8	10	22	18	23	18	17
Haryana	9	10	7	3	9	3	9	16	10	8
Rajasthan	3	17	2	15	3	18	3	16	10	16
Uttar Pradesh	5	6	4	3	5	7	6	8	11	10
Bihar	1	3	1	2	1	3	1	6	11	14
Assam	1	4	1	4	1	5	2	3	8	13
West Bengal	8	16	6	14	7	16	9	21	13	15
Odisha	4	10	3	10	5	9	3	12	10	14
Madhya Pradesh	3	7	2	5	4	10	2	10	12	12
Gujarat	4	9	2	5	3	11	7	18	8	10
Maharashtra	8	11	3	4	7	10	11	15	6	11
Andhra Pradesh	10	29	7	32	10	29	11	26	21	30
Karnataka	7	22	2	19	6	24	11	23	13	22
Kerala	24	40	23	47	27	41	22	37	14	22
Tamil Nadu	14	35	9	36	15	35	37	60	28	31
All India	6	13	4	10	6	14	8	15	12	15

\*Credit taken during the period-1-8-2012 to 30-7-2013

\*\*Credit taken during the period 1-9-2002 to 30-8-2003

\*\*\*SCST-Scheduled castes and tribes, OBC-Other Backward Castes, General-All other castes

Source: Calculated by authors using 70<sup>th</sup> and 59<sup>th</sup> Round NSSO data

### ***Caste and gender differentials in accessing credit***

We now turn to the social and gender dimensions that impact access to credit. In India, caste is an intrinsic feature of the society and still remains an important social identity. Historically, there has been discrimination based on caste, and it has led to ‘failure of access and entitlements’ (Thorat 2005). To overcome this issue, financial affirmation policies targeted at the oppressed castes has been a government priority since independence and the question whether financial services to the lower social groups have improved or not is still relevant. In this section, we look at access to credit to small and marginal farmers across different social groups and how it has changed over the 10-year period from 2003 to 2013 (see Table 7.2). In a few states such as Uttar Pradesh, Bihar, and Assam, access to credit to the Scheduled Castes and Scheduled Tribes have remained stagnant over

the period; however credit inclusion is overall poor for all the social groups in these states.

There is a steeper growth in access to formal credit over the 10-year period for the southern states. For instance, the Scheduled Castes and Scheduled Tribes category shows a high percentage increase of 25%, 17%, 24%, and 27% in the states of Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu, respectively. Rajasthan also shows good improvement in access for the Scheduled Castes and Scheduled Tribes category with an increase from 2% in 2003 to 15% in 2013. At the all India level, the access to credit for scheduled caste and tribes have also grown from 4% in 2003 to 10% in 2013. The percentage improvement is comparable to other social groups.

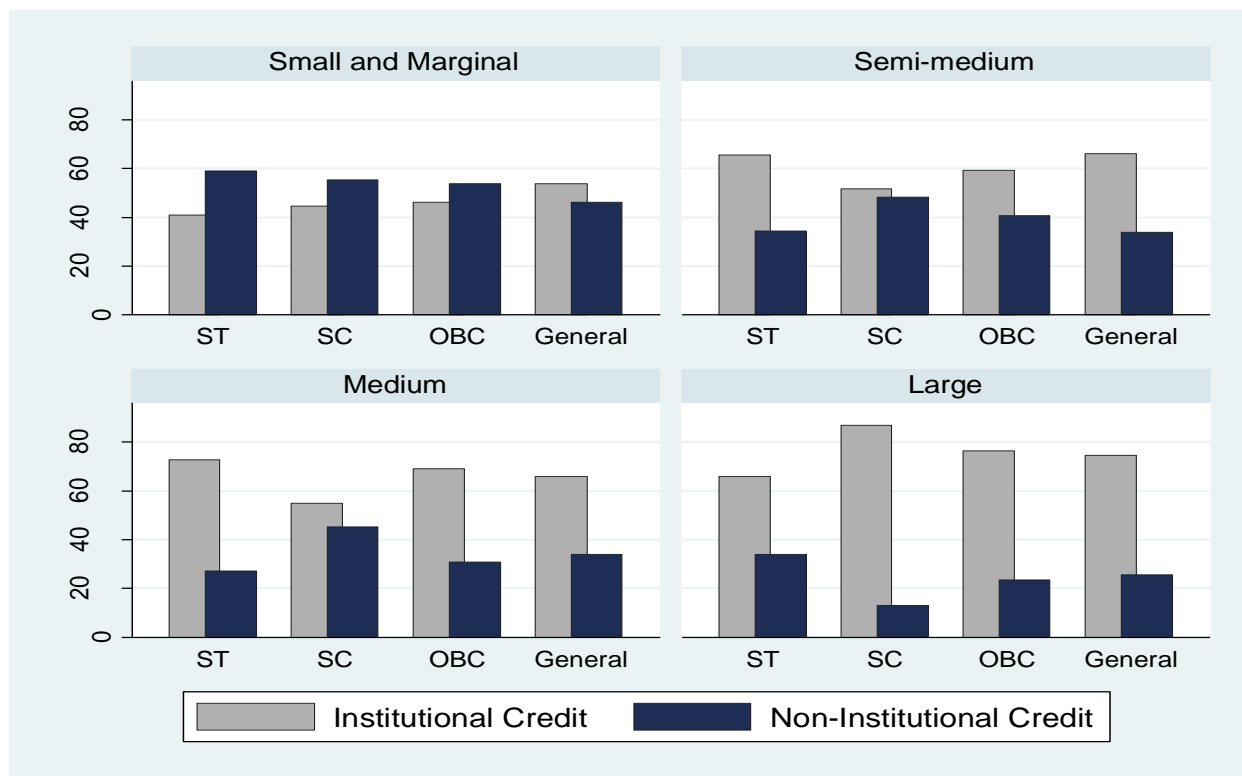
During this period there have been several interventions by the government. For instance, in 2004, the government announced a credit package for the agricultural sector which targeted a doubling of agricultural credit in the next three years, which stood at Rs. 800,000 million during 2003–04. Also, there were recommendations during this period to waive off security requirement for crop loans less than Rs. 50,000.<sup>36</sup> Interest subvention scheme was also introduced in 2006.

We see from Fig.7.3 that there are no stark differences across various caste groups in gaining access to formal credit; however, in the case of small and marginal farmers, the Scheduled Castes and Scheduled Tribes and the Other Backward Castes have a higher dependency on informal credit. It is seen from studies that though commercial banks do not discriminate on the basis of caste, other formal institutions for instance cooperative banks have been found to sometime have preference that goes against lower castes as there is chance of certain interests groups dominating the cooperative structure at lower levels (Kumar 2013). Thus, scholars argue that the lower castes are kept back due to “elite capture of state resources”. Another reason could be that there are still considerable economic and educational disparities between the higher and lower caste (ibid.). The small and marginal farmers are characterised by lower assets and incomes, and it is not surprising to see that the small and marginal farmers have a higher dependence on informal credit agencies (Fig. 7.3). At the same time, the proportion of semi-medium, medium, and large farmers accessing formal sources of credit are much higher.

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<sup>36</sup> Economic Survey 2004–05, Chapter 10, Agricultural Credit

**Figure 7.3 Percentage of rural agricultural households accessing institutional and non-institutional credit\* across social groups\*\***



\* Households are said to be accessing credit if it has outstanding loan amount

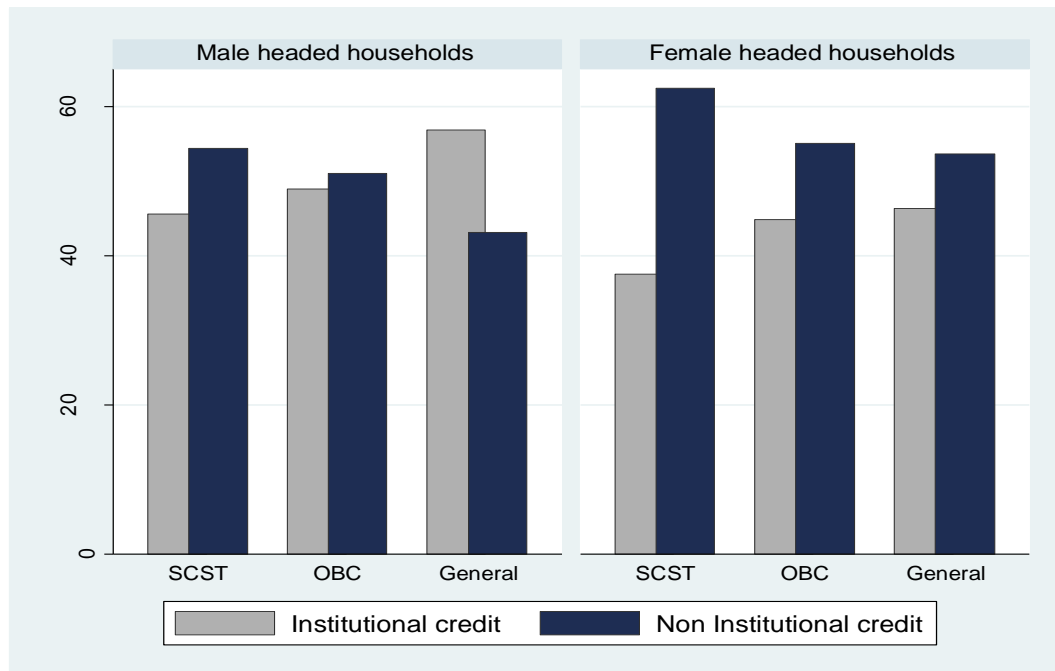
\*\* ST-Scheduled Tribe, SC-Scheduled Caste, OBC-Other Backward Caste, General-All other castes

Source: Authors' calculation using 70th Round NSSO data

While studying credit, it is also important to look at it from the gender perspective. Though it is seen that women accesses credit through self-help groups, accessing regular credit directly from banks is generally low (Vani, Bhattacharjee, and Rajeev 2011). Studies have shown that women's access to financial resources has a "positive impact on their families' nutrition, education and health" (Fletschner 2009; Pitt and Khandkar 1998). So, here we examine the differences in credit access across male-headed and female-headed households across different household wealth categories (see Fig. 4). We see that female-headed households have a higher dependence on non-institutional credit and it is observed to be much higher in the case of Scheduled Castes and Tribes. This disparity is mostly attributed by researchers to the various restrictions faced by women socially, legally, culturally, and economically (Almeyda 1996; Fletschner 2009; Lycette and White 1989). They do not have access to as much information as men regarding the various financial products available and are usually not knowledgeable about

the different terms and conditions of obtaining loans (ibid.). Furthermore, women are discriminated against, when property is handed down and, therefore, widows and daughters may have less property rights and are, therefore, disadvantaged as ownership of assets and proper land titling are important factors in accessing credit (Agarwal 2003).

**Figure 7.4 Percentage of rural agricultural households (small, marginal and large farmers) accessing credit by gender**



\* Households are said to be accessing credit if it has outstanding loan amount  
 ST-Scheduled Tribe, SC-Scheduled Caste, OBC-Other Backward Caste, General-All other castes  
 Source: Authors calculation using 70th Round NSSO data

### **Credit conditions' influences on borrowers**

One of the important differences between formal and informal sources of credit is the purpose for which the loan is taken. Studies have shown that people turn to informal credit for smaller amounts and usually most of these requirements are urgent in nature. Figure A.1 in the Appendix shows that non-institutional credit is used by agricultural households mainly for household consumption expenditure. In some states such as Rajasthan, Punjab, Bihar, Uttar Pradesh, and Odisha, the proportion of households using informal finance for household expenditure is as high as 27%, 20%, 20%, 16%, and 14% respectively (see Tables A.2 and A.3, in the Appendix). Another important reason for which informal finance is used is for expenses related to health and education. A third reason for using informal sources is for housing finance. Further, we find from the data that institutional loans are

used primarily for current and capital expenditure in farming, and it is also seen that majority of the income-generating loans are taken from formal institutions (see Tables A.2 and A.3 in the Appendix). However, some of the states such as Andhra, Karnataka, Punjab, and Tamil Nadu have relatively higher use of informal financing for current farm expenditure as well.

#### *Rates of interest*

When the government mandates lower interest rates, it is generally assumed that there is an excess demand for credit and consequently the formal banks resort to reduction and restraint in allocation of credit. In such a situation, the borrowers approach informal lenders even when the terms of the informal credit, especially from moneylenders, are often unfavourable. For the borrower, the transaction costs of accessing formal credit is much higher while accessing the informal money lender is almost negligible (Giné 2011). However, the downside of this is the higher interest rates charged by the moneylender.

**Table 7.3 Percentage of rural agricultural households accessing credit from non-institutional sources by the rates of interests faced by households**

Farmer classification according to Land holding size	SCST		OBC		General		Total	
	<=15 %	>15%	<=15 %	>15%	<=15 %	>15%	<=15 %	>15%
<b>Small and marginal</b>	42	57	34	65	49	50	40	60
<b>Semi-medium</b>	25	75	24	76	38	62	28	72
<b>Medium</b>	24	76	22	78	27	73	25	75
<b>Large</b>	5	95	17	83	18	82	17	83
<b>Total</b>	<b>41</b>	<b>59</b>	<b>33</b>	<b>66</b>	<b>47</b>	<b>53</b>	<b>38</b>	<b>62</b>

Note: ST-Scheduled Tribe, SC-Scheduled Caste, OBC-Other Backward Caste, General-All other castes

Source: Author's calculation using 70th Round NSSO data

From Table 7.3 we can see that 61% households borrow from non-institutional sources at more than 15% interest rate. If the money borrowed at high-interest rates do not bring in returns due to failure of crops or if it is used for non-income generating purposes, then there is a risk of non-repayment and the borrower is forced into a debt trap (Rajeev 2015). Another aspect we notice here is that there exist a high proportion of large farmers accessing informal credit at rates above 15%. This perhaps says that timeliness of formal credit could be an issue and that even wealthier farmer households need to access informal credit sources.

### *Collateral-based lending*

The collateral (security)-based lending policies is a big deterrent for the poor in accessing credit from the formal sector. The formal agencies justify the use of collateral because of the high transaction costs incurred in dealing with a large number of smaller accounts and hence they do not prefer small borrowers. So these farmers approach non-institutional sources to access credit. The moneylenders often accept other alternatives to physical collateral such as third-party guarantees, tied up loans etc. More importantly, the inter-linkage in the rural credit market is mentioned by many. The borrower and lender interact with one another in more than one market. So it is easier for the lender to get the repayment from the borrower. For instance, when output traders become the lender, he can receive repayment in the form of agricultural output. Moneylenders may also resort to coercion and may often take advantage of poor borrowers and force them to sign off their land, in case of unrecovered loans.

**Table 7.4 Percentage of rural agricultural households using collateral to access credit from institutional and non-institutional lenders**

	<b>Institutional Lenders</b>	<b>Non-institutional Moneylenders</b>
Third part Guarantee	8	7
Crop	7	4
First charge on immovable property	10	4
Mortgage	38	20
Bullion	14	13
Shares	1	0.35
Agricultural commodities	1	0.4
Other Movable properties	2	2
Other type of security	78	74
Personal	54	87

*Source:* Author's calculation using 70th Round NSSO data

Table 7.4 shows that around 87% agricultural households get credit from moneylenders on personal security. This is the main reason why the poor resort to informal loans even though the interest rates are high. Only 20% households have got credit on the basis of mortgage on immovable property, while 38% households have obtained credit from institutional sources on the basis of immovable property as collateral.

## ***Concluding discussions and observations***

This paper documents and examines accessibility to credit to the agricultural households in rural India. From this analysis, we see that informal sources of credit are still relevant and the dependence on non-institutional agencies has increased for agricultural households. Moreover, there is substantial regional disparity as well. Supply-side data reveals that the southern states show a higher outreach of formal financial institutions as compared to the rest of India, however, the dependence on moneylenders is also high for the southern states. This is a worrying paradox which has to be further looked into.

Another important aspect that comes out from this analysis is that the low-interest rate credit from formal institutions are utilised by the wealthier farmers, while the poorer households resort to informal lenders at higher interest rates. The analysis shows that the lower classes borrowed more from informal sources than formal sources. This is a trend seen in other emerging countries as well. Informal credit is especially used for household expenditure and emergencies by the households who have negligible savings. So in a way informal credit helps the poor households in the short term, however, inability to repay could result in dire consequences. So there should be mechanisms put in place to oversee the working of these money lenders. However, this being a difficult task, the banks should be encouraged to lend smaller amounts to deserving borrowers.

We see from the analysis that a large proportion of households borrow from informal lenders without any collateral and this aspect of not needing any security for taking a loan makes informal lenders popular. We have seen that around 87% households take loans from moneylenders simply on personal security. However, interest rates are high and of the total informal loans taken, 62% are taken at more than 15% interest rate. Developing a public credit registry could go a long way in enabling credible borrowers to build a credit history to be eligible for gaining accessibility to formal credit. Improving property records of the poor, particularly women, could also help households to have documents which help in obtaining formal loans which is found to be a major cause of inaccessibility (Rajeev and Vani, 2011).

We do not find stark differences in access to formal credit across the social groups in the recent year (NSSO 70<sup>th</sup> round survey data). Also, the change in the percentage of households accessing formal credit among the Scheduled Tribes and Castes over the 10-year period from 2003 to 2013 has been relatively high (in comparison to other groups) for most of the states and is a positive sign. However in-depth research has to be undertaken to be able to make more conclusive statements. In the case of women-headed households, we clearly see a pattern where female-headed households resort more to informal lenders as compared to



male-headed households. Thus certain groups of population need special attention of the formal banking sector.

Summing up, the principal objective of this paper has been to represent the prevalence of informal credit in rural areas at a time when the financial inclusion drive is being ambitiously carried out. The underlying issues have to be well studied before policies are implemented at the ground level. Many parts of rural India are still characterised by poverty and low educational levels, hence, there is an urgent need for financial literacy programmes to impart information regarding the various credit programmes. Usually, the well-off households siphon off a large chunk of the formal credit provided by the government, therefore, better information could in some respects lead to lesser disparity among the households. Another issue of prominence that needs to be pointed out is the frequent loan waivers provided by the government which acts as a disincentive for the banks and a reason for delinquency by the borrowers and many a time these loan waivers are politically guided decisions (Kumar 2014). For instance, the agricultural debt waiver and debt relief scheme was brought out in May 2008, evidently just before the 2009 general elections. There is ample criticism on these loan waivers and is an issue that needs to be empirically studied and discussed as to whether these interventions do indeed help the most vulnerable farmers or not.

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## Appendix

**Table 7.A1 Percentage of agricultural households accessing institutional credit by the main credit agencies**

States	Commercial Banks	Cooperative societies/banks	Moneylenders
Punjab	18	32	26
Haryana	15	18	21
Rajasthan	17	18	38
Uttar Pradesh	17	5	12
Bihar	7	1	28
Assam	3	2	9
West Bengal	7	14	15
Odisha	7	18	17
Madhya Pradesh	14	13	24
Gujarat	10	16	7
Maharashtra	10	34	10
Andhra Pradesh	27	26	58
Karnataka	13	26	31
Kerala	28	41	13
Tamil Nadu	28	32	42
All India	<b>14</b>	<b>15</b>	<b>21</b>

Source: Calculated by authors using 70<sup>th</sup> Round NSSO data

**Table 7.A2 Income generating purposes for which loans are taken**

States	Institutional Credit		Non-Institutional credit	
	capital expenditures	current expenditures	capital expenditures	current expenditures
Punjab	9	25	1	10
Haryana	10	11	1	2
Rajasthan	8	22	1	4
Uttar Pradesh	6	11	1	2
Bihar	4	4	1	4
Assam	1	2	1	1
West Bengal	6	14	1	5
Odisha	4	17	0	3
Madhya Pradesh	7	18	1	7
Gujarat	6	18	0	1
Maharashtra	11	28	1	5
Andhra Pradesh	8	37	2	16
Karnataka	9	21	2	6
Kerala	3	8	0	1
Tamil Nadu	11	17	1	6
All India	6	15	1	4

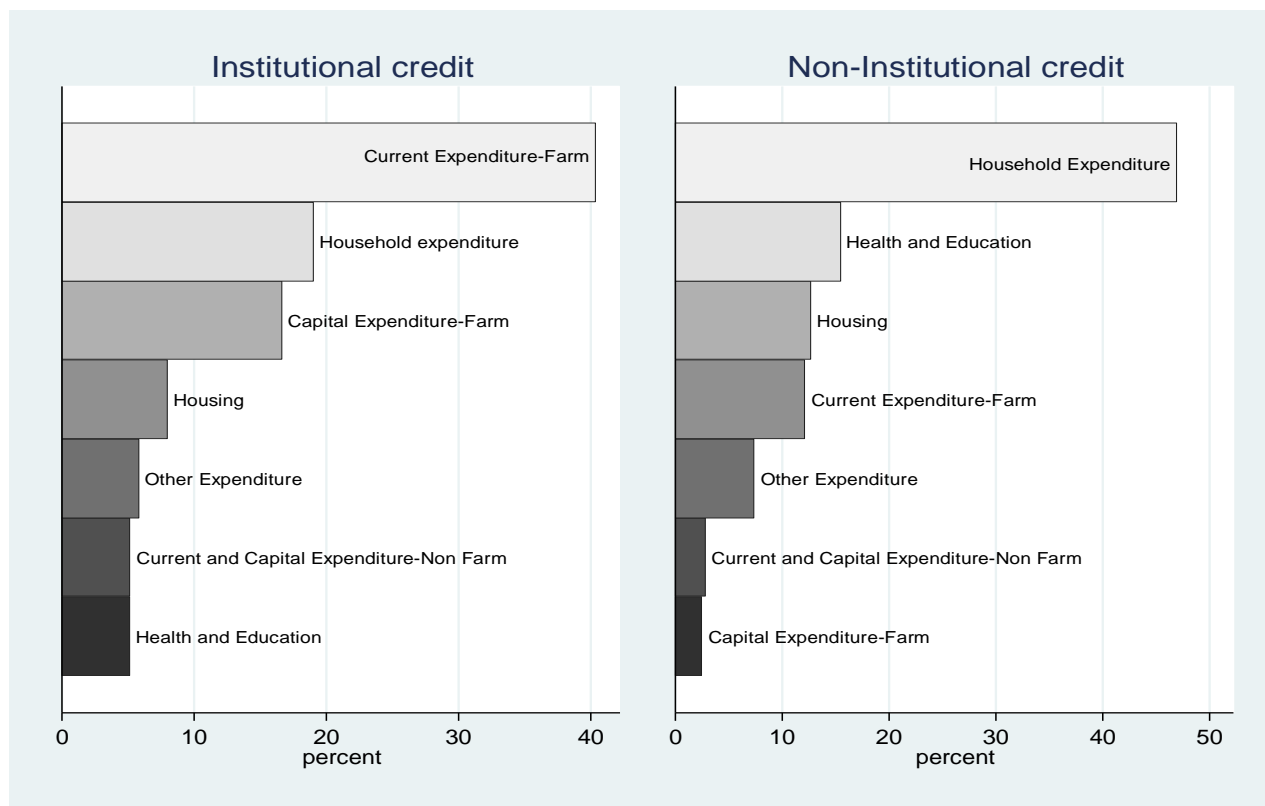
Source: Calculated by authors using 70th Round NSSO data

**Table 7.A3 Non-Income generating purposes for which loans are taken**

States	Institutional credit			Non-institutional credit		
	Household expenditure	Health and education	Housing	Household expenditure	Health and education	Housing
Punjab	8	0	3	20	3	5
Haryana	3	0	2	12	2	4
Rajasthan	4	0	1	27	4	8
UP	3	1	1	16	7	2
Bihar	1	1	0	20	8	3
Assam	3	0	1	9	4	1
West Bengal	7	1	4	11	6	5
Odisha	5	1	1	14	5	5
Madhya Pradesh	2	0	1	14	4	2
Guj	2	0	1	12	3	3
Gujarat	3	1	3	8	4	5
Maha-rashtra	26	8	4	29	9	10
Andhra Pradesh	15	3	8	26	7	8
Karnataka	30	10	24	17	5	6
Kerala	26	11	9	24	9	8
Tamil Nadu	7	2	3	17	5	4

Source: Calculated by authors using 70th Round NSSO data

**Figure 7.A1 Percentage of farmer households accessing credit by purpose of utilisation**



Source: Calculated by authors using 70th Round NSSO data



## 8. Liberalising the Seeds and Pesticides Markets in India

Santosh Verma

During the so-called Green Revolution in agriculture, the Government of India and various state governments supported agriculture with a broad array of programmes. State support included provision of high yielding variety (HYV) seeds, chemical fertilisers, and pesticides, for farmers to increase productivity. It is interesting to understand the probable impact of the liberalisation of seeds and pesticides market, which started since the 1970s, on agriculture, especially on the smallholders' farming in India.

The government's efforts in the 1960s and 1970s were a way forward to make India a self-sufficient country in agricultural production (Ramasamy 2004; Patnaik 2005; Kumar and Rosegrant 1994). These efforts were of a mixed kind where the liberalisation of agro-input markets also witnessed a wide range of changes in public policies that included expansionary public investment in agricultural research to provide efficient crop production schemes that could stimulate agricultural growth and productivity during the Green Revolution period (Kumar and Rosegrant 1994). Further, to achieve this target, among many other measures, the government incentivised the availability of inputs (HYV seeds, fertilisers, agricultural know-how, and pesticides) to the farmers. But since the beginning of the 1980s, which further accelerated in the 1990s, private suppliers of agricultural inputs were allowed to offer their products to the farmers.

This agro-input market liberalisation has been a global phenomenon, and has been facilitated by powerful international institutions such as the World Bank and the Food and Agricultural Organisation (FAO). These organisations have promoted 'responsible investments' in agriculture during the last two decades (World Bank 2008; Miller and Jones 2010; Naven 2014). Their reports often provide optimistic accounts of the role of big corporations in different ways—as suppliers, distributors, traders, R&D facilitators, buyers of agricultural produce, and marketing strategists, etc. These reports argue that the transnational corporations (TNCs) overcome the inadequate finance to agriculture in the form of research and development (R&D), direct intervention in agricultural activities (contract farming), input supply, marketing and distribution of agricultural produce.

Others, however, claim that these promising accounts overlook several adverse outcomes and processes associated with the ascendancy of corporate-driven global agricultural production systems. They point to the loss of biodiversity, accelerated land alienation, concentration and control of resources, disappearing livelihoods, and the weakening of food security, etc., in large parts of the developing world. In tandem with the ascendancy of neo-liberal macroeconomic policies, the growing

power of corporations has created huge distress in agriculture in several countries in Africa, Latin America, and Asia (Patnaik et al. 2011). Due to the liberalisation of the agri-input market, corporations are trying to control the market for influencing investment, output, and hence, prices. These concentration processes taking place in the agricultural input sectors are due to ‘ambiguity of competition’, i.e., oligopolies, which would lead to stagnation in agriculture (Foster et al. 2011). These conditions are visible, at the current juncture, in the retail/wholesale sectors in agriculture. A handful of TNCs are dominating the ever-expanding supply chains (Foster et al. 2011; see Doerr in this volume).

This chapter is an effort to analyse the impact of input market liberalisation, especially, the seeds and pesticides market. It focuses on India as a large population is involved in agricultural activities for their livelihood (for example, of the total 467 million workforce in India around 228.3 million, that is 48.9 percent) (NSSO 2014) across a vast spread of agricultural land with 200.9 million hectare as the gross cropped area (MoA and FW 2016a). Viewing such a large agricultural sector, domestic and international companies are eyeing upon India’s agricultural market to penetrate and control a substantial part of it. Also, such a vast size of farming area is supplemented with a diverse variety of seeds and its market is the world’s fifth largest in terms of seed production and use (Manjunatha et al. 2013); India is the fourth largest pesticide producer after United States, Japan, and China (FICCI 2015).

This large agricultural sector after undergoing liberalisation of agricultural market has pulled in the domestic and international companies. They have gained market share especially in the input sector. Their success raises the spectre of oligopolies. The findings suggest that in the seed sector, there is a continuous shift from the saved seeds to high quality/hybrid seeds provided by state agencies as well as private companies. A handful of national as well as international firms, with their heavy investment on R&D, are able to penetrate and concentrate in the market. The public sector cannot match these R&D expenditures and, hence, their share on market control has declined. Likewise, private companies gained a large share of the Indian and international pesticides market through their R&D, production and distribution.

The chapter is divided into six broad parts—introduction; analysis of the seed sector in India; examination of the pesticides sector in detail; discussions whether seeds and pesticides sectors of India are witnessing oligopolistic conditions of the market; understanding the probable impacts on farming due to increasing control of private sector on seeds and pesticides market; and the concluding remarks.

## **Seed Sector in India**

As discussed earlier, the Green Revolution in agriculture was designed to increase productivity of crops to reach agricultural self-sufficiency. To achieve this target, among many other measures, the government incentivised the availability of HYV of seeds<sup>37</sup> to farmers. The seed types were named according to their method of production. The first and oldest form of seed production has been the open pollination of seeds under which seeds are grown through pollination of wind, insects, birds, and humans. These seeds are grown through natural mechanism and are passed through generations. They are also called 'heirloom seeds' which are on the verge of extinction due to the introduction of hybrid and Genetically Modified (GM) seeds. The hybrid seeds are produced through human intervention attaining controlled pollination of two different species or varieties of crops. These pollinations are done to produce the desired quality of seeds, specially, of high yielding variety. The third quality of seeds is the Genetically Modified Seeds (GMOs). These seeds are produced through manipulation and combination or splicing of genes of different species in the laboratory. It is also known as recombinant DNA technology<sup>38</sup> and the seeds grown through this process are called 'genetically modified', 'genetically engineered' or 'transgenic'.

Traditionally, in India, production of seeds was in the hands of public sector undertakings namely Indian Council for Agricultural Research (ICAR, established in 1929) and the State Agricultural Universities (SAUs) which developed various improved quality of crop varieties and hybrids. These agencies include National Seed Corporation (NSC, established in 1963) which was given the primary responsibility of producing foundation seeds, State Farms Corporations (SFC) of India and 13 State Seed Corporations (SSCs). The multiplication of seeds (passing through various stages breeder<sup>39</sup> foundation,<sup>40</sup> registered<sup>41</sup> and certified<sup>42</sup>) for

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<sup>37</sup> In the last 40 years, there have been significant changes in the seed sector of India. Various key policy instruments were enacted and adopted by the Government of India and other State governments. Among these include: Enactment of Seed Act, 1966; National Commission on Agriculture's Seed Group, 1972; World Bank aided National Seed Programme (1975-1985) which led to creation of State Seed Corporations, State Certification Agencies, State Seed Testing Laboratories and Breeder Seed Programmes, etc.; New Policy on Seed Development, 1988, Seed Bank Scheme, 2000; National Seeds Policy, 2002; The Seed Bill, 2004; Formulation of National Seed Plan, 2005; National Food Security Mission, 2007 and Rashtriya Krishi Vikas Yojana, 2007.

<sup>38</sup> Available at <https://www.smallfootprintfamily.com/hybrid-seeds-vs-gmos>; accessed on 27/12/2017.

<sup>39</sup> Considered to be genetically pure, breeder seed is the nucleus seed produced by the originating breeder or by a sponsored breeder who developed the particular variety.

<sup>40</sup> Foundation seed is the progeny of breeder seed and is required to be produced from breeder seed or from foundation seed which can be clearly traced to breeder seed.

<sup>41</sup> Registered seed is produced from foundation seed.

<sup>42</sup> Certified seed is the progeny of foundation seed and must meet the standards of seed certification prescribed in the Indian Minimum Seeds Certification Standards, 1988. In case of self-pollinated crops, certified seeds can also be produced from certified seeds provided it does not go beyond three generations from foundation seed.

commercial uses, i.e., ready-to-be-used by farmers, was largely undertaken by the public seed agencies. They concentrated on HYVs largely in food crops. These seeds were produced at 'low costs and at the least profits'. It helped gaining food self-sufficiency during the period from the mid-60s to mid-80s in India.

But, the decade of the 1980s witnessed key policy changes for the seed industry, first, allowing private companies to invest in the seed sector by giving concessions under Monopolies and Restrictive Trade Practice (MRTP) and Foreign Exchange Regulation Act (FERA). Second, New policy on Seed Development was adopted in 1988; it considered seed production as 'high priority industry' which granted permission and liberalised import of high quality seeds/planting material under the Open General License (OGL) so as to increase productivity and thereby augment farm income and export earnings. Under the policy, it was said that the import of seeds of coarse cereals/pulses/oil seeds; vegetable and flower seeds; bulbs/tubers of flowers; cuttings/saplings/bud/wood etc., of flowers; and seeds & planting material of fruits would be promoted. Third, the 1991 Industrial Policy Act allowed foreign-domestic (multinational) companies/investors to invest in the Indian seed sector (Gadwal 2003). Fourth, the National Seed Policy, 2002, allowed all kinds of seed imports and planting material freely, subject to the These Acts and Regulations, especially, the National Seed Policy, 2002, defined and provided a broader Export-Import (EXIM) Policy guideline. This policy also encouraged private sector participation in research and development of new seed/plant varieties. role to the private sector (both domestic and international firms/investors/capital) in the production, supply and distribution of seeds in India. These private companies were free to invest through their R&D, where they first, toed into the high value and low volume seeds and later on spread in all the seed varieties for production, supply, and distribution in India.

The growth rate of distribution of quality/certified seeds in India for the period 2002-03 to 2014-15 is calculated on the basis of data provided by the Department of Agriculture, Cooperation & Farmers Welfare (GoI) (see Table 8.1). The growth of distribution of quality/certified seeds was impressive for the whole period: for cereals, the average annual growth (AAG) was 9.4 percent for the period 2002-03 to 2014-15, while for pulses, it was 14.8 percent; for oilseeds and fibre crops, these were 11.8 percent and 2.8 percent, respectively. The AAG for total seeds was 9.9 percent for the entire period (2002-03 to 2014-15).

**Table 8.1 Growth rate of distribution of quality/certified seeds in India, 2002–2015 (in percent)**

<b>Years</b>	<b>Cereals</b>	<b>Pulses</b>	<b>Oilseeds</b>	<b>Fiber Crops</b>	<b>Total Seeds</b>
2002-03	2.2	40.7	10.4	-5.2	5.7
2003-04	5.8	23.8	45.1	1.5	11.7
2004-05	14.9	-9.4	20.8	-0.7	10.9
2005-06	6.5	-0.4	4.0	4.7	5.4
2006-07	26.7	30.7	10.9	5.5	22.3
2007-08	12.7	30.5	27.2	-13.8	15.5
2008-09	19.1	15.2	16.3	-1.9	20.5
2009-10	12.0	36.0	27.0	2.7	19.1
2010-11	10.6	5.8	-0.2	-0.4	7.9
2011-12	3.9	6.9	21.5	17.1	6.3
2012-13	7.7	10.1	-5	-4.5	6.3
2013-14	-10.4	13.4	4.6	-2.7	-3.8
2014-15	11.0	-10.9	-29.6	34.5	0.6
<b>AAG*</b> 2002-03 to 2014- 15	9.4	14.8	11.8	2.8	9.9

Source: Author's calculation (Data provided by the Department of Agriculture, Cooperation, and Farmers' Welfare, Government of India); AAG – Average Annual Growth.

The data of requirement (i.e. the estimated demand by farmers) and availability of certified/quality seeds provided by the Department of Agriculture, Cooperation, and Farmers' Welfare, (GoI) show that from the year 2012–13 to 2014–15, the share of private sector in the supply of seeds in different crop groups has increased; in cereal seeds from 52.6 percent in 2012–13 to 59.2 percent in 2014–15; in oilseeds, from 42.9 percent in 2012–13 to 50.1 percent in 2014–15; in fibre crops

from 82.5 percent in 2012–13 to 92.6 percent in 2014–15. The only crop group where the share of public sector has increased is for the pulses crops; it increased from 58.6 percent in 2012–13 to 64.5 percent in 2014–15. Overall, the share of total seeds supplied by the private sector increased from 50.9 percent in 2012–13 to 57.1 percent in 2014–15 (see Table 8.2).

**Table 8.2 Share of public and private sectors in supplying quality/certified seeds in India (in percent)**

Crop Groups	2012-13		2013-14		2014-15	
	Public	Private	Public	Private	Public	Private
Cereals	47.4	52.6	46.6	53.4	40.8	59.2
Pulses	58.6	41.4	55.6	44.5	64.5	35.5
Oilseeds	57.1	42.9	55.6	44.4	49.9	50.1
Fibers	17.5	82.5	16.8	83.2	7.4	92.6
<b>Total Seeds</b>	49.1	50.9	48.3	51.7	42.9	57.1

Source: Author's calculation (Data provided by the Department of Agriculture, Cooperation, and Farmers' Welfare, Government of India)

In horticulture (fruits and vegetables), the private companies dominate the supply of certified/quality seeds in India. Vegetable seed market is growing at a rate of 10 to 15 percent annually (for the period 1998–2008) and it was estimated that during that period, there had been a rise of 194 percent in Indian vegetable hybrid seeds market (Mazumdar 2012; Koundinya and Kumar 2014). The decline of public sector companies in supplying these seeds is due to their inability of expanding their research and development due to insufficient provision of funds from the government. Contrastingly, the private sector seed companies, in the last two decades, have invested 10–20 percent of their annual turnover on R&D (Koundinya and Kumar 2014). These private sector seed giants have the ability to employ technical knowhow and specialists from all over the world to develop germplasm for crop improvements which the public sector companies failed to do so due to insufficient resources.

The private sector is especially strong in R&D intensive hybrids. Table 8.3 provides a glimpse of a number of hybrids in major field crops which are developed by the private and public sector in India. The proportion of private

sector hybrids is quite high in crops like cotton, maize, paddy, pearl millet, sorghum, sunflower, and mustard. The number of total hybrids developed by the private sector in India for the staple crops was 490 for the period 1980–1999. It increased by almost 149 % in the period 2000–2010 (see Table 8.4).

**Table 8.3** *Number of hybrids in major field crops in India*

Crops	Till 2001-02		2002-03 to 2009-10		Total		Share of Private Sector in Total Hybrids
	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	
Cotton	150	15	43	10	193	25	88.5 %
Maize	67	3	36	25	103	28	78.6 %
Paddy	12	4	11	15	23	19	54.8 %
Pearl Millet	60	6	22	7	82	13	86.3 %
Sorghum	41	5	12	8	53	13	80.3 %
Pigeon Pea			1	2	1	2	33.3 %
Sunflower	35	6	13	10	48	16	75.0 %
Jute				23	0	23	0.0 %
Mesta				11	0	11	0.0 %
Castor			4	9	4	9	30.8 %
Mustard			11	1	11	1	91.7 %
Safflower				2	0	2	0.0 %

Source: Singh and Ramesh Chand (2011); Paroda (2013).

**Table 8.4** *Private sector varieties/number of hybrids in major field crops*

Crop	Number of Varieties and Hybrids by Decade		
	1980-1989	1990-1999	2000-2010
Rice	198	188	303
Wheat	84	66	112
Maize	43	64	113
Pearl Millet	38	45	51
Sorghum	55	49	55
Cotton	72	78	95
Total	490	490	729

Source: Pray and Nagarajan (2012).

### *Private Seed Companies in India*

The National Seed Association of India (NSAI) provides data on the growth of private seed companies in India. In 1970–71 there were only three private seed companies and no multinational seed company, but in 1975–76 out of a total 15 private seed companies 5 were multinationals. By 2011–12, the number of multinational seed companies jumped to 309 in 2011–12 (see Table 8.5). Thus, it shows how rapidly these private companies have penetrated India’s seed sector.

**Table 8.5 Growth of private seed companies in India (1970–71 to 2010–11)**

<b>Year</b>	<b>Private seed companies (number)</b>	<b>Multinational seed companies (number)</b>
1970-71	3	-
1975-76	15	5
1980-81	31	10
1985-86	59	15
1990-91	107	23
1995-96	142	40
2000-01	203	68
2005-06	253	90
2006-07	337	121
2007-08	421	153
2008-09	521	200
2009-10	534	245
2010-11	631	292
2011-12	662	309

Source: National Seed Association of India (2016).

International players, during the 1980s, like Cargill, Monsanto, and Dow Agro, etc., penetrated the market through joint-venture partnerships with Indian seed companies. The private sector seed companies initially pitched themselves into the production of high-value and low volume seeds (hybrids of mainly cotton, corn, sunflower, vegetables and flowers). Initially, they avoided to develop self-pollinated crops which involved low value and high volume (low profit margin) seeds. They feared piracy (or use of seeds as saved seeds by the farmers) as they thought that India lacked effective legal varietal protection regime.<sup>43</sup> But,

<sup>43</sup> Seedbuzz (Indian Agri-Seed Industry: Understanding the Entrepreneurial Process). Available at <http://www.seedbuzz.com/knowledge-center/article/indian-agri-seed-industry-understanding-the-entrepreneurial-process>, accessed on 4 April 2017.



subsequently, these domestic and international corporations began producing high-production volume seeds and now supply about 57 percent of the total seed volume in India (see Table 8.1). In cereals, there were 363 private seed companies while in oilseeds and vegetables' group, there were 184 and 136 companies in operation respectively, and only 23 in pulses and 10 in flowers (NSA 2016).

Currently, there is hardly any crop whose hybrid is not available in the market and the number of these hybrid field crops is around 500 (both high and low volume variety seeds), mostly produced by the private seed companies. These companies involved in production, marketing, and distribution (the value chain of agricultural inputs) of seeds, fall into three segments—first, few large players (around 20) involving domestic and foreign corporations (having an annual turnover of more than Rs. 250 million); second, medium-scale companies (turnover between Rs. 25 million to Rs. 250 million); and third, a large number of small, unorganised players (with the turnover less than Rs. 25 million). Among the international players/corporations, both domestic and foreign, largely at the upper end of the value chain are Mahyco, Emergent, Monsanto (proposed to be merged with Bayer), Proagro (see Table 8.6). These companies produce and distribute specific seeds throughout the country and also export it to other countries.

**Table 8.6 Key Indian seed companies, 2016**

<b>Company names</b>	<b>Origin country</b>	<b>Holding structure</b>	<b>Important seeds</b>
Mahyco	India	Monsanto, USA (26 %)	All crops
Emergent(Mahendra Group)	India	acquired by Monsanto	All crops
Monsanto	USA	Bayer Crop Science, Germany	All crops
Proagro Seed Company Ltd.	India	Bayer Crop Science	All crops
Namdhari Seeds	India	Family	Vegetable seeds
Nuziveedu Seeds Private Ltd.	India	Family	Millet, Cotton, Corn
Ganga Kaveri Seeds	India	Family	Pearl Millet, Cotton, Jute, Mustard, Green Gram, Maize, Paddy, Sunflower, Sorghum, Wheat.
Advanta India	USA	Adventa (Fox Paine and Agrotech Foods; 50 % each)	Cotton, Jute, Mustard, Maize, Paddy, Sunflower, Millets
Syngenta	Switzerland	Syngenta	Sunflower, Cotton, Corn, Millets
Pioneer (originally DuPont)	USA	Dupont	Sunflower, Soybeans, wheat, Sorghum
JK Seeds	India	JK Group	Cotton, Paddy, Maize, Sunflower, Castor, Cumin, Mustered, Pearl Millet, Vegetables
Ankur Seeds	India	Family	Vegetables, Onion, Tomato
Seminis	USA	Acquired by Monsanto	Vegetables
Indo-American Hybrid Seeds (India) Pvt. Ltd.	India	Family	Vegetables, Flowers
EID Parrys India Ltd	India	Family; Monsanto (51 %)	Sunflower, Cotton, Paddy
NathBiogenes India Ltd	India	Family	Cotton, Millet Corn, Vegetables

Source: Information collected by the author from various sources: company websites and reports.

### *The Farming Community's Use of Hybrid Seeds*

Estimates suggest that in 1990, only 10 percent farmers bought new hybrid seeds annually, but it increased to 25 percent in 1997 (Shiva and Jalees 1998). The Directorate of Economics and Statistics, in its report on State of Indian Agriculture, 2015, estimated that the organised sector (including both private and public sector companies) accounted for about 30–35 percent of the total seeds distributed in the country and the unorganised sector, comprising mainly farm-saved seeds, accounted for the remaining portion (GoI 2015). A survey carried out by Delhi-based Lokniti and Centre for the Study of Developing Societies (CSDS) in 18 states of India claims that in 2013, around 70.2 percent of the total seeds sowed was saved while 29.8 percent of them were commercial seeds. In the survey, 62.9 percent farmers responded that they used hybrid seeds while rest of the farmers said that they never used such seeds. Only 4 percent farmers said that they used genetically modified seeds too (Lokniti and CSDS 2013). The choice of seed is made by farmers considering various factors like irrigation facility required, credit accessible to farmers, and markets available for the produce. But the Lokniti and CSDS report also claim that the farming community in India due to lack of appropriate knowledge are unable to differentiate between hybrid and high yielding seeds; probably that is why a high percentage of farmers, who appeared in the report, claimed to be using hybrid seeds (62.9 percent) (Lokniti and CSDS 2013).

### ***Pesticides Sector***

The production of pesticides in India started in 1952. Like the seeds market, the pesticides market in India has also been witnessing expansion of domestic and international firms in production, marketing, and trade. The use of pesticides has risen due to the increasing attack of pests on major crops in India (see Table 8.7).

**Table 8.7** *Crop-wise pests, 1940 and 2015*

<b>Crops</b>	<b>1940</b>		<b>2015</b>	
	<b>Total pests</b>	<b>Serious pests</b>	<b>Total pests</b>	<b>Serious pests</b>
Rice	35	10	240	17
Wheat	20	2	100	19
Sugarcane	28	2	240	43
Groundnut	10	4	100	12
Mustard	10	4	38	12
Pulses	35	6	250	34

Source: FICCI (2015)

Indian pesticides industry (crop protection industry), which was worth to \$ 0.5 billion in 1998, estimated to be \$ 4.25 billion in 2014 and it is growing at an annual growth rate of around 12 percent. The pesticides normally include insecticides, fungicides, herbicides, bio-pesticides, and other pesticides<sup>44</sup> like fumigants, rodenticides, plant growth regulators, etc. Between 1999 and 2014, the share of insecticides in the total market has declined, but still holds a 60 percent share (see Table 8.8).

**Table 8.8 Indian crop protection market segments (in percent)**

<b>Pesticides</b>	<b>1999*</b>	<b>2014**</b>
Insecticides	76	60
Herbicides	10	16
Fungicides	13	18
Bio-pesticides	0	3
Others	1	3

Source: \*Mathur (1999) and \*\* FICCI (2015)

Production capacity for pesticides has grown at the rate of 7.8 percent annually in the period from 2008–09 to 2015–16. The production of pesticides has also grown at the rate of 5.4 percent annually. At the same time, exports of pesticides grew at the rate of 13.2 percent outpacing imports' growth rate of 9.6 percent (see Table 8.9). One may wonder why exports of pesticides are more than its production in a particular year (e.g. for the ears 2012–13 to 2015-16). The reason is that the pesticides exported include both technical and formulations grades. The technical grade pesticides include active ingredients and are of purest form. Formulation grade pesticides are a mixture of various ingredients (for example water) and, therefore, are heavier. Formulation improves the properties of pesticides in storing, handling, application, safety and their effectiveness.

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<sup>44</sup> Other pesticides include those once which are used to protect pest attacks during crop storage.

**Table 8.9 Performance of pesticides industry in India (000MT)**

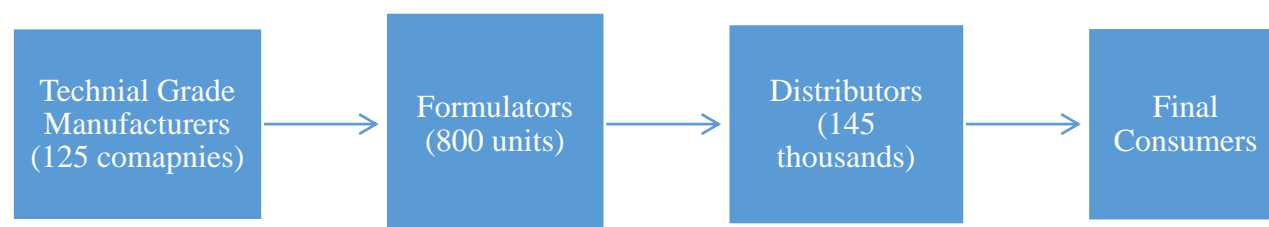
Pesticides	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	AAG* (%)
Capacity	173	198	236	288	269	283	288	292	7.8
Production	130	135	144	156	155	179	186	188	5.4
Capacity Utilisation (%)	75	68	61	54	58	63	65	64	
Imports**	18	20	27	30	30	37	41	34	9.6
Exports**	112	128	125	154	180	207	230	267	13.2

Source: Ministry of Chemicals and Fertilizers (GoI), (Chemicals and Petrochemicals Statistics at a Glance, 2016). \*AAG – Average Annual Growth. \*\*Import and Export include both technical and formulations.

#### *Market Structure of Pesticide Industry in India*

In the value network of pesticides three types of manufacturing companies are active: multinational companies, Indian public and private sector companies, and small sector units. Most of the pesticides manufacturing (around 80 percent) are generic in India so the level of entry in the industry for the firms is not constraint by high patent royalties. Nevertheless, they have made use of market imperfections to limit competition. The generic firms have built a strong distribution network and branded pesticides (FICCI 2015). The Pesticide Monitoring Unit (Government of India) factors in the agrochemical value chain into four categories: technical grade manufactures consisting about 125 technical grade manufactures that include about 20 multinational companies; more than 800 formulators; around 145 thousand distributors; and consumers of agrochemicals (pesticides).

**Figure 8.1 Agrochemical (pesticides) value chain in India**



Among the technical grade manufacturers, the top ten companies' market share is 75–80 percent (FICCI 2015) while the top 20 domestic and international firms

control 90 percent of the pesticides market share in India (Agropages 2014). In the last one decade, the industry has also witnessed several mergers and acquisitions where large players in the industry have bought small manufacturers (FICCI 2015). The FICCI's report mentions a list of top agrochemical companies (producing all segments of pesticides which include insecticides, herbicides, fungicides, and other agro-chemicals) operating in India. Topping the list is the family-owned Indian company UPL Ltd. whose 2013–14 sales volume was more than thrice of that of its next competitor, the German multinational Bayer CropScience Ltd. (see Table 8.10). It is mostly Indian companies (operating domestically and internationally) who have occupied the pesticides market and are capturing a larger share of the value network.

**Table 10 Top ten agro-chemical companies in India, 2012-2014**

Rank	Company	Country/ Ownership	2012-13 (sales in million INR)	2013-14 (sales in million INR)	Change in Sales (in %)
1	UPL Limited	India/Family	84750	99760	17.7
2	Bayer CropScience	Germany/controlled by Bayer AG	23229	28314	21.9
3	Rallis India	India/A TATA enterprise	14582	17257	18.3
4	Indofil Industries	India/KK Modi Group of Companies (Family)	11940	14560	21.9
5	Gharda Chemicals	India/KH Gharda Group of Companies (Family)	10886	14000	28.6
6	Coromandel International	India/Murugappa Group & EID Parry	10058	12840	27.7
7	Crystal Crop Protection Ltd	India/Family	8165	11580	41.8
8	BASF	Germany	9229	10448	13.2
9	Excel Crop Care Ltd	India/Family (now, controlled by Shumitomo Chemical Company, Japan)	7464	9371	25.6
10	Insecticides India Ltd	India/(Family)	6169	8645	40.1

Source: Agropages 2014.

### ***Trend towards Oligopoly in the Agri-Input Market***

In the light of the earlier discussion, it is pertinent to examine whether the penetration of large domestic and international firms in the seeds and pesticides market amounts to the creation of oligopoly or not. An oligopoly is characterised by imperfect competition between a few companies in an industry. Their intellectual property rights protected know-how, financial resources, and marketing skills provide them with a strong position vis-à-vis their manifold and fragmented customers. Given their relative small numbers, they might even collude in setting prices. They are therefore, in a position to ‘grab a larger share of wealth’ than others in the agricultural production systems (Stiglitz 2015). So the seeds and agrochemicals markets in India perhaps are gaining an increasing control, concentration, and oligopolistic power.

The liberalisation allowed the entry of domestic and international companies in these two important agricultural input markets. In 1971, there were only three private sector seed companies and no multinational company, but in 2011–12 there were 662 domestic private and 309 multinational seed companies operating in different seed segments in India (see Table 8.5). While most of the seeds being used are still saved by farmers, private companies have overtaken state institutions in the supply of ‘marketed’ certified quality seeds. In some market segments such as horticulture, state seed agencies have been outpaced by the private companies.

Quite a few domestic and international seed companies are active in India. This fact suggests the existence of a competitive market. However, the overall number is misleading, because not all of them compete in all market segments. In some market segments such as the horticulture seeds market only a few companies provide the lion’s share of seeds. Data on their pricing strategies could not be accessed due to ambiguity of information, regional variations, and reluctance of government and companies in providing a full proof data. Only few companies, listed in the stock market provide online annual reports that give an idea of their market strategies. However, drawing any conclusion on prices and the quantity of seeds and pesticides they supply in a particular time period is again hard to establish.

A few characteristics of the seed and pesticides market are outlined here:

- Pesticides market is more concentrated than the seed market. Among the technical grade manufacturers (total 125), top 10 companies have control on 75–80 percent market share of the pesticides market in India and 20 domestic and international companies have control on 90 percent pesticides market.

- Concentration in the seeds and pesticides sector has provided domestic and foreign companies to control the volume, prices, and the market of the large agricultural sector in India.
- It has been estimated that 30 to 35 percent of the total seeds were provided by the organised (both public and private) sector and the rest were farm-saved seeds (GoI 2015). Of these 30–35 percent seeds are supplied by the organised sector; private companies have larger hold in supplying them.
- Around 20 multinational seed companies (both domestic and international) have occupied the seed sector in terms of supplying seeds to the farmers. Most of Indian origin multinational seed companies are under family ownership.

### ***Impact on Farming***

The entrance of private companies in the agricultural input markets as well as their concentration among them may not have been so beneficial for the small and marginal farmers who constitute around 52 percent of the total farming households (NSSO 2015). These farmers need special care in terms of provision of quality agri-inputs, especially seeds, at regulated prices and at specific points of time. If the struggling small and marginal farmers are not protected from the market variabilities, they may be at the risk of defaulting on their loans (Gudipati 2015).

Various reports on ‘Cost of Cultivation/Production’ provided by the Directorate of Economics and Statistics (Ministry of Agriculture and Farmers Welfare) suggest that use of hybrid seeds, fertilisers, pesticides, and mechanisation of farms have considerably pushed up the cost of cultivation per hectare. Due to rise in costs of cultivation, the incidence of indebtedness among the farmers has increased (NSSO 2016). Even if there had been positive effects of productivity increase due to use of hybrid seeds and other modern inputs (though, it is questioned by many scholars in the recent times: Gulati 2002; Bhatia 2006; Aiyar 2012; Chaudhary and Singh 2016), the rising indebtedness has been one of the main reasons for an unprecedented wave of farmers’ suicides between 1995 to 2015, when around 0.3 million farmers committed suicide all over India (Sainath 2015). One must recount that these are the same 20 years when use of hybrid seeds, fertilisers, and pesticides has increased tremendously. The use of these modern yield increasing technologies has further affected the soil fertility negatively. These technologies require a good irrigation facility. As 67 percent agricultural activities are rainfed in India, there had been more likelihood of crop failures (Aktar et al. 2009; Khajuria 2016; Mallick 2017; MoA&FW 2016b).



Farmers using these expensive modern inputs for yield increase are further challenged by the fluctuating global prices of farm produce due to trade liberalisation. These fluctuating prices create uncertainty among farmers and if no state support exists (as in many crops in India) for the procurement of produce, the farmers are forced to sell their produce into the open market or trader/middlemen for less than their costs, i.e., undertake distress sale. So the sale of agri-inputs provide larger benefits to corporations as farmers are forced to buy these inputs on the given prices, but these farmers do not get benefits in the output chain due to uncertainty in the market and distress sale (Business Line 2017).

Use of hybrid seeds provided by corporates also means that farmers cannot use these seeds again as saved seeds. The patents on hybrid seeds prevent seed saving. So, at the time of every new cropping, farmers have to buy new hybrid seeds. Now, the cultivation through hybrid seeds cannot survive without the use of fertilisers and pesticides which increases the cost of cultivation of farmers, hence their indebtedness. The shift from saved seeds to corporate developed hybrid seeds is also a shift from biodiversity in crops to monoculture. The uniformity of seeds leads to crop failures, since biodiversity in crops and use of different seeds in different eco-systems had provided crop security to farmers (Navdanya 2014).

### **Concluding Remarks**

The ascendancy of agricultural value network, especially, in the input (seeds and pesticides) markets have witnessed rapid rise of domestic and international private sector companies (multinational) in terms of share of the market, volume of supply of inputs, and their expansion vertically and horizontally. These expansions were made possible by the Government of India under various neoliberal policy relaxations on one hand and subsequent strategic *rollback* of the public sector on the other. Gradually, both in the seeds and pesticides market, these companies, mainly 20 in both sectors each, through their high expenditure on R&D and marketing, have gained a strong position vis-à-vis the small farmers and in some market segments they act in an oligopolistic way. In the seed sector, the private sector share in both *high value and low volume (high profit margins) seeds* and *low value and high volume (low profit margin) seeds* in respective crops have, now, been around 90 percent and more than 50 percent, respectively. In the organised pesticides sector, top 20 companies control 90 percent of the pesticides market which one can term it as oligopolistic market, though most of the companies involved in the sector are Indian companies. The increasing market share of inputs in the case of seeds and pesticides provide a high ground to the companies to set prices of inputs, hence, these have some detrimental impact on the farming communities. There is ample evidence which suggests that since companies have

greater control in the input supply chain, the cost of cultivation has considerably gone up. This has led to increase of the indebtedness of marginal and small farmers; at the same time, global fluctuation in farm produce prices along with insufficient provisioning of state procurement system, has brought farming in India under severe distress.

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## 9. Food Regimes, Corporate Concentration and Its Implications for Decent Work

Florian Dörr

From a production or consumption perspective, the food system in the context of contemporary times has remained ineffective for half of the world's population. From a production perspective, agriculture provides employment to one-third of the global workforce, which is around 50% of the economically active population in China, and 60% in both India and Africa. With employment numbers in agriculture of 632 million in Asia Pacific, 225 million in Africa, 37 million in Europe and Central Asia, 44 million in Latin America and the Caribbean, and 2.6 million in North America, it is clear that the majority of agrarian populations live in the global South (ILO 2017).

The 1.3 billion people working in agriculture are the most vulnerable to poverty and hunger. The biggest decent work deficit is found in agriculture and runs across all four pillars of decent work: underemployment, low income and insecure jobs, forced labour, child labour (ca. 60% of child labour can be found in agriculture), low standards of work safety (thousands of workers are killed each year), low levels of organisation (less than 10% of agricultural waged workers are organised) and lack of social security and protection (ILO 2015: 2). These decent work deficits translate into a nutrition crisis, as most agricultural producers are net consumers of food. From a consumption perspective, a 'triple burden of malnutrition' is affecting most countries globally (FAO 2017a: 80). Due to the lack of purchasing power, climate change, and conflicts, 815 million people predominantly living in rural areas suffer from chronic hunger (FAO 2017b), 2 billion people have micronutrient deficiencies (such as minerals, vitamins, and trace elements), while urbanisation, supermarketisation, and the associated 'nutrition transition' towards foods which are high in energy, fat, sugar, and salt combined with reduced intakes of fruits and vegetables has led to a global obesity pandemic which affects nearly 2 billion adults globally (IFPRI 2016: 2). Diet has become the number one risk factor for non-communicable diseases which are rising in all world regions, and especially fast in low and middle-income countries. Thus, a nutrition crisis of low-quality diets is affecting approximately 3 billion people globally, including in industrialised countries (GLOPAN 2016: 15-16). There is an increasing recognition that the global food system has not evolved to provide high quality nutritious diets, social inclusiveness, decent working conditions and environmental sustainability. Food regimes help us to understand in a structured way why this is the case.

This chapter presents the main insights of food regime analysis, exemplifies current trends of corporate concentration in input and retail sectors, and assesses its implications for decent work.

### ***Food Regime Analysis as a unique comparative-historical lens***

Food scholars face the challenging task to explain the evolution of food systems with their diverse and often contradictory social relations, discourses, divisions of labour, places, and ecologies. Scholars from different disciplines such as agrarian political economy (for an introduction see Bernstein 2010), development studies, rural sociology, and agri-food studies (Goodman 1999) have tried to qualify food systems on different scales from local to global, focusing on actors from producers to consumers,<sup>45</sup> and/or the inquiry of broader structures in the food system. Food regime analysis is one of the most prominent examples of a holistic, theoretically and world historically grounded political economy approach to unlock food production, distribution, and consumption patterns in relation to the development of capitalism, in which social change results from conflicts among social movements, capitals, and states (Magan 2012: 370). According to McMichael, the food regime project can be understood as a continuous ‘analysis of the political geography of the global food system’ (McMichael 2013a: 1) and as ‘key to unlock not only structured moments and transitions in the history of capitalist food relations, but also the history of capitalism itself’ (ibid.: 24).

Food regimes are no absolute, all-encompassing totalities, but stylised historical periodisations which embody contradictions, but under which nonetheless the expectations of relevant actors on certain relationships are predictable, and the regime seems to work without rules and for ‘everyone’. Friedmann describes the often-implicit rules of food production and consumption as an outcome of a (Gramscian) hegemonic process of normalisation and a class compromise: ‘food regimes emerge out of contests among social movements and powerful institutions, and reflect a negotiated frame for instituting new rules. The relationships and practices of a regime soon come to seem natural. When the regime works really well, the consequences of actions are predictable, and it appears to work without rules.’ (Friedmann 2005: 234). For example, the First Food Regime (1870–1914) seemed to work since it provided a new class of family farmers in settler states with an export market for grains and meat, and food imports allowed to feed dispossessed and (semi-)proletarianised European agrarian populations forming a new industrial worker class, a division of labour which collapsed with the First World War. Under the Second Food Regime (1950s–1970s), grain flows reversed for

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<sup>45</sup> Central actors food regime making and unmaking include farmers, workers, consumers, firms, and states (McMichael 2013a: 12).

Europe as it became a surplus producer and the US provisioned food aid, which was perceived as beneficial by northern exporters looking to allocate surplus production, as well as by importing governments in the global South seeking fast-track industrialisation, until the perception of food aid changed to export dumping. A potential Third Food Regime (1980s–2000s) could also be seen as benefitting both privileged and working class consumers by providing cheap and abundant ‘class bifurcated diets’ (McMichael 2013a: 6) via the ‘supermarket revolution’ in the global South and by including new regions and countries such as Brazil and China into animal protein chains. Food regimes enter into crisis as their contradictions unload and/or central relations and divisions of labour become unpredictable and unstable (an erosion of hegemony), creating crises phases which tend to last as long as stable food regimes themselves, typically around 25 years.

Food regime analysis emerged during the 1980s as a result of increased academic interest to understand the growing power and influence of transnational corporations both upstream (seeds, agrochemicals, machinery) as well as downstream (trading, processing, retailing) of farming. Major shifts in global food trade inspired new areas of research on the restructuring of agri-food chains via the emergence of counter-seasonal commodity chains of fresh fruits and vegetables from the global South (Magnan 2012: 370). Food regime analysis was created by Philip McMichael and Harriett Friedmann in their influential 1989 article ‘Agriculture and the state system: the rise and fall of national agricultures, 1870 to the present’. The article (re)locates agriculture in the theoretical centre of understanding society and capitalism and provided a new way for political economists to frame power relations and policy analyses in the agricultural and food sector (Campbell and Dixon 2009: 261). Friedmann and McMichael (1989) organise their concept of ‘food regimes’ by linking ‘international relations of food production and consumption to forms of accumulation broadly distinguishing periods of capitalist transformation since 1870’ (95). Food regimes analysis is inspired by the world historical method of world systems theory (Wallerstein 1974) and the periodisation of regulation theory (Aglietta 1979), in which modes of regulation are replaced with the regime approach (Krasner 1982). World System theory contributed the analysis of the international division of labour with a world historical method; Regulation Theory inspired the periodisation of the first and second food regimes with its different forms of accumulation;<sup>46</sup> and Regime Theory inspired the identification of explicit and implicit rules and legitimisations for food regimes, in order to form a holistic and historically grounded analysis of

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<sup>46</sup> Araghi (2003) has proposed to replace the developmentalist framework of regulation theory with a labour-oriented theory of value in order to overcome some common methodological critiques on regulation theory.

global food systems. Central elements of food regime analysis centre around continuities and ruptures in the international state system, the international division of labour and trade, dominant forms of capital and their mode of accumulation, rules and legitimation, social forces other than states and capitals, technical and environmental change, as well as tensions and contradictions (Bernstein 2015 and 2016).

Food regime analysis relies on a methodology of ‘incorporated comparison’ as a contingent, historical-comparative lens to understand broader constellations of power and accumulation. McMichael describes incorporate comparison as a historical comparative method which allows cross-space and cross-time comparison, in which processes are mutually conditioning and part of a contingent, evolving whole. The whole is not *a priori* given or all encompassing, but formed by historically situated system parts which can qualitatively evolve. Food regime analysis, therefore, presents a structured historical narrative, subject to reinterpretation, of stable phases of agri-food relations (e.g., a food regime), whose inherent contradictions might lead to political contestation, crises and transition (McMichael 2000: 671).

While food regime analyses initially aimed to identify stable phases of food production, distribution, and consumptions (a food regime), more recent work has focused on transition phases and political contestation in order to avoid structural or historical reductionism. As Bernstein (2010: 10) puts it, ‘periods are necessary to identify change, and we are unable to think about history without them, without asking what changed, how, why and when’. Periodisations are, therefore, key to the analytical method of food regime analysis, which moves beyond actor-centred rural sociology and the modernist ontology of agri-food studies (Goodman 1999). However, food regimes run the risk of obscuring the complexity of historic continuities and ruptures, and cannot take into account all spatial variations and historical specificities. As stylised historic periodisations, food regimes are subject to reinterpretation and contestation. The debate whether or not a third food regime has evolved precisely centres around the question whether mutually conditioning parts and relations (rules, legitimation, dominant forms of capital, divisions of labour, etc.) have historically evolved to disintegrate and/or form a new whole (e.g., a third food regime). The following section will provide a short overview over stable phases, crises, and transition periods identified by food regime scholars. While several sophisticated food regime genealogies have been elaborated by McMichael (2009, 2013) and Bernstein (2015, 2016), the following short overview will focus on the state system, divisions of labour, class dynamics, and technical/environmental change.



### *The first food regime (1870s–1914)*

The first food regime from the 1870s to 1914 was constituted by the first price-governed international market for grains and marked a final wave of colonial expansion in Africa and Asia.

**State system:** The first food regime was shaped by Great Britain as hegemonic power based on its superior military power, the free trade discourse, and the pound sterling as key currency for international trade. Unlike in former waves of colonial expansion driven by merchant companies, states became the central actors to increase their domination over territories. Britain was rivalled by the rapidly industrialising nations of the USA, Germany, France, Belgium, and Japan in the scramble for colonial possessions which led to the culmination of colonialism in Africa and Asia. In a contradictory and uneven movement, the first food regime was characterised by colonial powers, colonies, and newly independent states which lay the foundation for the modern international state system (Bernstein 2010: 41).

**Division of Labour:** Anticipating a new division of labour based on competitive and price-governed markets for temperate agricultural products, emerging settler states in temperate areas in the Americas, Australia, New Zealand, and Southern Africa replicated models of European agricultural and industrial production (Friedmann and McMichael 1989: 96). A truly global division of labour emerged with a temperate grain-livestock complex, in which European states imported large amounts of wheat and meat from settler states, who in return imported manufactured goods, labour, and technology, especially for railway construction (ibid.: 95). This division of labour was underpinned by large-scale migrations of uprooted agrarian populations from Europe to ‘settler states’ (such as the USA, Canada, Argentina, Brazil) where fertile lands were often violently appropriated, and its inhabitants exterminated by military force. This movement created a new class of settler family farmers which supplied new classes of (semi-)proletarianised workers in Europe. As much as one-eighth of the European population was enabled to migrate, which smoothened the harsh transition to industrialisation by releasing impoverished populations and providing cheap imported diets for a new class of industrial waged workers in Europe (Delgado Wise and Veltmeyer 2016: 71). Friedmann (2005), therefore, describes the first food regime as the ‘colonial diasporic food regime’ (237). She points out that (2016: 682) the major wheat export regions of the first food regime (1870–1914) still shape present-day food politics (but with other crops such as maize, soybean, or palm oil), while a preference for wheat diets continues even after wheat has ceased to be the most traded food commodity.

Tropical plantations in Asian and African colonial territories were reorganised by new industrial principles of production, processing, and financing to provide what Bernstein (2010: 68) calls ‘tropical groceries’—sugar, cocoa, coffee, tea, bananas, and other crops for industrial production. Imperial power relations led to the under-reproduction of labour and ecologies in colonial territories (McMichael 2013a: 30), while catering for privileged consumer classes in Europe as well as to provide grain and basic foodstuffs for expanding urban populations. The specialisation of European industries in the 19th century was thus also enabled by its relations with settler states and colonial territories whose agricultural exports provisioned ‘wage-foods’ for a growing European proletariat (Friedmann and McMichael 1989). Cheap foods provided legitimacy to the existing political system and also served the purpose to avoid agrarian rebellions as existing in Russia and Ireland (McMichael 2013a: 27). The foundation for patterns of trade of the first food regime was laid with the repeal of the protectionist Corn Laws in 1846, by which British policy imposed free trade in grains (Bernstein 2015: 11), reducing the profits and power of its landed classes in favour of lowering the price for wage foods in the interest of manufacturing capital. The import of cheap overseas grains led to a deep crisis of European grain farming and further rural exodus, while the remaining farmers specialised in higher value products such as dairy, fruits, and vegetables (Bernstein 2010: 67).

#### *Technological change*

While for centuries the transport of agricultural commodities relied mainly on waterways, the first international food regime was characterised by improved means of land transportation such as railways. This meant that vast and remote prairies of settler states like the US, Canada, and Australia could become major grain and beef exporters (Bernstein 2010: 66). Further technical change encompassed first chemical fertilisers, scientific breeding, and invention of the internal combustion engine used in tractors resulting in increased labour productivity. Extensive grain monocultures, industrial meat processing, industrial production of farm equipment, improved means of long distance transport, as well as the establishment of future markets for agricultural commodities characterise the first food regime (Bernstein 2010: 67), foreshadowing the intensive farming models which define the second food regime.

In **summary**, the first colonial diasporic food regime was shaped by Great Britain as the hegemonic power, under which a division of labour of the grain–livestock complex between European states and settler states emerged, creating a first price governed market for temperate agricultural products (Bernstein 2010: 67). Imperial relations with colonies and settler territories, and technological innovations of land transport and free trade rhetoric characterise the first food regime.

### *Crises and Transition (1910s–1940s)*

A profound change in the capitalist world economy happened in the transition phase of 1914 and the 1940s which encompassed the First World War (1914–18), the Great Depression (1930s), as well as the Second World War (1939–45), which had severe consequences for international trade and resulted in a reorganisation of agriculture. From 1914 onwards, the first food regime went into a profound political, economic, and environmental crisis that marked its end as a stable regime (McMichael 2013a: 31). The implicit rules of free trade commodity production and the civilising claims of ‘the white man’s burden’ based on Eurocentric racism, which informed the legitimacy of colonial powers, went into crisis as the British-centred world economy was increasingly challenged by decolonisation movements, interstate rivalry, and the collapse of the gold standard. The economic depression after First World War was exacerbated by a long-term agricultural crisis in Europe due to cheap overseas grain imports, which led to protectionism and the end of the liberal trade regime. The extensive mechanised monoculture farming of virgin soils in the US Midwest led to the ecological disaster of the US dust bowl, making the export-oriented production model of the new class of settler family farmers collapse and contributing to the breakdown of the division of labour of the first food regime. Thousands of settler families left their farms to migrate to US coastal cities, and many formed part of the millions of unemployed during the Great Depression. As a reaction to these crises, massive government intervention to stabilise national agricultures foreshadowed the emergence of a state-centred food regime after Second World War (McMichael 2013a: 32). In summary, the political contradictions of the culmination of colonialism combined with the decolonisation movement, the economic limitations of price-governed international commodity production, and the ecological limitations of soil mining for export production combined with the two World Wars and the Great Depression led to the collapse of the central relations of the colonial-diasporic, or as McMichael calls it, ‘British-centred, imperial food regime’ (2013: 26).

### *The second food regime (1940s–1970s)*

After the Second World War, the USA emerged as a hegemonic state; shaped an intensive food regime based on agricultural surplus production; the US dollar became the currency for international trade and the stage for national development was set (McMichael 2013a: 32).

**State system:** This period saw an extension and completion of the international state system via decolonisation of Africa and Asia, and was characterised by Cold War rivalry between the United States and the Soviet Union, who competed to find allies among the newly independent countries. The foundation of the UN system underpinned national governments as the central actor, and the Bretton Woods

system was established as the first fully negotiated monetary order to ensure stability. The Second food regime had different effects on the global North (the ‘first world’) and South (the ‘third world’), as the former established subsidised surplus production, primarily of wheat and corn, which was channelled to the latter. The US agri-food complex became an important basis for US hegemony in two ways—US grain exports, often channelled via ‘food aid’ programmes, supported decolonisation and the completion of the nation state system, whereas agriculture was transformed to an industrial sector also supplying industrial inputs by transnational accumulation processes of US corporations (Friedmann and McMichael 1989: 94).

**Division of labour:** The second food regime (1945–73) is also called ‘mercantile industrial food regime’ (Friedmann 2005) or ‘US-centred intensive food regime’ (McMichael 2013a), since the USA became a major exporter of agricultural surpluses and was quickly joined by Canada, Australia, and post-war Europe, dumping chronic and politically intended surplus production on international markets. In the US, Public Law 480 (also known as ‘Food for Peace’ and existing until today) was established in the 1950s and enabled heavily subsidised wheat production that was allocated as one way to gain political allies under the unfolding Cold War conflict and to contain communism. Many newly independent governments in the ‘third world’ embraced the development discourse and welcomed cheap food imports to boost industrialisation and proletarianisation. As a consequence, many countries formally self-sufficient in food production were transformed into net food importers. This led to food import dependence in the so-called ‘third world’, with the notable exception of India which became self-sufficient in grains (Bernstein 2015: 7). The second international food regime witnessed an extraordinary economic expansion of the world economy between 1950 and in 1970s which boosted chemicalisation, mechanisation, and the development of high yielding seeds in agriculture, also known as ‘green revolution’, which resulted in an increased corporate concentration of farm inputs on upstream markets (Bernstein 2010: 71). The European and the US agricultural policies promoted an Atlantic agri-food complex which was soon characterised by overproduction and the lack of effective demand. Food and agriculture was excluded from the General Agreement on Tariffs and Trade (GATT) on request of the US, hence, import controls and export subsidies continued (Magnan 2012: 377). While during the first food regime, Europe depended on basic grain imports from settler states, in the second food regime witnessed a reversal of food dependency, leading to the emergence of ‘third world food dependence’ (Bernstein 2010: 72). The basic division of labour during the second food regime can be characterised by basic grain exports from the North, and exotic exports from the South. A new emerging division of labour was created by the ‘meat/soy/maize

complex' and the 'durable food complex' (Bernstein 2015:7), as well as industrial food production in the 'First World' which enabled mass consumption of processed foods and meat. While the manufacturing of canned food was a technology pioneered during the first food regime, industrial food manufacturing became an important sector only after the Second World War with new technologies such as packaging and freezing, characterised by emerging national brand manufacturers using wheat, maize, and soy as inputs for industrial food production (Magnan 2012: 388). Food manufacturing technologies also led to a loss of export markets for some tropical commodities due to sugar and vegetable oil substitution in the global North.

During the second food regime (1945–73), power shifted to both input corporations which provided green revolution technologies (agrochemicals, seeds, and machinery) as well as to brand food manufacturers (such as Nestle and Heinz). The industrialisation of food production opened up new accumulation dynamics for the manufacturing and retailing of processed foods (McMichael 2013a: 34). Food aid, furthermore, introduced American style diets to other food cultures in the Slobal South, by promoting wheat-based foods and animal source proteins from industrial and increasingly transnational livestock complexes (McMichael 2013a: 36). The green revolution underpinned the US food regime by promoting high yielding varieties dependent on agrochemicals, mechanisation, and irrigation schemes to 'feed the world' and to incorporate the 'Third World' regions into capital circuits for agribusiness technologies (McMichael 2013a: 38).

**Rules and legitimation:** The second food regime was driven on a modernisation theory-based development discourse encouraging countries to model the US way of agricultural 'modernisation' and intensive farming with a focus on productivity. In 1947, the establishment of GATT aimed to reduce trade barriers, but explicitly excluded agriculture, encouraging countries to adapt the US agro-industrial model of subsidies and domestic supply management as policies which were widely adopted by countries such as Canada, India, Japan, Mexico and most of post-war Europe (McMichael 2013a: 33).

#### *Technological/environmental change*

Further, mechanisation and chemicalisation of agriculture led to further industrialisation of the food system and the associated environmental impacts such as loss of biodiversity, soil fertility, water pollution, deforestation (Bernstein 2016: 623).

In **summary**, the second food regime was shaped by US hegemony and a new discourse of development with universal promises for a completed international state system, enabling the global North to become a surplus producer and making

large parts of the global South food import dependent (McMichael 2013a: 35). States played a central role in the management of agriculture, and established marketing boards, public research and development, extension services, and public buying schemes. State management of agriculture also allowed for the emergence of agribusiness corporations in food processing and input markets, which pushed an increased industrialisation and chemicalisation of agriculture with green revolution technologies. In the ‘first world’ increased mass consumption of meat and convenience foods signalled the growing importance of agri-food industries (Bernstein 2010: 72). The accumulation dynamic shifted from an extensive production of cheap prairie staples during the first food regime to an intensive form of surplus production and food manufacturing during the second food regime (McMichael 2013a: 33). Only under the second food regime, food manufacturers became a major industrial sector, whose power should then be challenged by retailers.

#### *Crisis and transition (1970s – today)*

The crisis moment of the second food regime is seen as the multiple crises of the 1970s (oil and debt crises) that led to a decline in US hegemony and an increasing neoliberal marginalisation of the role of government which was central in the Bretton Woods System and in its management of currencies and agriculture since the Second World War. The abandoning of the gold standard in 1971 by President Nixon replaced the Bretton Woods System de facto with a system of free floating FIAT currencies which are in place until today. This decoupling facilitated the expansion of offshore dollar markets and the beginning of an era of ‘financialisation’, which is the expression of a hegemonic crisis (McMichael 2005: 295). In attempts to re-establish power, the US state worked to liberalise the capital markets and lower trade and investment barriers to benefit US transnational corporations. This became a precondition for capital to disorganise labour globally. A new neoliberal project actively worked to dismantle government control via structural adjustment programmes, privatisation and trade liberalisation imposed on large parts of the global South and former Soviet states which ended the paradigm of state-led development and state-led investment in agriculture (Bernstein 2010: 80). The collapse of the second food regime was marked by a price explosion and shortage in world grain markets as the US lifted the grain embargo on the Soviet Union and supplied enormous quantities of wheat (Bernstein 2010: 81). In a contradictory movement of short-term shortages and structural oversupply, it became increasingly difficult for states to achieve price stability, a prerequisite for the ‘mercantile’ element of the regime. A central contradiction in the division of labour of the second food regime became evident as Europe successfully replicated the US model of mercantile industrial agri-food production behind the protectionist Common Agricultural Policy (CAP), leading to

European self-sufficiency in grains, meat, and dairy by the 1970s (McMichael 2005: 277). The 1980s were characterised by trade competition and competitive export subsidies between Europe and the USA, which led to the start of the Uruguay Round and the creation of WTO (as an attempt to stabilise agri-food relations) and an increased industrialisation and specialisation of global food chains. Many food regime scholars see corporations moving into the deadlocked attempts to regulate and stabilise relations of food and agriculture, as they outgrew their national markets and increasingly try to push agriculture into trade agreements. Ongoing conflicts over the regulation of food and agriculture, the collapse of WTO negotiations, increasing global hunger (FAO 2017b), continued food price volatility and environmental critiques of industrial agriculture emphasises that central crises elements of the second food regime have still not been resolved (Magnan 2012: 381).

### *A third food regime?*

As the second food regime characterised by intense state management of the food system went into crises in the 1970s, global food corporations became the dominant actors and grew in scope and size by integrating horizontally within segments and vertically along supply chains (Clapp 2016: 96). How the increased corporate concentration and influence in the food sector can be interpreted is a question which has created considerable debate between food regime analysts. A debate has started whether 1) a successive third corporate food regime has emerged since the 1980s (McMichael 2005), 2) a corporate environmental regime is emerging (Friedmann 2005), or 3) understanding the increased corporate influence and the establishment of the WTO (and subsequent collapse of the Doha Round) as ‘hangovers’ from the second food regime (Pritchard 2009). McMichael (2005, 2016) argues that a new ‘corporate food regime’ characterised by a central confrontation between peasants and corporations has settled, whereas Friedmann (2005, 2016) identifies an emerging ‘corporate environmental regime’, trying to accommodate health and environmental issues by technological solutions (Friedmann 2005). Bernstein (2010, 2016) identifies a new phase of neoliberal globalisation and world agriculture, suggesting that debates about the third food regime might be better assessed retrospectively than presently as a well-known phenomenon in social science theory (Bernstein 2015: 29). Pritchard also interprets food regimes as a ‘tool of hindsight’ to organise the complex nature of food politics, which is contingent upon an unknowable future (cited in McMichael 2013a: 8). The following section will briefly outline the main elements of McMichael’s, Friedmann’s, and Bernstein’s characterisations of the recent phase of agri-food relations.

*The Corporate Food regime by McMichael (1980s–2000s)*

In Philip McMichael's corporate food regime, states are reconfigured by the politics of neoliberalism as instruments of financialised corporate capital. While there is no new hegemonic state which replaced the USA, the US dollar still works as default world currency, as the corporate food regime is 'pivoted on the internalisation of neoliberal market principles by states subject to privatisation via mandated structural adjustment and free trade agreements—as an alternative to a stable, hegemonic international currency' (McMichael 2013a: 15). The division of labour is characterised by northern grain exports to the global South (continuity), and southern exports of 'exotics', including new agricultural and horticultural products (novelty). Transnational corporations subcontract the production of fresh horticultural products (such as fruits and vegetables) as well as processed foods in export processing zones (fruit juices, frozen vegetables) to southern producers in order to supply expanding supermarkets in the USA, Europe, and industrialising countries (ibid.: 49).

New commodity complexes include flex-crops that can be used as food, animal feed or fuel (such as soy, sugarcane, palm oil or maize), which signal an integration of food and energy markets (novelty). New regions such as China and Brazil are incorporated into animal protein chains, supplying expanding supermarkets along quality differentiated class diets (McMichael 2013a: 6). The corporate food regime relies on a discourse of neoliberal 'globalisation project' (McMichael 2013a: 47), and is based on a legitimation focusing on market rule (novelty), agricultural 'modernisation' (a continuity), and the westernisation of diets, which is challenged by new social forces of the Food Sovereignty Movement such as La Via Campesina, the Landless Workers' Movement (Movimento dos Trabalhadores Sem Terra, MST), and other agrarian movements which represent an increasingly unified farmer—worker movement across rural and urban spaces (novelty). A key feature of the corporate food regime is the deepening of historical patterns of smallholder dispossession by policies which favour large-scale and capital-intensive export operations, as well as dumping of artificially cheapened agri-food products on global markets. For example, due to NAFTA, 2 million Mexican campesinos lost their farms to the competition from heavily subsidised US maize, while in the US 33,000 small farms producing fruits and vegetables disappeared due to competitive Mexican agribusiness export platforms (McMichael 2013a: 55). Its class dynamics are based precarious labour circuits and the proliferation of urban slums (McMichael 2016: 649), echoing that informal workers are the 'fastest growing, and most unprecedented, social class on earth' (Weis 2007: 26).

Technical change is based on a new stage of chemicalisation and mechanisation of agriculture, with a new neoliberal appropriation of nature via private property



rights that enable GMOs and biopiracy (novelty). Seemingly more than other food regimes, the corporate food regime is characterised by the contradictions of an increasing ecological crisis and climate change and increased volatility of food prices (Bernstein 2016: 632). The corporate food regime is described as a central (and maybe final) battle between peasants and agribusiness over an either sustainable or catastrophic future of agriculture and humanity. The rise of privileged consumer classes emerging in the global South (including India and China), chartered by transnational supply chains, pose new questions about interstate relations, as well as divisions of land and labour. Burch and Lawrence (2005) trace the increasing market share of supermarket brands which are flexibly produced compared to traditional brand manufactures' mass production. A shift in the control and management of the agri-food supply chain in terms of standards and quality from the manufacturing to the retailing sector as a contour of the third food regime is emphasised. Symptomatic for the corporate food regime are neoliberal, free market policies as mode of regulation (or regime like conditions) which include non-permanent, flexible working conditions and a growth in 'non-contractual "partnerships" between supermarkets and their suppliers' (Burch and Lawrence 2005: 13).

While McMichael's conceptualisation of a corporate food regime based on neoliberal 'accumulation by dispossession' (Harvey 2003) has found lots of support and applications (Pechlaner and Otero 2008 and 2010, Burch and Lawrence 2005 and 2009, Holt Giménez and Shattuck 2011 among others), it has also provoked substantial critiques. Pritchard (2009) questions the existence of a third food regime as well by theorising the inclusion of agriculture into the WTO and the collapse of the Doha Round in 2008 'as a carryover from the politics of the crisis of the second food regime, rather than representing any putative successor' (Pritchard 2009: 297). Attempts to bring agriculture into the WTO can be seen as not being driven by the intent to universalise free market logic into global agriculture, but as aggravating pre-existing inequalities in the world food system in the interest of OECD countries and the US as hegemon. For McMichael however, the Agreement on Agriculture (AoA) does not represent a contradiction to, but rather the essence of the corporate food regime since 'the WTO was an additional instrument, beyond structural adjustment policies, of restructuring world agriculture and trade relations' (McMichael 2013a: 16), resulting in a new political constructed division of agricultural labour based on an uneven application of WTO rules in terms of farm subsidies and protectionism. Friedmann (2016) argues that adding the word 'regime' in the conceptualisation of corporate power implies more than it offers, since it suggests a unified corporate agenda and abandons a place specific inquiry. For her, food regime analysis is about more than a dichotomy of 'peasants vs. corporations', and she suggests that McMichael does abandon central

food regime questions, for example, by stating a simple ‘food from somewhere vs. food from nowhere’ binaries instead of tracing new international divisions of labour and newly emerging commodity complexes. She, therefore, rejects the conceptualisation of the corporate food regime as a reductionism to simple contradictions (Friedmann 2016: 675). What, then, does Friedmann suggest?

*The corporate environmental food regime by Friedmann (since the 1980s)*

Harriet Friedmann describes the emerging corporate-environmental food regime as follows: ‘Lineaments of a new food regime based on quality audited supply chains seems to be emerging in the space opened by impasse in international negotiations over food standards. Led by food retailers, agri-food corporations are selectively appropriating demands of environmental, food safety, animal welfare, fair trade, and other social movements that arose in the interstices of the second food regime. If it consolidates, the new food regime promises to shift the historical balance between public and private regulation, and to widen the gap between privileged and poor consumers as it deepens commodification and marginalises existing peasants’ (Friedmann 2005: 229f). Friedmann thus focuses on the remarkable rise of supermarket power in agri-food commodity chains over the last three decades and the associated rise of private standards to provide quality and class differentiated foods. Supermarkets have consolidated their power within the food system through their own brand products (giving them direct control over production) and dominate new market segments for ready-to-eat meals. At the same time, supermarkets pay meticulous attention to consumer demand for food safety, anxiety over GMOs, and health and nutrition concerns which have created new market segments for organic and certified products. Organic farming, which began as agroecology based experimentation during the 1960s and 1970s in response to the environmental concerns of industrial farming, was quickly subsumed by a regulatory drive into an ‘organic industry’ (ibid.: 233). This selective incorporation of consumer and environmental movement demands into business models is a central element of the environmental regime, which relies on the idea of ‘green capitalism’ (ibid.). It is rather private than public food standards which are introduced to provide new stability and accumulation dynamics in the global food system. The international division of labour is characterised by WTO’s Agreement on Agriculture, which failed to reverse northern protectionism and forced liberalisation of southern agricultures (ibid.: 148). According to Friedmann, regime-like conditions, meaning ‘sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area of international relations’ (Krasner 1982: 182) cannot yet be identified, signalling that there still is a crisis/transition period. Friedmann therefore ends with ‘no conclusion’ since she identifies the emerging regime as

already contested by the environmental and health problems it tries to solve, which, however, cannot be solved by consumer demand (ibid.: 260).

*Neoliberal globalisation and world agriculture (Bernstein) (1970s–present)*

While not explicitly engaging in the debate whether or not a new food regime has emerged, Henry Bernstein (2010: 79) calls the period since the 1970s as the phase of ‘neoliberal globalisation and world agriculture’, characterised by a selective rollback of the state, deregulation of finance and trade, changing technologies for production, sourcing and sales of agribusiness and food manufacturers, and new information technologies which allow a reorganisation of economic activity and mass marketing. Bernstein also points out to a cyclical push to globalisation, as the first food regime one hundred years earlier (1870) was also emerging out of a deep recession. The term neoliberal, however, emphasises that this is not understood as an ‘automatic’ cyclical movement in capitalism, but a class-based political and ideological project which works to dismantle the relatively labour-friendly system to replace it with a capital-friendly system as emphasised by dismantling the achievements of working classes including ‘state regulation and provision concerning employment contracts, working hours and conditions, minimum wages, rights of association, health care, education and social insurance and pensions’ (Bernstein 2010: 80), the central elements of the decent work agenda.

**Summary:** As Magnan (2012: 375) suggests, it might be less relevant to decide whether a corporate-environmental food regime is emerging (Friedmann 2005) or whether a corporate food regime has already fully established (McMichael 2005) than to explicitly delineate which old relations have disintegrated and which new relations are emerging. While northern protectionism and mercantilism inscribed in the WTO, as well as a productivity focused discourse and food security mercantilism identified in the land grabbing debate (McMichael 2013b) can be seen as continuities from the second food regime, several new developments deserve inquiry from a food regime perspective. These include an understanding of 1) increased corporate power and private standards for food production, 2) the integration of food and energy markets via flex crops, 3) new divisions of labour (complexes), 4) the supermarketisation of developing countries, and a resulting nutrition transition and obesity pandemics.

### *Key elements of a third food regime*

Despite the above-mentioned differences, this section presents the central elements of food regime analysis which seem to be a commonality in the different conceptualisations of a third food regime.

**State system:** It is noteworthy that both Friedmann (2005) and McMichael (2013: 15) are unable to identify a new hegemonic state with a new ‘stabilizing (hegemonic) international currency regulating trade in a multi-polar world’ (Friedmann 2009: 335). In food regime analysis, the state system and trade relations organised by hegemonic states have always played a key role in shaping food regimes, and this observation leaves the open question whether relative stability (or regime like conditions) can be achieved in the absence of a hegemonic state. Friedmann, therefore, conceptualises a new regime which might consolidate (meaning that there is still a transition/crisis situation), while McMichael conceptualises the corporate food regime as being in crisis due to the collapse of the WTO negotiations and environmental crises. McMichael (2013a) emphasises that relative price stability may or may not depend on a hegemonic currency, leaving the role of currencies as a stabilising condition for a regime as an open question. Contrary to critiques about the absence of the state in the corporate food regime, McMichael emphasises that ‘subordinating agriculture to the corporate model is not synonymous with a stateless world food market’ (McMichael 2005: 281) since the US were a key actor in inscribing the competitive advantages of (northern) agribusiness in the GATT and subsequent Agreement of Agriculture.

**Division of Labour:** For both McMichael and Friedmann, the central division of labour is a corporate-mercantilist domination of a highly unequal food system inscribed in WTO’s Agreement on Agriculture (AoA), which allowed northern states to maintain their subsidies (a continuity), while further opening southern markets via agricultural tariff and subsidy reductions, as well as minimum import requirements (a novelty). The soybean–livestock complex fuels dietary and ecological transformations in Brazil (soybean production) and China (expansion of meat consumption). Retail corporations reorganise agri-food chains to increase their profits by supplying fresh, healthy and certified products to affluent consumers with environmental and food safety concerns, while supermarkets also establish new segments of convenience foods and own-brand products. A central characteristic of Friedman’s corporate–environmental food regime is the private organisation of quality-differentiated food supply chains for increasingly transnational classes of rich and poor consumers, as emphasised by wholefoods markets and Walmart in the USA (Friedmann 2005: 254).

**Technological/environmental change:** A possible third food regime seems to be characterised by a so-called ‘second green revolution’ enabled by Intellectual

Property Rights (IPRs) and genetic (seed) modification. Contrary to the ‘first green revolution’ which was largely funded by governments and with an anti-communist rhetoric, the ‘second green revolution’ is characterised by private rather than public investment, focused on higher value crops rather than staple grains, and focusing on global rather than local markets (McMichael 2013a: 50). Furthermore, corporations attempt to establish intellectual property rights over genetic plant material, enabled by the WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS), also known as corporate Biopiracy (Bernstein 2010: 83). Increasing ecological crisis and climate change due to the unsustainability of industrial agriculture is becoming more and more evident. This is also emphasised by the rise of environmental and consumer movements (Friedmann 2005: 252).

**Discourse/legitimation:** Neo-liberal discourse emphasises market efficiencies which can be achieved through freedom of trade and enterprise (McMichael 2005: 289). Parts of this discourse are translated into WTO requirements to visualise social and environmental regulations as quantifiable tariffs subject to be reduced overtime, which are unevenly applied to the global South as the global North has managed to retain high levels of subsidisation inscribed in the box system of the General Agreement on Trade and Tariffs (ibid. 283).

Consequently, there are differences and similarities in the characterisation of major elements of the current phase of agri-food relations between the three major food regime scholars, which are partly complementary.

Overall, this section argues that the central advantage of food regime analysis lies in a historically grounded understanding of food system change on a global scale and the evolution of power relations that shape the profoundly political nature of food systems. Food regime analysis uncovers that the state system is fundamentally rooted in agri-food relations. As McMichael (ibid.: 140) puts it: ‘The difference made by food regime analysis is that it prioritises the ways in which forms of capital accumulation in agriculture constitute global power arrangements, as expressed through patterns of circulation of food.’ Furthermore, ‘the food regime concept offers a unique comparative-historical lens on the political and ecological relations of modern capitalism writ large.’ (2005: 142). Food regimes periodisations emphasise the non-linear history of capitalism that is shaped by politically organised cycles of accumulation, whose legitimacy and material basis is maintained by agri-food relations (McMichael 2013a: 9). Crisis periods play a key role, in which political contestation about the way forward and crisis management strategies foreshadows new divisions of labour (as with Public Law 480). While this chapter could only provide a snapshot and does no justice to the scope and richness of food regime analysis, the continuities and ruptures in central elements are emphasised in Table 9.1.

The following table provides a stylised overview over food regimes and their transition phases.

**Table 9.1 Food regimes and transition phases compared**

Food Regime Analysis	First Food Regime (1870–1914)	Transition (1914–40s)	Second Food Regime (1940s–70s)	Transition (1970s–?)	A Third Food Regime?	
					Corporate Food Regime (1980s–2000s) (McMichael 2005)	Emerging Corporate Environmental Regime (Friedmann 2005)
State System	Imperialist states, settler states, colonial territories	World War I & II, Great Depression	Completion of state system by decolonisation, creation of UN and Bretton Woods system, cold war, ‘first/second/third world’, ‘markets serving states’	Multiple crises of 1970s, oil/debt crises and structural adjustment curtail state power	Neoliberal control of the state, structural adjustment boosted by the collapse of the Soviet Union, ‘states serving markets’	Newly Agricultural Countries (NACs)
Hegemonic state and currency	Britain, Pound sterling	Suspension of gold standard	United States, US Dollar	Suspension of gold standard	Declining US? US Dollar as default world currency	Multi-polar world, money increasingly unstable
Discourse/ rules/ legitimation	Free trade	New deal in US, wartime nationalism	Development, modernisation, industrialisation	Structural adjustment	Free enterprise, market rule, neoliberal globalisation	Green capitalism
Division of Labour	Grain exports from settler states and tropical commodities from colonies to Europe, manufactured goods, capital and migrants in return	Collapse of free trade, emergence of protectionism	Northern mercantilism and food aid, southern food dependence and loss of export markets due to sugar and vegetable oil substitution in global North	Oil crises and debt crises challenge global division of labour	Bilateral (NAFTA) and multilateral (WTO) trade agreements, northern mercantilism inscribed in WTO, unequal trade liberalisation and new agri-food exports	Northern grain exports and southern non-traditional exports such as counter seasonal fruits and vegetables, fish and flowers
Accumulation	Extensive		Intensive		Financialised	None yet
Dominant form of capital	Empires, colonial concession companies		Nation states, food manufacturers, transnationalisation of agri-business		Financial corporations, TNCs, especially input producers and retailers	Retailer led corporate power, private standards
Labour/Class dynamics	New family farms in settler states, new proletarianised working classes in Europe, disintegration of landed classes in England, forced labour in colonies	Settler families in US Midwest abandon farming, mass unemployment	Agri-industrialisation in the global South, land reform, new classes of commodity producers and agrarian bourgeoisies, expansion of petty commodity producers in global South	Dismantling of working class achievements	Displacement of remaining peasantries, peasants vs. corporate capital, informal/ precarious labour circuits, urban slum proliferation, feminization of work force	Radical change in classes of producers (less unified) and consumers (workers with less bargaining power)
Technology/ Ecology	Frontier soil mining in settler states	Dust Bowl in the USA	Impacts of industrial agriculture and high input green revolution technologies such as loss of biodiversity, soil fertility, water pollution, deforestation	Deepening environmental crises, soil/biodiversity/cultural knowledge loss		Selective appropriation of consumer demands for fair trade, organic certification, etc., but deepening crisis

## **Corporate Concentration in global input and distribution markets**

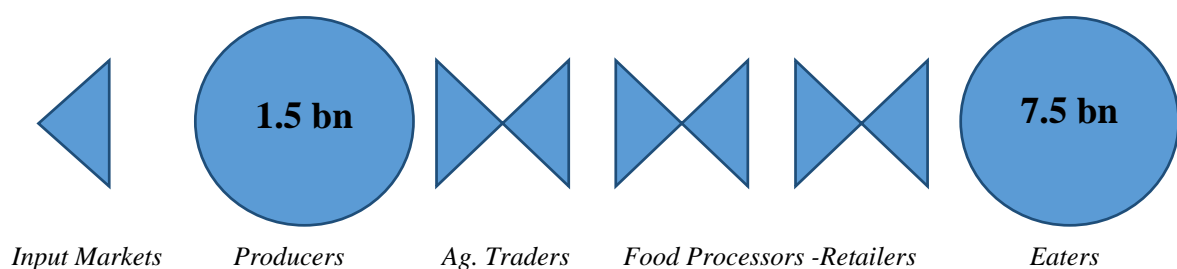
*“The rush to control plant genomics, chemical research, farm machinery and consumer information via Big Data is driving mega-mergers – and stands to exacerbate existing power imbalances, dependencies, and barriers to entry across the agri-food sector”–(IPES-FOOD 2017: 5).*

Throughout different food regimes, (state backed) private companies have played a central role in the expansion of capitalism and the deepening of commodity relations. While early phases of European colonial expansion were driven by state supported merchant companies such as the British and Dutch East India Companies (17th and 18th century), states themselves played a more direct role as colonisers, enabling national ‘concessionary companies’ to establish extremely brutal extractive industries in a final wave of colonial expansion since the 1870s (Bernstein 2010: 41). During the second food regime (1940s–70s), grain trading companies were instrumental to dispose US and European surplus production influenced by foreign policy interests (the mercantile aspect), while agri-input corporations consolidated power by growing in size and concentration upstream of farming (the industrial aspect) (Bernstein 2010: 72). In a potential third food regime, corporations are seen as the main actors increasing their power by concentration in both agri-input (seeds, agrochemicals, machinery) and agri-food industries (manufacturing and retailing), which is pushing a ‘supermarket revolution’ on a global scale (Bernstein 2010: 83). Enabled by the liberalisation of foreign direct investment (Reardon and Hopkins 2006), the supermarket revolution in the global South intensifies the combination of food processing and retailing accumulation, incorporating small or independent producers and local markets and street vending into new corporate circuits and biopolitical relations (McMichael 2005: 11). But what is new about corporate power under a potential third food regime?

This chapter presents trends of corporate concentration in the food system, specifically in the sub sections of inputs and retailing, in order to concretise the increased corporate influence and financialisation of food systems as characteristic for the third food regime. The Herfindahl-Hirschman Index (HHI) and the four-firm concentration ratio (CR4) are methodologies used to assess corporate concentration by the market share of the top firms. A market concentration rating of CR4 under 40% is considered competitive, while 40%–60% moderately concentrated, and over 60% is considered highly concentrated (Clapp 2017: 20). The CR4 is used by analysts together with the Herfindahl-Hirschman Index (HHI) which squares the percentage market share of each firm for a given product. An HHI of 10,000 indicates a monopoly, while a HHI between 1,500 and 0 indicates a highly competitive market. Anti-trust enforcement guidelines in the EU and US use the HHI to assess proposed mergers. Corporations have different strategies to downplay increased market concentration by emphasising complementarity of products, different regional

strengths and concessions to regulators by selling off specific business parts in order to comply with anti-trust laws. A widely used and simplified representation of concentration in the food system is an hourglass (Clapp 2016: 104, IPES-FOOD 2017: 8), in which consumers and producers are linked by a bottleneck of traders, processors, and retailers. Due to their position, these actors are able to extract the biggest value share in agricultural and food production. However, the hourglass can have different shapes and sizes depending on the commodity and the actors involved. Rather than a single hourglass, there are many bottlenecks in the food system. According to a recent report by the International Panel of Experts on Sustainable Food Systems (IPES-FOOD 2017) using a top 10 measurement, unprecedented horizontal and vertical restructuring is underway across food systems, especially in input and retail sectors. Upstream of farming, vertical and horizontal integration has led to concentrated markets for seeds (top 10 control 73%), agrochemicals (top 5 control 84%), farm machinery and data (top 10 control 65%), fertilisers (top 10 control 28%), and animal pharmaceuticals (top 10 control 75%) (IPES-FOOD 2017: 8). This concentrated segment of agricultural inputs supplies 1.5 billion producers globally, of which 30% are large-scale farms, and 70% smallholders. Producers tend to not only be confronted with limited upstream choices, but also with a bottleneck of downstream buyers. Along the chain, agricultural commodity traders (top 10 control 90%), food and beverage processors (top 10 control 90%), animal slaughter (4 firms control 53%–75% depending on animal type), and retailers (varying concentrations across countries) present further bottlenecks in the food system.

**Figure 9.1 Simplified bottlenecks in the food system**



Source: own design adopted from IPES FOOD 2017: 8.

While this figure exemplifies bottlenecks for transnational value chains in the global food system, it can be adopted to national commodity chains in national and local food systems to exemplify similar concentration trends. For example, food processors in the Netherlands can only sell to a highly concentrated market segment of five supermarket purchasing organisations which supply 25 supermarket chains (SOMO 2017: 2). Depending on the scale of the food system and value chain under consideration, the bottlenecks will be different. Wherever relatively few players control markets, they tend to leave producers with a fraction of the final sales price (Clapp 2016: 104).



After the fading of the financial crisis of 2008, a new wave of corporate transactions with a volume of over 100 billion US\$ has swept through the food sector (Heinrich Böll Stiftung et al. 2017: 28). While increased vertical integration and mergers and acquisitions make it difficult to create clear-cut analytical categories, recent developments of corporate concentration in input markets and retailing will shortly be outlined.

### *Agricultural input sector*

#### Seeds and agrochemicals

Since 2015, the announcement of three mergers—Bayer and Monsanto, Dow and Dupont, ChemChina and Syngenta—draw broad public attention towards corporate concentration in the input sector and its implications for the food system. Past waves of mergers in the input sector were driven by technological innovations and advanced intellectual property rights which encouraged the costly development of hybrid and GMO seeds since the 1970s. The recently announced mergers, however, are advanced to tap historically low interest rates, shareholder value interests, and opportunities for technological integration (Clapp 2017: 13). All proposed mergers combine corporations which have a strong expertise in either seeds or agrochemicals, emphasising that the input industry envisions further lock-in effects between genetically modified seeds and agrochemicals as major product lines (Clapp 2017: 9), comparable to Monsanto’s Roundup package, consisting of a broad-spectrum herbicide which kills everything except Monsanto’s glyphosate-resistant crops. Should the Bayer’s acquisition of Monsanto also be allowed by regulators, these three firms together with BASF would control 73% of the agrochemical and seeds industries, which would count as highly concentrated market according to a CR4 rating (Clapp 2017: 21).

**Table 9.2 Acquisitions and mergers in seed and agrochemical industries**

	Bayer acquires Monsanto		Dow merges Dupont		ChemChina acquires Syngenta		
Company	Bayer	Monsanto	Dow	Dupont	ChemChina	Syngenta	BASF
Size of deal	\$66bn		\$130bn	\$43bn			
Sales (2015)	€ 46.3bn	\$15bn	\$49bn	\$25bn	\$45bn	\$13.4bn	€70.4bn
Employees	166,800	20,000+	53,000	52,000	140,000	28,704	112,435
Country	Germany	USA	USA	USA	China	Switzerland	Germany
% of Global Seed Markets 2013	3%	26%	4%	21%	Not available	8%	Not applicable
% of Global Pesticide markets 2013	18%	8%	10%	6%	Not available	20%	13%
Status in October 2017	regulatory approval pending		Completed		Completed		

Source: Adapted from Clapp 2017: 8.

While corporate concentration can be measured by visible market shares, there are less visible sources of market power: 1) cross-licensing agreements for stacked gene traits might be put in place to both enable collaborative R&D, while at the same time raising entrance barriers for new firms for whom it becomes difficult to handle multiple property claims, and 2) common shareholder ownership of the major companies by asset management firms (Clapp 2017: 24). Common ownership is especially prominent in the agricultural input industries, where big asset management firms such as Blackrock, Capital Group, Fidelity, the Vanguard Group, State Street Global Advisors and Norges Bank Investment Management invest in similar shares across all big companies (Monsanto, Bayer, Dow, Dupont, Syngenta, BASF) and commonly hold between 14% and 33% of these companies (Clapp 2017: 16, ETC 2015: 11). While proponents of mergers often emphasise potential synergies and cost reduction in R&D and potentially lower prices for farmers and consumers, investor pressures for shareholder value might push for less innovation and stable or higher prices across the whole industry, benefitting financial investments in the sector overall. The current wave of proposed mergers and acquisitions between seed and agrochemical companies would lead to a highly concentrated market controlled by only four firms who compete for control over a \$97 billion market (ETC 2016: 1).

#### *Farm machinery*

Agricultural inputs markets worth \$400 billion include more than seeds and agrochemicals which became a major segment since the green revolution and the rise of biotechnology. A new rising paradigm is precision farming, integrating agricultural machinery with data collection and evaluation. With \$114 billion, the agricultural machinery market is larger than seed and agrochemical markets and is dominated by John Deere, the world's largest farm machinery manufacturer. The ETC group (2016: 1) warns that if the proposed megamergers should be successful, a second wave of mergers might follow by agricultural machinery producers trying to take over the new seed and agrochemical giants in order to create integrated digital farming platforms which would lock farmers into their own brand products and make them dependent on data analysis and input prescriptions. Major farm machinery producers have already engaged in license agreements with the major firms of the seed and agrochemical sector (Clapp 2017: 12). Since 2013, John Deere has created agreements with Monsanto, Dow, DuPont, Bayer, BASF, and Syngenta, seeing a potential overlap in markets and technologies to foster an oligopoly in input markets (ETC 2016: 5). In 2015, BASF launched one of the first integrated agricultural data management systems which is able to communicate with Deere and CNH machinery, while in 2016 the acquisition of the Monsanto owned Precision Planting LLC by John Deere was prevented by the US Department of Justice for antitrust concerns (ibid.: 8). The precision farming market is projected to grow especially fast in North America and Europe, where

the markets for seeds and agrochemicals are considered saturated. The 1980s was a key decade for both sectors, during which the US Supreme Court allowed the patenting of life forms which enabled herbicide resistant GMO crops, and allowed the commercial use of high resolution satellite images. This emphasises the central role that states play in shaping markets by regulations.

In short, different sectors in the agricultural input markets try to seize new opportunities in emerging and saturated markets via precision farming and explore ways to integrate cloud-based soil and climate data collection and evaluation, giving direct prescriptions of seeds, agrochemicals and machinery to farmers. They might even include suggestions on insurance policies (ibid. 2016). For reasons of space, concentration in agricultural trade, processing and slaughtering will not be addressed.

### *Food Retailing*

While concentration in input markets limit the choice of what and how farmers can grow and for which price they can sell, concentration in retail markets affect which foods are available, accessible, convenient, and desirable for consumers.

Retailers and supermarkets are powerful players which are increasingly able to control supply chains and directly influence production by establishing private labels/own brands or by setting private food safety and quality standards. This requires both technology and knowledge which not all producers and processors possess. European retailers are in ferocious competition over market shares, which includes the expansion of outlets, cost reductions, the takeover of rivals and the creation of own brand products (private labels) (SOMO 2017: 1). A national food system study in the Netherlands showed that 65,000 farmers are linked via 6,500 food processors, 1,500 suppliers, a strongly concentrated bottleneck of only five purchasing agencies and 25 supermarket chains to 7 million households. Different supermarket chains are fierce competitors but at the same time create buying organisations as a joint strategy to lower prices from suppliers. Supermarket chains and their buying groups thus exercise significant control over market access and prices. In instances where brand manufacturer suppliers are unwilling to lower their prices, supermarket chains might just take their products off their shelves (ibid.). A study in the UK (Consumers International 2012: 5) shows that only four supermarket chains account for 76% of the market share, linking 7,000 suppliers to 25 million households. In Germany, five retailers controlled 85% of the market in 2014 (SOMO 2017: 1). Big data and financialisation is also driving mergers in the food retail sector. For example, the recent acquisition of Whole Foods Market by online retailer Amazon (backed by the investment company BlackRock, which also invests in input markets) is driven by new big data possibilities to analyse consumer behaviour in order to increase in store and online sales. Some investors speculate that Amazon could become one of the world's top 10 food retailers within a decade (IPES-FOOD 2017: 19, 45). The increased power of

retailers has also driven increased corporate concentration in food processing. Since 2010, the brewery Anheuser-Busch acquired its rival SABMiller, while ketchup-maker Heinz bought its competitor Kraft Foods, creating the sixth biggest food conglomerate globally. Both fusions were enabled by financial investors such as 3G Capital or Warren Buffet's Berkshire Hathaway (Heinrich Böll et al. 2017: 28). Mergers in food processing aim to increase market shares, increase profit shares and cost reductions, for which job cuts are a common strategy.

Retailers aim to consolidate and expand their shares in developed markets and to globalise their activities to capture growth markets. Populations in rural and poor urban areas are dependent on local 'wet markets' providing fresh fruit, vegetables, and livestock products, as opposed to dry markets which provide durable goods and other consumer goods (GLOPAN 2016: 204). In most low and middle-income countries, modern food retail structures like convenience stores, supermarkets, and discounters are replacing traditional retail structures such as independent small outlets and groceries gradually. Supermarkets spread especially fast in upper middle-income countries, where supermarkets distribute 60% of the processed foods. While low income countries continue to rely on traditional retail markets, modern retail is beginning to dominate food distribution in middle-income countries (ibid.: 92). Year-round availability of fresh fruits and vegetables, better preservation techniques that reduce food waste (Clapp 2016), and convenience foods that reduce the labour time in food preparation might be seen as positive outcomes of supermarketisation. However, an expanding industrial food system increasingly providing cheap and convenient foods on a greater geographical scale must be questioned for its nutritional, social, and environmental outcomes. Obesity has more than doubled since the 1980s (WHO 2016) and the ecological impact of industrialised farming in terms of soil erosion, biodiversity loss and water pollution, as well as concerns over genetically modified organisms have been increasingly raised since the 1990s (Clapp 2016). Barrientos and Kritzing (2004) show that South African fruit growers are affected by raising supermarket standards, falling market prices and increasing government regulation which leads to a fall of permanent employment and increased informal contracts at fruit farms. They also emphasise the gender impact of these pressures leading to informality, which enables men to engage in more regular and well-paid activities, while women engage in shorter and lower paid work. Poor working condition in pineapple and banana production in Latin America and cashew production in India were also found to be linked to price pressures from retailers (SOMO 2017: 2). Retailers increasingly address consumer concerns over social and environmental standards with labelling. Ethical labels which promise sustainable production and good labour standards (such as UTZ, Rainforest Alliance, Fair Trade, etc.) can be found on a wide range of transnationally sourced products in supermarkets. However, these labels and their scope,

compliance mechanisms and actual impacts tend to be intransparent for consumers. German retailers like Lidl, for example, advertise products such as pineapples and bananas from Costa Rica and Ecuador as being ‘Rainforest Alliance certified’, while a study found that working conditions on these plantations and occupational safety is catastrophic (Heinrich Böll Stiftung et al. 2017: 38). Despite these certification attempts, violations of labour rights in agriculture remain rather the rule than the exception, as ILO standards protecting the right of workers to organise and form trade unions are often suppressed. As a result, minimum wages are not met, overtime is not paid, and occupational safety is neglected (ibid. 39). Retailer policies have ultimately failed to end labour right violations in production and processing, which are invisibilised for consumers on product labels and in advertisement campaigns. This links to Friedmann’s insight (2005) that consumer demand is not likely to resolve major tensions of a possibly emerging food regime.

In summary, significant horizontal and vertical integration is happening across food systems. While consolidation is most prominent in input and retail sectors, it also characterises all other industrial sectors in the agri-food system. Furthermore, dominant firms operate beyond specific segments to increase their control over supply chains in order to adapt them to changing consumer demand. As IPES-FOOD (2017) concludes, this concentration has wide-ranging implications from unequal redistribution of costs and benefits along value chains, a squeezing of farm income and a reduction of farm autonomy, a narrowing scope of R&D, escalating environmental and public health risks, labour abuses, and increased corporate control over policy agendas. In the input sector, three large mergers between seed and agrochemical companies foreshadow more corporate concentration, while actors in the agricultural machinery sector show clear attempts to integrate big data and lock in effects between seeds, agrochemicals, machinery, and data collection which would further increase and vertically integrate corporate control in the input sector. In the retail sector, supermarket buying groups and increasingly concentrated retailers can force processors to lower their prices, which is often coupled with lowering labour standards. Big data and financialisation seem to be drivers of this new wave of consolidation in the food system.

### ***General implications for decent work***

Corporate concentration upstream and downstream of farming has significant implications for decent work in agriculture and the food system, as it imposes a double price squeeze on producers and processors with a detrimental impact on working conditions. Of the 1.3 billion people actively engaged in agriculture (half of the world’s labour force, of which half are women), one-third are estimated to be farmworkers who work under hazardous working conditions related to agrochemicals, high temperatures and dangerous tools (McMichael 2013a: 99). Agriculture is the sector with the highest decent work deficit

globally, given that the living wages, permanent contracts, work safety, and the right to organise are rather the exception than the rule. This is true both in the global North where industrial agriculture relies often on undocumented migrant labour (giving employers the power to curtail any formal labour rights) and the global South, where export zones are set up with minimal labour rights. The new division of labour emerging with the supply of value commodities (horticulture such as fruits, vegetables, cut flowers) for supermarkets opens up new employment opportunities, which, however, rarely conform to decent work standards. Until today, the transnational value chains (e.g., coffee, cocoa, or palm oil) of some of the biggest food processors like Nestle, Kraft or Kellogg's and the retailers they supply are not free of child and slave labour. As became known in 2015, forced labour of impoverished migrants, women and children under slave-like conditions in seafood operations in Thailand was used to supply transnational value chains (IPES-FOOD 2017: 69). Also, slaughterhouses and meat processing plants frequently violate work safety regulations (IPES-FOOD 2017: 69). In response to consumer demands, large retailers like Walmart and processors like Nestle developed codes of conduct to protect labour from exploitative practices for their suppliers, who simultaneously face cost pressures.

From a food regimes' perspective, long-term trends of declining commodity prices, structural adjustment policies, uneven trade liberalisation, investment protection, and intellectual property rights have shifted power to corporate actors along the whole food system. During the second food regime, retailers grew under the umbrella of brand manufacturers, and have become the new dominant actors in the food system due to their selling and buying power. Since the 1970s, corporate influence on the food system has increased, leading to recently increasing prices for consumers and lower prices for producers. Corporate concentration driven by financialisation emphasise that a third food regime might be especially detrimental to decent working conditions, as workers in the agri-food sector have become poorer and poorer over the 1980s and 1990s (Heinrich Böll et al. 2017: 38). Financialisation defined as 'accumulation by financial dealing, in services, securities, speculation, and in mergers and acquisitions of companies, rather than production *per se*' (McMichael 2013a: 161) emphasises that financialisation is less about the creation of new wealth, rather than the redistribution of existing wealth at the expense of working classes, and the most vulnerable within them.

However, food regime analyses tend to be capital centric and privilege value relations in such ways that might foreshadow social reproduction relations and social struggles. McMichael suggests that 'if capital is our point of methodological departure we risk committing to an episteme that renders peasant struggles as resistance to agrarian transition only' (2013a: 80). Therefore, recent research has put a stronger emphasis on social struggles within food regimes and transition phases (McMichael 2013a: 109). Food

regime analysis can nevertheless be used to gain key insights in the class dynamics of agrarian change. Labour as trans-historical category emphasises different phases of dispossession, (semi-)proletarianisation and transformation of different classes of labour which is by no way linear or self-evident. McMichael (2013a) and Ploeg (2013) suggest that landless labour, fisher folk, indigenous groups and peasants have formed a new alliance of food sovereignty struggling for land (rather than employment) ‘against “actually existing” forms of capitalist landed property’ (Bernstein 2004 quoted in McMichael 2013a: 76). This emphasises a non-linear history of labour, as contrary to the developmentalist and classical Marxist narratives, under which peasantries are doomed to disappear. However, the very definition of ‘peasants’ and their class position has led to considerable debate in agrarian political economy (Ploeg 2013, McMichael 2016, Bernstein 2016).

Food regime analysts often frame labour questions in world systems thinking along the core periphery divide. For example, by emphasising that northern consumers depend on labour supplies that are based on processes of racialisation, under-reproduction, gendered, and casualised forms of production in the global South (McMichael 2013a: 98). Also, food regime analysis points at discontinuities, for example, by emphasising that southern Europe was a source of migrant labour in the second food regime and became a destination for migrant labour itself under the third food regime (e.g., migrants from Maghreb states working on industrial tomato farms in Spain and Italy). Furthermore, McMichael (2013a:17) underscores that corporations dispossessing peasants on a global scale to become a reserve army of labour for outsourced northern industries (and services) is the mirror image of the first food regime, under which European peasants were dispossessed to work in industry, while British agriculture was outsourced.

The classical agrarian question of labour and capital is more complex than stating a triumph of agri-business, having turned peasants around the world in a mass reserve army of labour. Complex realities include slum dwellers and unemployed peasants, landless labour and different classes of farmers across the rural-urban divide (for an introduction to rural differentiation see Bernstein 2010). Furthermore, class is only one of the social differences besides gender, race and ethnicity, religion and caste which can be as exclusionary as class (Bernstein 2010: 115) and play a key role in food regime structuring and restructuring. Food regime analyses have been complemented by gender studies which emphasise the extent to which processes of semi-proletarianisation and de-peasantisation have led to a feminisation of agricultural labour globally, and gender ideologies are used to erode stable employment and worker’s rights by agri-business (for an overview see McMichael 2013: 96ff).

As McMichael (2013a: 11) notes, providing ‘cheap food’ is a condition for the accumulation and maintenance of power: ‘Cheap food is not simply about lowering wage costs, but also building legitimacy for particular socio-political

orders, whether provisioning classes in industrialising European states, aiding industrialisation Third World states on the Cold War perimeter, or supplying the food processing and “supermarket revolution” in the neoliberal age of increasing obesity’. Food regime analysis can be an angle deployed on labour relations which reveals that the divisions of labour and rules established to produce cheap food depend on different labour regimes. These range from family labour on settler farms and forced labour on colonial plantations supplying a European ‘aristocracy of labour’ (first food regime), to the (semi-)proletarianisation of large agrarian populations in the global South through national agri-industrialisation and a short period of class compromise in the industrialised North (second food regime), towards displacing of smallholders into a ‘casual global labour force for capital’ (McMichael 2013a: 3) and an increased feminised and precarious labour on a global scale (third food regime). Under different food regimes, rural producers and urban workers share a common experience of deepening of value relations and the commodification of land and labour, and low food prices which become increasingly volatile in crisis situations.

Creating decent work opportunities and social protection for agricultural and food workers (and the most marginalised and vulnerable groups among them) is key to reduce rural poverty and hunger, improve social and gender equality and to eliminate the worst forms of forced and child labour. However, as long as consumers seem to benefit from lower prices, corporate concentration across the food system and unfair retailer practices seem to be permitted under current competition regulations (SOMO 2017: 12).

Increased corporate concentration and private standard setting as identified by food regime scholars is directly linked with the ‘global governance deficit’ and consequent decent work deficits of labour relations identified by Barrientos et al. (2011). As long as agricultural producers and suppliers are under the double price squeeze from both input and retail markets, decent work conditions seem to be hard to achieve, unless international labour standards are globally adopted enforced and included in binding trade and investment agreements (Scherrer 2012). Food regime analysis emphasises that struggles between social movements, capitals, and states will be key to determine the outcome of crisis situations and shape the contours of a possible new food regime—or alternative paradigm—in ways that improve the inclusiveness, decent employment and sustainability of food systems to provide healthy diets.

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## 10. Peasant Elimination without Compensating Modern Labour Market Opportunities

Christoph Scherrer

Decent work deficits are not restricted to agriculture, but can be found in the export manufacturing sectors, as well as in the ever-growing service sectors (ILO 2017). In this chapter, I will argue that decent work deficits prevalent among late industrialising countries are mainly the result of a structural oversupply of labour. The abundance of persons offering their labour power in relationship to the demand for their labour stems from insufficient absorption of peasants set free from their land. Kitching (2001: 148) has coined the somewhat brutal but apt phrase ‘peasant elimination’ for the process starting with the enclosure movement in Great Britain in the 17<sup>th</sup> century, accelerating through industrialisation and spreading through various phases of globalisation throughout the world by reducing the amount of labour necessary to feed the population of a given territory.

Given the low income elasticity of demand for agricultural products, increases in material wealth require the movement of labour out of agriculture. This process has reached a point in the United States where presently, only about 1.6% of the population is engaged in agriculture and exports are consistently outpacing imports on a value basis (USDA data). This compares to about 49% in India and 41% in Ghana (<https://ourworldindata.org/agricultural-employment/>). One can imagine how many people would have to leave agriculture in these two countries, if they would reach the US level of productivity. Fortunately, this will take some time not the least because the invested capital per person in agriculture would have to be increased by a factor of 165 (Chen 2016: 9). However, in many late industrialising countries most of those who are leaving agriculture do not find gainful employment even at the current junction. In fact, many of the late industrialisers are prematurely de-industrialising. So most of the rural migrants end up in low productivity, low value-added personal services sectors such as petty trade in the informal economy (Dasgupta and Singh 2006; Breman 2013: 5).

Explanations for the lack of absorption capacity of industries and productive services range from overregulated labour markets (de Soto 1989, for a critique see Breman 2003: 194–220) to globalisation (Rodrik 2015; his argument will be elaborated below). While the latter explanation has some salience, I want to take up the challenge of the doyen of the study of labour market informality, Jan Breman:

*“the research promoted on the informal sector of developing countries from the early 1970s onwards is hampered by the virtual lack of comparison with the profound restructuring from an agrarian-rural to an industrial-urban workforce that went on in the western part of the world at an earlier stage.” (Breman 2013: 27)*

I will carry out a similar comparison between the conditions prevalent among the early industrialisers and present-day late comers to industry and advanced services. My argument takes off from the work of Gavin Kitching (2001) and adds insights from critical development studies. In particular, I will highlight the constraints on the manufacturing sector, especially in sub-Saharan Africa, stemming from the colonial heritage and current global economic governance.

I will start with outlining the current challenges for the Global South's labour markets to provide for sufficient gainful employment. I will move on to develop a framework for explaining these challenges. Based on this framework, I will first elaborate on the demographic pressures on the labour markets followed by a discussion of the factors that limit the capacity of late industrialising countries to accommodate the demand for employment opportunities outside agriculture: restrictions on migration, productivity differentials vis-à-vis the Global North and the few successful late industrialisers, and the constraints on the promotion of industry stemming from neoliberal globalisation.

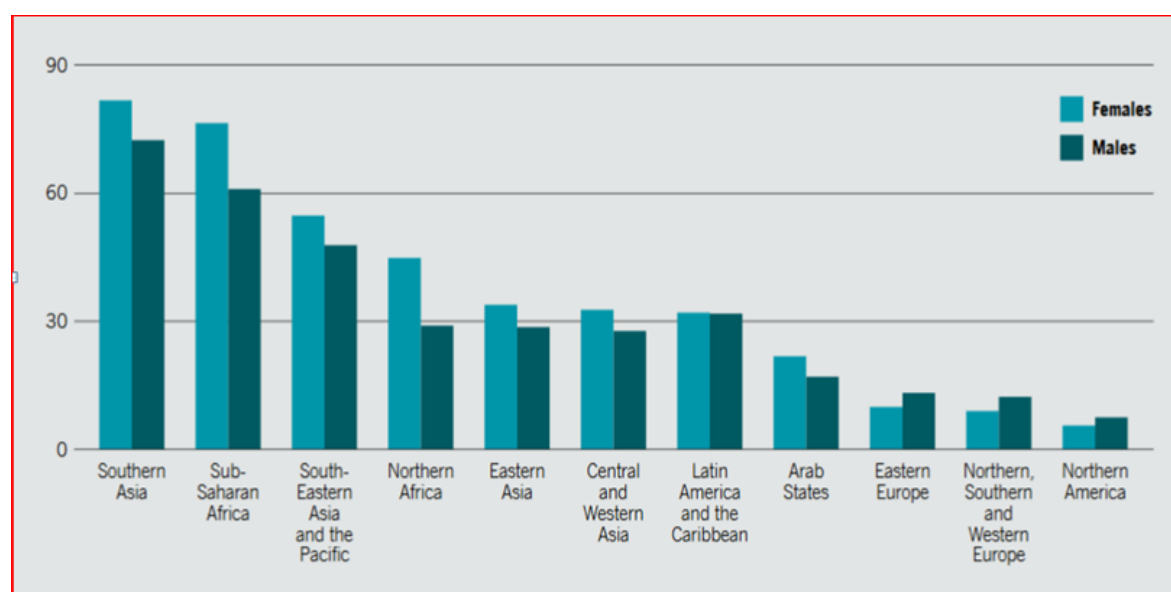
### ***Modernisation's Labour Absorption Challenge***

In most 'developing' countries, the labour force moving out of agriculture is not absorbed into formal employment in industrial and service sectors. Instead, they move mostly into the informal service sector (Newman et al. 2016: 13). In Africa, only about one in five workers has found employment in industry after leaving agriculture (McMillan and Harttgen 2014: 2). Overall only 3.2% of the total sub-Saharan workforce was employed in the formal industry in the early 2010s (Losch 2016: 15). Many of those who stay behind in rural areas face severe hardship (FAO, 2016: 14). This resulted in high rate of vulnerable employment especially in southern Asia and sub-Saharan Africa (see figure 10.1).

This is even true for countries which have seen accelerated economic growth in the first decade of the third millennium. The growth champions in Latin America experienced premature deindustrialisation, the ones in Africa barely maintained their earlier low level of manufacturing activities. That these countries were nevertheless growing fast was explained by a team led by Dani Rodrik. In the Latin American case, growth was driven by a commodity boom and manufacturing employment was hit on the one hand by overvalued exchange rates and by labour productivity increases on the other. A significant amount of workers were forced out from high productivity sectors into low productivity activities. The African growth champions profited from the same commodity boom, remittances, and productivity increases in agriculture. The labour force shifting out of agriculture, however, was not absorbed in a dynamic 'modern' sector; hence, the overall labour productivity in the non-agricultural sector declined (Diao, McMillan, and Rodrik 2017). In Ghana, for example, the

boom in mining and oil extraction created only a few more jobs in these sectors (Baah-Boateng 2015).<sup>47</sup>

**Figure 10.1 Vulnerable Employment rates, by sex and regions, 2016 (percentages)**



Source: World Employment and Social Outlook: Trends 2017; International Labour Office – Geneva: ILO, p. 26

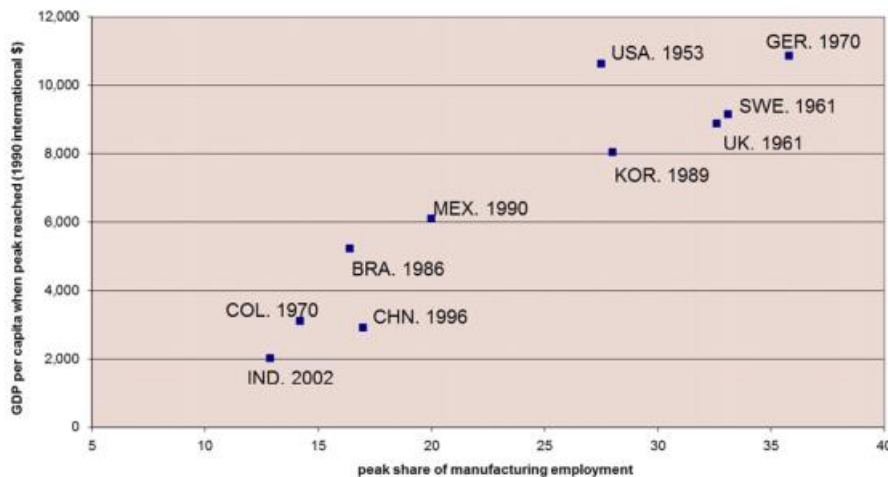
The recent growth champions’ experiences differ from the rapid export-oriented industrialisation of East Asian countries such as South Korea, Taiwan, and China. They are, therefore, considered to be less sustainable. If productivity does not increase in the non-agricultural sectors of the economy, then overall growth will be limited (Diao, McMillan, and Rodrik 2017). As the service sector in Africa has absorbed workers faster than the rate of increase of its output, its relative productivity advantage vis-à-vis the rest of the economy has diminished (Newman et al. 2016: 11). Manufacturing seems to be better suited to stimulate productivity increases rather than the service sector for catching up economies. The formal sector manufacturing can absorb large number of relatively unskilled workers (i.e. those coming out of agriculture), allows for learning by doing and provides for spill-over effects into the rest of the economy (Rodrik 2013).

However, even successful catching up countries like China have reached their key share of manufacturing employment at much lower levels of GDP per capita than the early industrialisers (see figure 10.2). In addition, the share of low skilled workers employed in manufacturing has decreased across countries of the global North and South since the late 1990s (Rodrik 2015: 36). A recent

<sup>47</sup> The shares of manufacturing in GDP of most sub-Saharan countries displaying rapid economic growth in recent times, e.g. Ethiopia, Ghana, Kenya, Tanzania, and Uganda, are well below the predicted values for these countries’ levels of income (Newman et al. 2016: 9).

report on the impact of automation underlines the threat of unemployment in the manufacturing sector in developing countries (Oxford Martin School and Citi 2016). Therefore, the capacity for manufacturing to absorb the rural surplus population seems to be limited. Why is this the case?

**Figure 10.2 Peak manufacturing levels, selected countries**



Source: Rodrik 2016:25.

Legend: BRA = Brazil, CHN = China, COL = Columbia, GER = Germany, IND = India, KOR = South Korea, MEX = Mexico, SWE = Sweden.

### **Framework for explanation**

To explain the difficulties that countries in sub-Saharan Africa and South Asia experience while moving their agricultural workforce into modern productive sectors, Gavin Kitching (2001: 150–52) compares present-day conditions with those when the capitalist core and the Soviet Union had moved from agriculture-based economies to that based on manufacturing. This comparison leads him to highlight five factors that differentiate past experiences from the present ones. His first factor is scale. The rural population of China and India is much larger than what it had been even in the Soviet Union in the 1920s: ‘India and China are each faced with a peasant elimination task that is seven to eight times larger than has ever been achieved in human history’ (Kitching 2001: 150). I find this reference to absolute numbers not so convincing; it has to be qualified in terms of geographical size of the country. From an ecological perspective, however, the absolute size of the population could be a limiting factor. The ecological footprint of workers in productive employment is considerably larger than of persons employed in small-scale agriculture or in low productivity non-farm informal sectors (<http://www.footprintnetwork.org/>). Kitching’s third factor namely the population growth rate is more convincing. At the time of industrialisation, in Europe and Japan population growth rates were lower than they are now, especially in sub-Saharan Africa. The early industrialisers ‘had proportionately fewer people to absorb’ (Kitching 2001: 151).

Kitching's second factor relates to labour productivity differential between agriculture and industry. The early industries were much more labour intensive than today's industries. With a few exceptions such as the garment industry they require substantial capital investments per workplace. Thus, the industry could employ workers in greater numbers in relation to invested capital (Kitching 2001: 151). Terms of trade are his fourth factor. He points out that agricultural commodities enjoyed better terms of trade vis-à-vis non-agricultural commodities, i.e., prices for agricultural products went up in relation to prices for industrial goods. These better terms of trade were slowing down the process of 'peasant elimination' because 'those who chose to stay on the land can earn a reasonable living just because prices for the produce are good' (Kitching 2001: 152). In contrast, during most of the post-war period, prices for agricultural goods declined in relationship to manufactured goods, therefore, earning a living in small-scale agriculture was difficult. Outmigration becomes more likely and the nonfarm labour market has to absorb proportionately more persons looking for employment (Kitching 2001: 152). Kitching's final point highlights different types of crops produced in Europe in comparison to crops in tropical or subtropical regions. However, he does not much elaborate this argument and it seems to me that rice, nuts, fruits, and stimulants produced in the tropics are actually more labour-intensive than growing of grain in temperate climate zones (Khan et al. 2004; Bray 1986).

Kitching sums up his argument: 'neither the contemporary industrial technology context, nor the population growth context, nor the price or terms of trade context, is anywhere near as conducive to peasant elimination as it was when the European world accomplished its (demographically much smaller) transformation' (Kitching 2001: 152).

While Kitching focuses more on the labour supply side, Dani Rodrik (2015) analyses the demand conditions for labour, i.e., the limits of employment growth in manufacturing and high value-added service sectors in many of the late industrialising countries, especially in Latin America and Africa. He argues on the basis of extensive analytical statistics that manufacturing employment and output stagnated or even declined once these countries liberalised their trade policies. According to him, 'those without a strong comparative advantage in manufacturing became net importers of manufacturing, reversing a long process of import-substitution' (Rodrik 2015: 4). In addition, they were exposed to the decline in relative price of manufacturing caused by technological progress and the rise of Asian exporters. The latter's success came mostly at the expense of other late industrialisers (ibid. 13). Particularly hard-hit were the low skilled workers (ibid. 14), i.e., those who are most likely from the rural background.

Rodrik also speculates about the political ramifications of premature deindustrialisation. The lack of mass manufacturing comes with a fragmented



workforce that is not able to extract from the countries' elites political participation and welfare measures (Rodrik 2015: 25; Breman 2013: 7).

My approach builds on the insights of Kitching and Rodrik. It provides further evidence for the arguments concerning population pressure and productivity differential. It also goes beyond the two authors and takes a leave from the pages of critical development studies. In particular, I will highlight the constraints on the manufacturing sector, especially in sub-Saharan Africa, stemming from colonial heritage and current global economic governance.

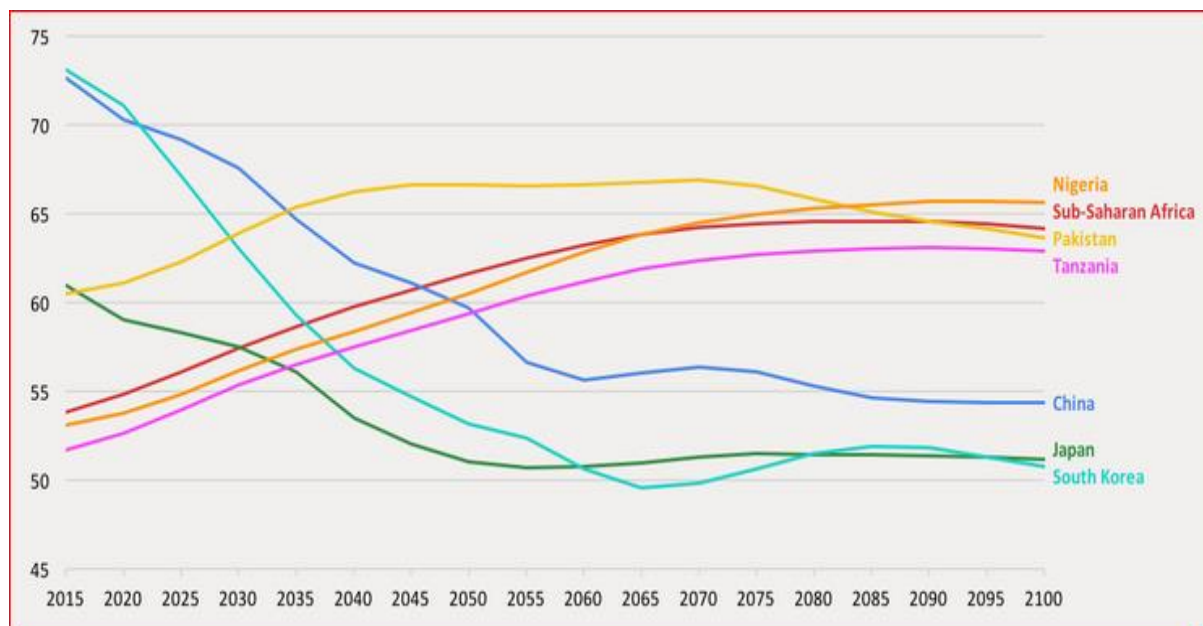
### ***Population pressure***

As I argued earlier, the absolute size of rural population is of less concern as it needs to be seen in relation to the size of the territory. What matters, however, is growth rate. A higher population growth rate requires a faster absorption capacity of manufacturing and higher value added services.

A World Bank report has called high growth rates a blessing for respective countries as they would reap a so-called 'demographic dividend'. The dividend would result from a favourable ratio of working age population to children and retired persons, that is, savings from having few dependents would allow for higher capital investments (Bloom and Williamson 1998). As Adair Turner has pointed out, however, the dividend is dependent on a simultaneous significant fall in fertility. A smaller family size leaves that generation with a larger capital stock per capita and more resources for investment in workforce skills (Turner 2017).

Unfortunately for Africa, its high population growth rates are not accompanied with significantly fewer children per woman. Rural fertility rates controlled for population density are on average two children higher than in other countries of the global South. This difference is less a result of a desired number of children but more of 'unmet contraception needs' for women (Headey and Jayne 2014: 29). In the 1980s and 1990s, China benefited from having two economically active persons for every one inactive person, while sub-Saharan Africa had a ratio of one for one. With the combination of higher fertility rates and an aging population, Bruno Losch is sceptical whether sub-Saharan Africa will even come close to the previous Chinese ratio (Losch 2016: 18). For the projected share of the working age population of the total population for selected countries, see figure 10.3.

**Figure 10.3 Working Age Population (15 - 64), % of total, 2015–2100**



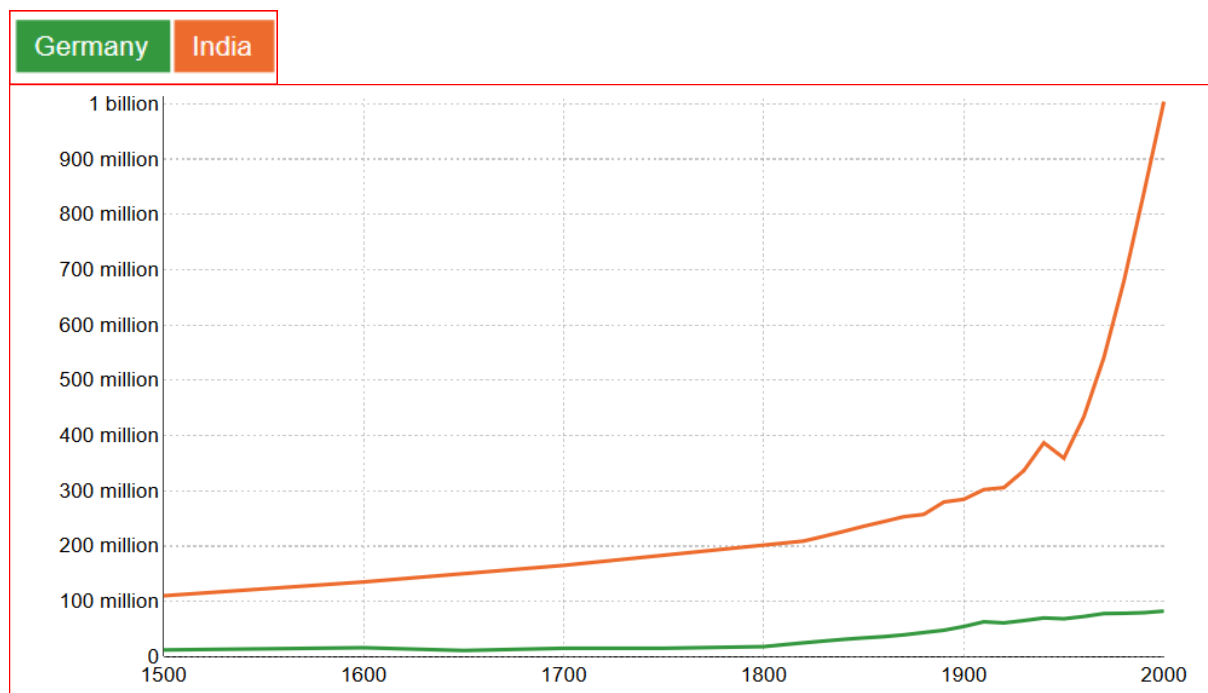
Source: Turner 2017.

Despite the one-child policy, rapid population increase remains a major labour market challenge for China (Chen and Hamori 2014). How does it compare to the experience of the early industrialisers? Kitching puts the population growth rate for Europe and Japan during their industrialisation phase at roughly 1.5–2 % per annum (at the peak), while for the developing countries in the 1990s at 2.5% or 3% and over (Kitching 2001: 151). Figure 10.4 visualises different population dynamics during Germany’s industrialisation phase (ca. 1850–1900) and present-day India.

The birth rate in Germany per 1000 people in the population was on average about 38 in the years between 1850 and 1900; India reached almost a similar rate in 1971 in India, but thereafter moved down to approximately 22 in 2010. As at the time, a high birth rate went along with a higher rate of infancy mortality (Roser 2016); the higher birth-rate in industrialising Germany did not lead to a population growth higher than that in independent India.

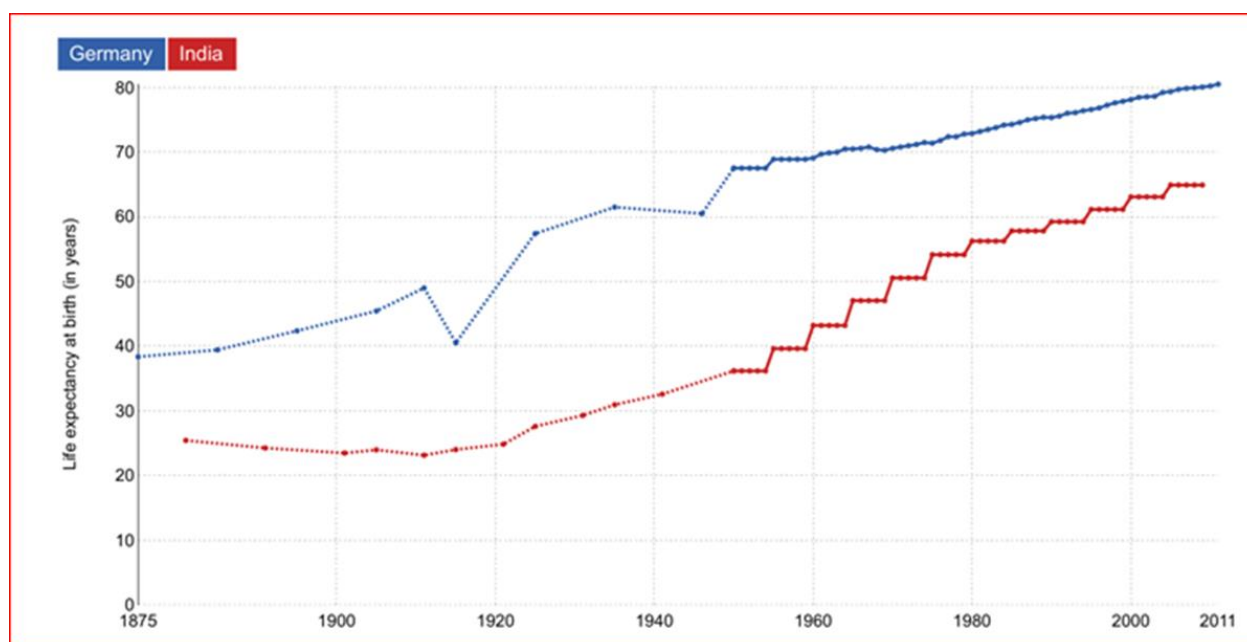
Next to a higher birth rate an increase in life expectancy drives population growth. Higher nutritional standards and medical progress have led to a quicker increase in life expectancy in the last decades in comparison to the 19<sup>th</sup> century (Das and Pathak 2012: 3). In Germany, life expectancy increased from 41 to 47 years between 1820 to 1900, and in India from 32 to 60 years between 1950 to 1999 (Maddison 2001: 30; see figure 10.5).

**Figure 10.4 Population growth Germany and India, 1500-2000**



Source: Roser and Ortiz-Ospina 2017.

**Figure 10.5 Comparison of life expectancy at birth, Germany and India, 1875-2011**



Source: Roser 2017.

Women's lack of employment in manufacturing has been a cause for high fertility rates. As the experiences in Bangladesh and Lesotho demonstrate, employment of young women in the garment industry makes them more likely to enter school, to stay in school longer, and to postpone marriage and childbirth (Newman et al. 2016: 19-20). The insufficient growth in manufacturing employment aggravates the labour market absorption challenge.

### ***Restrictions on Migration***

The labour markets of early industrialising countries were relieved from population pressure partly due to massive outflow of people to areas which were less populated in temperate climate zones. After 1815, around 70 million Europeans settled overseas and in Siberia under the umbrella of the military might of the colonial powers or the newly independent white settler republics. On the British Isles and in Norway, mass emigration amounted to more than 30% of their respective populations (Stalker 1994: 16). According to Hirst and Thompson, this migration was three times as high as in the 1900s when measured as a portion of the world's population (Hirst and Thompson 2001: 24). Even if these authors might have undercounted the internal migration within large countries such as Brazil, China, and India, the numbers show that for countries which underwent industrialisation later, the outmigration safety valve was and still is much narrower. Most importantly, the migrants have currently to rely on the goodwill of the receiving countries or have to live there on the margins as persons who have violated the migration laws. Unlike the 19th century predecessors, they cannot force their way into other territories.

Because of the selectivity of the host countries in contemporary times, emigration is biased towards more qualified persons. Hence, 60% of immigrants from Egypt, Ghana, and South Africa to the United States had a tertiary education in 1990 (Carrington and Detragiache 1998: 14). This means for many countries in the global South there has been a drain of educated people. It is estimated that in recent decades a third of Africa's skilled professionals emigrated (Tanner 2005: 3). While this outmigration reduces the pressure on the labour market on one hand, the loss of so many qualified people, on the other hand, limits the capacity to build a modern economy. It amounts to an educational subsidy for the employers in rich countries.

### ***The productivity differentials***

The labour market for late industrialisers faces challenges stemming from three productivity gaps—between the smallholder farmers and modern manufacturing; between smallholders and modern agriculture; and between informal manufacturing and formal manufacturing sectors.

The early industrialisers benefited from more or less simultaneous productivity advances in industry and agriculture. As industrial technologies were much more labour intensive than today, the industry had a great demand for labour in agriculture. Even in many countries of Asia and Latin America, productivity advances in agriculture were followed by employment increases in manufacturing until the point at which manufacturing's share of total employment reached its peak (Diao et al. 2018: 29). However, as the relative importance of manufacturing reached its zenith in these countries at a much earlier date than the early industrialisers (see Figure 10.2), the absorption powers

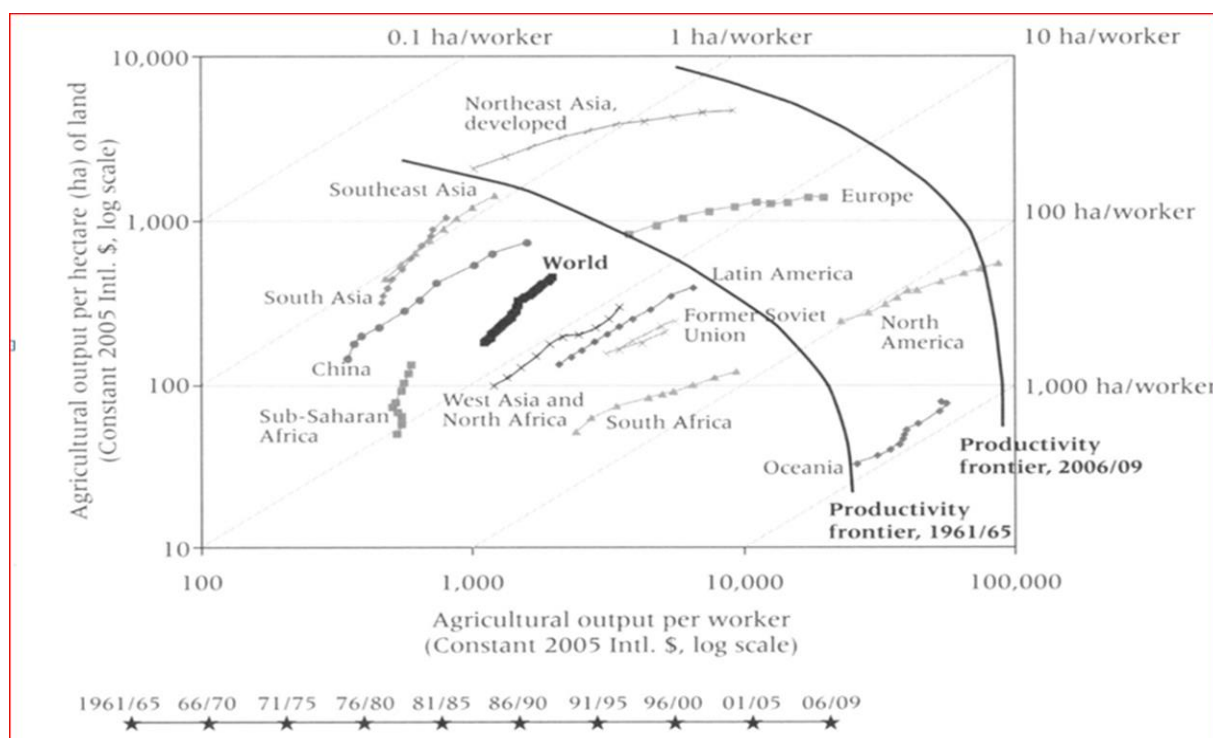
of manufacturing were exhausted before the process of ‘peasant elimination’ had run its course.

In Africa, the productivity gap is even more pronounced (Diao et al. 2018: 29). Brazil and China have increased land and labour productivity, but the total factor productivity for agriculture in sub-Saharan Africa increased by less than 1% per annum (McMillan and Harttgen 2014: 14). Among the reasons for the laggard productivity is the diminishing responsiveness to fertiliser use due to over exploitation of land, less use of fertilisers, less conducive conditions for irrigation (in comparison to Asia), greater diversity of crops, and underinvestment in crop research (Headey and Jayne 2014: 20).

The large gap between productivity levels of smallholders in Africa and modern manufacturing not only results in a massive labour surplus, but also perpetuates low rural income levels. Low incomes mean low levels of consumption power for industrial products which in turn retards the development of manufacturing. At the time of industrialisation of the North, the smaller gap in productivity advances between agriculture and manufacturing translated into better terms of trade for agricultural products vis-à-vis industrial goods. The relatively higher prices for agricultural goods made the population living off agriculture consumers of industrial products and, thereby, stimulated industrial development. In addition, as agriculture was relatively lucrative, and industry developed dynamically, ‘peasant elimination’ proceeded at a comparatively ‘moderate pace’ (Kitching 2001: 151).

Figure 10.6 shows substantial land and labour productivity differences among regions of the world. African agriculture, still dominated by more or less self-sufficient smallholders, lags way behind in agricultural output per hectare and worker. While land productivity increased somewhat, labour productivity hardly increased between 1961 and 2009. This gap leaves African agriculture vulnerable to global competition and makes smallholders’ land attractive targets for agricultural investors operating on a large scale. In addition, the resulting low incomes make farm labour unattractive for the rural youth (Losch 2016: 46). This productivity gap is, therefore, a major source for the mass movement into cities.

**Figure 10.6 Agricultural land and labour productivity, world regions, 1961-2009**



Source: Population Council 2013: 363

To the extent that the surplus labour is absorbed in manufacturing, it mostly ends up in the informal sector. One of the reasons for this tendency is that while productivity differentials remain high between countries in the agricultural and service sectors, productivity levels converge in formal manufacturing across countries irrespective of ‘geographical disadvantages, lousy institutions or bad policies’ (Rodrik 2018: 17). In other words, agriculture and formal manufacturing are increasing their productivity at different speeds. Higher speed of manufacturing means much less absorption of rural surplus population than at the time of early industrialisation, when productivity in manufacturing was much lower and more in line with agriculture in their specific countries.

The undercapitalised small, informal firms in manufacturing are also lagging much behind in productivity. Even in high-growth years, productivity levels in African manufacturing did not shrink to the US level (Rodrik 2018: 21–23). Higher productivity levels of formal manufacturing implies that investment in manufacturing and output of manufacturing need to grow fast to be able to compensate employment losses in the much less productive informal manufacturing sector. In other words, employment is currently achieved only at the expense of decent work.

### **Constraints from neo-liberal globalisation**

The crisis of Fordism in the Global North led to an ever-increasing outsourcing of routine industrial tasks to the global South since the 1970s. The recipients of

outsourcing are unevenly distributed. While over time many, but certainly not all countries, became integrated into global production systems, only a few managed to capture more of the value produced in these so-called global value chains. These successful economies share a certain characteristic: the capacity of the state and its leading industrial elites to pursue an industrialisation strategy that makes use of foreign financial resources and industrial know-how more or less on their own terms (Azarhoushang et al. 2015).

The great mass of countries was less successful in managing the interface with dominant northern government and transnational corporations. Under the dictates of structural adjustment policies they prematurely opened their markets to not only northern competitors but, over time, also to their more successful southern neighbours.

A classic example is Ghana. Its nascent textile industry of the 1970s was reduced to four major textile companies in Ghana employing less than 3000 persons in 2005. It became the victim of imports of second hand clothing from the North and new cheap clothing from Asia (Ackah et al. 2016: 63). While the few successful countries moved into the production of more sophisticated products, many of the other countries, especially in Africa, remained stuck in low-sophistication products which even became less sophisticated (Newman et al. 2016: 23–25). According to Adrian Wood, Chinese exporters lowered the ratio of labour-intensive manufacturing to primary output in other countries by 7–10% and the ratio of exports by 10–15% (Wood 2009). Only neighbours close to China are integrated in its manufacturing production chains. They benefit in terms of manufacturing employment from the Chinese success in displacing other countries' exports (Jenkins 2016).

While many countries of the global South opened their borders for northern products, northern countries were slow in reducing the subsidies for their agriculture. It is estimated that US subsidies reduce West Africa's annual revenue from cotton exports by \$250 million a year (Fairtrade Foundation 2015).

As tariffs have been reduced in most countries, the level of protection for enterprises from the early industrialised countries has gone up. This is especially true for the increased protection of intellectual property rights. Intellectual property rights, i.e., patents, trademarks, and copyrights, are predominantly held by corporations residing in the early industrialised countries (OECD 2008). Catching up becomes more difficult, if royalties need to be paid for patents.

Besides the protection of intellectual property rights, branding allows corporations from the Global North to dominate global production networks. Without a large customer base in the Global North and the necessary financial resources for advertising, most southern manufacturers have to accept the lower returns for suppliers. The brands use their control over access to the final

consumer to force suppliers to lower their prices year by year (Anner 2015; see also the contributions of Dörr and Verma in this volume).

Besides the liberalisation of cross-border trade, the liberalisation of financial flows limits the policy space necessary for an industrial catch up. The liberalisation of capital accounts left many countries vulnerable to currency crises and capital flight (Herr and Priewe 2005).

### ***Insufficient state capacity***

One of the reasons why many countries lack the characteristics necessary to profit economically from neoliberal globalisation is the shadow of colonialism. While the legacy of colonialism differs among former colonies, they share the fate of having been pushed forcefully into the so-called old division of labour, i.e., being prevented from moving into manufacturing. The enforcement of such a division of labour between the colonisers and the colonised led to deliberate underinvestment in education and skill formation in colonies. It also limited the possibilities for indigenous elites to participate in modern business. Furthermore, the legacy of colonialism meant for most newly independent countries insufficient state capacity and, therefore, weak industrial policies (Breman 2013:117 ff.). Here is not the space to delve deeper into colonialism's ramifications for economic catch up. It has received substantial attention (cf. see World System literature). But one related aspect of great importance for sub-Saharan Africa has only recently been investigated, i.e., the impact of slavery on the homelands of slaves.

A pioneering study by Nathan Nunn (2008) through sophisticated econometric calculations suggests that countries with higher losses of people due to slavery in the 15th and through the 19th century display lower growth rates in their gross domestic product (GDP) in the 20th century. A preliminary explanation, among other factors, hints at the resulting low trust between villages and within villages. The warfare and raids by competing villages broke up larger societies into smaller ethnically and linguistically differentiated groups. Within these groups, even family members were betraying each other into slavery out of fear of being betrayed (Inikori 2003). A follow-up study which correlated modern trust measures in ethnic homelands with rates of slave extraction found that higher extraction rates predicted mistrust towards family members as well as towards members of other tribes (Nunn and Wantchekon 2011). Slavery extraction left an imprint on today's literacy rates (Obikili2016). A recent study which analysed slavery's impact on today's access to finance in sub-Saharan Africa provides further support to the claim that in high slave extraction countries, levels of trust are lower than in countries that have suffered less from slavery. The study findings are that firms in such countries not only rely less on formal means of credit but also have less access to informal sources of credit such as from suppliers and customers (Pierce and Snyder 2018).



### ***Conclusion: major challenges for the decent work agenda***

The extent of vulnerable employment in the Global South is disturbing. But even more disturbing is the prospect that it is likely here to stay if no drastic change happens in the governance of world economy and modes of production as well as consumption. The reason is that the labour market dynamics of the early industrialised countries and the few successful imitators are not easily replicable for all countries. Before I summarise the limiting factors for the large-scale absorption in modern industry of people made superfluous in agriculture, let me state a rather obvious fact which, however, is hardly mentioned in development literature. The industrial development in today's capitalist centres did not only rest on colonial violence but also produced ferocious class struggles and even more devastating wars among the leading industrialisers.

The analysis of the current labour market challenges of late industrialising countries has shown that their industrialisation process takes place under different circumstances. The demographic pressure is significantly more pronounced since fertility rates are not falling quickly enough to compensate for the much quicker increases in life expectancy compared to early industrialisers. The rapid productivity increases in the formal manufacturing sector across the globe limit its absorption powers. Even successful late industrialisers reach the peak of manufacturing's share in total employment much earlier than the first movers of industrialisation. The labour market relief available to these first movers, i.e., outmigration into less densely populated areas, is no longer accessible. Today, migrants cannot overrun indigenous populations with a colonial power backing them up; they have to ask for permission or, if denied, their unlawful presence has at least to be tolerated.

Some countries, especially in Southeast Asia, have partially succeeded in overcoming these constraints. Their success, however, restricts the opportunities for industrialisation for most countries of the Global South. It is a success that rests on massive export surpluses in goods. Yet, the rules governing the world markets limit the value capture also of these successful countries. By strengthening the protection of intellectual property rights and liberalising financial flows across borders, these rules buttress the power of corporations mainly domiciled in the Global North. In competition with each other and faced with high profit expectations from the financial markets, these corporations are dictating the prices of the goods they source from their suppliers.

While rather successful late industrialisers were able to impose some conditions on the business operations of transnational corporations, many other countries lack this capacity due to the shadow of colonialism and, in the case of a number of African countries, due to the detrimental effects of the centuries-long slave extraction on the level of societal trust.

So what are the ramifications of ‘peasant elimination without compensating modern labour market opportunities’ for decent work agenda in agriculture? The oversupply of the working age population severely limits the possibilities for improving the working conditions of large parts of the rural population. Thus, creative solutions are required on a large scale.

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## Part III: Strategies for Overcoming the Decent Work Deficit

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## 11. Working Conditions and 'Sustainable' Coffee in Colombia

Daniel Hawkins

Coffee is one of only a few products that have had such a long and intrinsic relationship to the emergence, rise, consolidation and gradual reconfigurations of the global capitalist economy. Moreover, coffee, unlike most of the other key agricultural commodities linked to the expansion of European colonization of the Americas (silver, sugar, tobacco, rubber, henequen, cacao, indigo), remains, to this day, a key export product for several Central American and South American countries. However, while its importance to global trade and the development strategies of Southern nations and multinational companies is unquestionable, changes in the coffee market have occurred across time and space, affecting many of the actors strategically linked to this industry. Indeed, as argued by Topik and Samper (2006: 121), control of the global coffee market shifted from producers to exporters in the 18th century, to importers in the 19th century, in the 20th century to roasters and governmental entities, and finally, in the present millennium, to a select group of “vertically integrated multinational firms”. Such changes in the power relations within this chain reflect its inherently dynamic nature, as technical innovations, combined with new strategies in the social organization of production, distribution and regulation (Ibid.: 119), together with evolving cultural habits, forge new trends both in supply and demand.

The Global Commodity Chain (GCC) approach is useful as an analytical tool for examining how changing strategies within the coffee market are linked to the shifting power relations of the actors involved in one or many of the chain's diverse activities. Although surfacing within the World System's Theory (WST) of Hopkins and Wallerstein (1986), the GCC approach, popularized by Gereffi and Korzeniewicz's 1994 publication, *Commodity Chains and Global Capitalism*, moves beyond the State-centrist focus of WST and zooms in on the ways in which leading firms coordinate transnational economic activities (Patel-Campillo, 2010: 78).

One of the most important contributions of the GCC approach involves the attention given to governance structures, defined by Gereffi (1994: 97) as “authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain”. While his early work differentiated between producer- and buyer-driven commodity chains, in more recent studies, Gereffi identified five forms of governance: hierarchy, captive, relational, modular, and market; each of these is deemed to have levels of coordination and power asymmetry that range from high to low (Gereffi, Humphrey, and Sturgeon, 2005). Furthermore, Gereffi later abandoned the term Global Commodity Chain, replaced it with Global Value Chains (GVCs) and modified the conceptual framework so that it encapsulated transaction costs and organization (Bair, 2009).

Some authors have sought to combine the GVC approach with other theoretical perspectives, such as the French Regulation school, as a means of examining how institutions, norms and networks linkup to facilitate market interactions (Patel-Campillo, 2010). Indeed, within the governance paradigm of global commodity chains, there is an urgent need to broaden the attention given to institutional regulatory frameworks and indeed cultural preferences, especially in markets such as coffee. This is because the coffee market has a high complexity of transactions that require regulation by a combination of three industry standards: international regulation (mandatory), third-party certification (voluntary), or lead firms (private) (Petkova, 2006: 320-321).

Herein, attention must be given to how institutions, social and political processes and cultural discourses and preferences are linked to changing patterns of accumulation, and the reconfiguration of previously existing asymmetries. The global commodity chain for coffee illustrates these linkages and their manifestations in the evolving patterns of income distribution. But the main purpose of this chapter, alongside examining the patterns of governance and their impacts on the functioning of the market, is to analyze how one of the most recent governance modes, sustainable coffee certification systems, have impacted on working conditions, and particularly, the workers' rights of the lowest tiered actor in this chain: coffee pickers. To do so, I shall focus on the Colombian coffee industry, one of the key actors in the global coffee market and one of the countries that has most heartily embraced this new governance paradigm. The findings are based on a research project conducted in Colombia on sustainable certification systems and labour rights in the coffee industry. This project was coordinated and financed by the NGO, SOMO-Netherlands in 2015 and 2016 (see: <https://www.somo.nl/>) and undertaken by the *Escuela Nacional Sindical* (ENS), Colombia (see: <http://www.ens.org.co>).

### ***Overview of the Colombian coffee industry***

The development and surge of Colombia's coffee industry, from the end of the 19th century onwards, completely reshaped the socio-economic and political terrain of Colombia, especially across the major coffee-producing regions. The coffee growth paradigm pushed forth the emergence of new social classes and fomented the economic modernization of the country, as well as implanting a social model grounded in Catholic conservatism and large families whose lives revolved around the production of coffee (Molano, 2017). The bases of the Colombian coffee economy were small-scale coffee farms, without negating the importance of haciendas and medium-sized plantations. This predominance of peasant-based production was due, on the one hand, to political and financial problems as well as to socio-economic questions of organization, and on the other hand, to an even more significant degree, due to the major fluctuations in the international price of coffee, year after year (Palacios, 2009). Small-scale coffee farming enabled producers to shield themselves from the negative

impacts of price declines by reinventing production in other subsistence products (avoado, guama, maize, platin, yuca, etc.); something that large-scale coffee farms could not do (Palacios, 2009; Molano, 2017).

### ***Changing patterns of coffee exports and production in Colombia***

The surge in the coffee economy in Colombia was very much all plain sailing, at least up until the beginning of the 1930s, when, following the Great Depression, the bottom fell out of the coffee market, drastically reducing the international price of coffee and leaving many medium and large-scale coffee farmers severely in arrears.

Briefly before, the National Coffee Growers Federation (FNC) was created (1927), rapidly becoming the biggest rural gremial organization in the country and gradually coming to function as a State within a State (Palacios, 2009), taking responsibility for implementing the political economy of the coffee industry in Colombia. In 1940, the Federation created the National Coffee Fund (*Fondo Nacional del Café*), which is financed via the collective savings of the nation's coffee farmers, (termed “the coffee contribution”) and via income obtained from the commercialization of the coffee sold by the FNC, as well as by royalties paid to the FNC by third parties using its brands and labels (FNC, 2013: 117). The FNC looks to provide public goods of benefit to coffee growing regions of the country and establishes a policy of “guaranteed purchase” of all the coffee produced in the country that complies with certain basic standards of quality (UGQ: Usual Good Quality). Furthermore, the FNC, via Cenicafe, undertakes research aimed at improving the quality, disease-resistance and competitiveness of Colombian coffee (FNC, 2015).

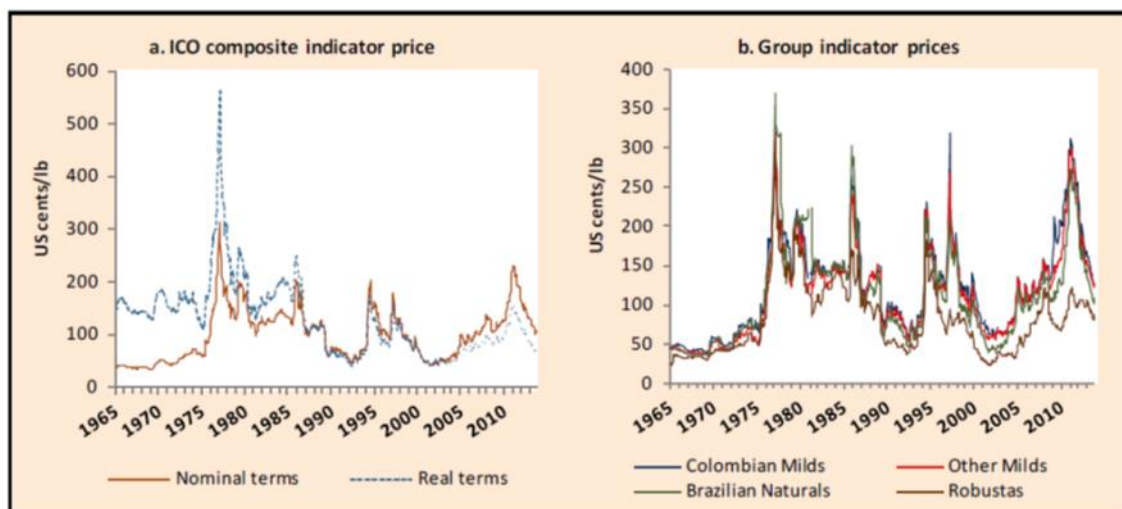
Perhaps the FNC's principal line of action during the developmental era of Colombia was its role in stabilizing the international price of coffee. The bipolar geopolitical environment of the post Second World War, and especially the threat that communist expansion in the Americas posed to the regional focus of the Pax Americana regime, allowed the two biggest coffee growing countries, Brazil and Colombia, more political space to flex their muscles. Especially after the Cuban Revolution of 1958 and the emergence of numerous rural guerrilla groups across Central and South America, the FNC, following Brazil's lead, coordinated a “pseudo cartel agreement”, via the manipulation of the supply of coffee beans as a means of securing higher and more stable coffee prices (Hough and Blair, 2012: 37). At the same time, the US government signed onto a number of International Coffee Agreements (ICAs), which regulated both the international price of coffee as well as its supply. These Agreements — signed in 1962, 1968, 1976 and 1983 — helped avoid excess fluctuations in price as well as guaranteeing more income redistribution along the coffee chain to producer countries and their coffee farmers (Pérez and Echánove, 2006: 70).



However, as geopolitical interests and priorities began changing, especially with the imminent demise of the USSR towards the end of the 1980s and the rise of neoliberal ideology as a political force, the political rationale for the Agreements fell apart. In 1989, this informal system of managing the international coffee market, in favour of a select group of producing nations, came to an end in the face of significant conflicts of interests between the two largest producers, Brazil and Colombia, the US government and the major US and European coffee toasters. The market mechanism of supply and demand replaced the system of volumes and price and the international coffee price fell drastically (Oxfam, 2002). Indeed, as the figure below shows, during the period of coffee market regulation, the international price of coffee was relatively high, while the free market period saw hefty and long-term price reductions, particularly in 1989-1993 and 1999-2004, the latter becoming the longest period of continually low coffee prices ever (International Coffee Council, 2014: 4).

As well as ensuring more producer control of the coffee market, the export quota system helped restrict excess supply, but since the early 1990s, the inundation of the coffee market has occurred without a sufficiently comparable increase in consumer demand. Vietnam, especially, during the post 1989 period, has become one of the main coffee producers in the world. Indeed, between 1990 and 2013 Vietnam produced an average of 11.6 million bags per year compared to only 451,000 bags between 1980 and 1989 (International Coffee Council, 2014: 8).

**Figure 11.1 World coffee prices (monthly average), 1965-2013**



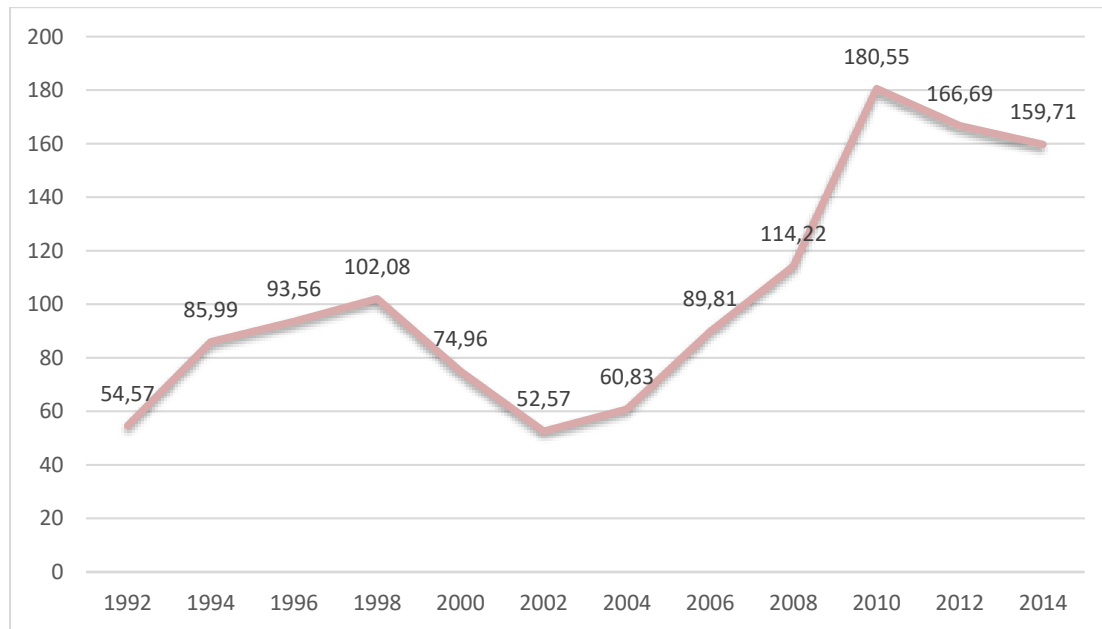
Source: International Coffee Council 2014: 4

The effect on the FNC of this dramatic change in the governance structure of the coffee market was not long in coming. The price crisis of the 1990s dramatically reduced the financial power of the Federation and its capacity to regulate and intervene in the Colombian coffee market. As the coffee price dovetailed the FNC tried to cushion its impact on local farmers, firstly by reducing the “coffee contribution tax” levied on all the coffee it bought from

producers, and secondly, by offering subsidies to these farmers. Yet, by the mid-1990s, the FNC, facing a financial crisis, solicited a loan from the Colombian government even as it sold its controlling actions in the Banco Cafetero. Nonetheless, such actions only tempered the oncoming storm.

With debt above 430 million US dollars, in 2002 the FNC abandoned its floor price for Colombian coffee, leaving local growers completely exposed to market volatility, with power along the coffee chain now in the hands of a combination of financial futures’ speculators and the interests of the other big global players, especially the toasters and traders. Indeed, as various experts have noted, today global coffee brands<sup>48</sup> are at the forefront of influencing both the price of coffee and the quality standards required by the industry (Pelupessy, 2007; Pérez and Echánove, 2006; Petkova, 2006).

**Figure 11.2 Prices paid to Colombian coffee growers (US cents/ lb), 1992-2014**



Source: US Department of Agriculture

In the graph above, the volatility of the market price paid to Colombian coffee growers is illustrated; a factor that generates significant anxiety each year for the thousands of growers who depend on a relatively high price to cover their production costs and make a profit. The internal price paid to growers depends on three factors: the exchange rate (Colombian pesos to dollars), the

<sup>48</sup> For 2015, the five most important coffee retailers are: Starbucks, with more than 20,000 stores in 61 countries; Dunkin Donuts, with more than 10,000 stores; Tim Horton’s, with more than 4,300 stores in Canada and the USA; Costa Coffee, with more than 1700 stores in 35 countries; and McCafé, with more than 1,300 stores. Information taken from the websites of each of the firms mentioned. According to experts, as of 2011, the three leading toasters are: Nestlé, Kraft and Sara Lee. See: Jaffee, Daniel & Philip Hough. 2011. “Visualizing Fair Trade coffee”. Sourced from: <https://msu.edu/~howardp/coffee.html> (15 September 2017).

international coffee price set on the New York Stock Exchange, and the differential paid for Colombian coffee UGQ, recognized in international markets (FNC, 2015: 12).

With its capacity for intervention significantly diluted, from the early 2000s the FNC changed focus, attempting to reinvent itself and prioritize the commercial competitiveness of Colombian coffee. In 2002, the FNC launched the brand Juan Valdez Café as a way of engaging final consumers with the Colombian coffee experience. This strategy has reaped enormous rewards. By the end of 2014, Juan Valdez Café had earned approximately 163 million US dollars in royalties and there were 309 stores in 15 countries.<sup>49</sup> Nonetheless, this brand remains a dwarf when compared to its global competitors and as such, Juan Valdez Café is just one of the ways in which the FNC has attempted to transform itself in the wake of the huge shake-up of the global coffee market since 1990. In terms of increasing productivity, the FNC has focused on renovating Colombia's coffee plants, expanding the reach of Colombia's special coffees, increasing both coffee harvests and plantations and promoting the certification of Colombian coffee (FNC, 2013: 27). Indeed, even prior to the launching of Juan Valdez, the need to find a new niche for Colombian coffee was pressing, especially in the face of the country's decreasing share of world coffee exports.<sup>50</sup> In 1996, the FNC created the Program for Special Coffees, which focused on selecting coffees with special characteristics, based on three factors: firstly, coffees that are produced in a manner which conserves the environment; secondly, coffee that is produced with attention to economic equity throughout the production process; and thirdly, coffee that is produced according to socially responsible practices.<sup>51</sup>

The decision to foment a coffee industry that is more concerned with quality, diversity, care in both production and processing, and for transparency in each phase was deemed necessary to ensure the continuing viability of the Colombian coffee economy. Concretely, specialty coffees are divided into four categories: 1. Coffees of origin, 2. Prepared coffees, 3. Sustainable coffees, 4. Organic coffees. According to the FNC, specialty coffees represent approximately 12% of world consumption, a figure roughly in line with Colombia's participation in the world coffee market.

The principal advantage of promoting the expansion of specialty coffees, according to the FNC, is the bonus price (*sobre precio*) which producers receive

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<sup>49</sup> Information taken from Juan Valdez's Financial report for 2014: <http://www.juanvaldezcafe.com/sites/default/files/Negocios/Accionistas/INFORMACIONFINANCIERA/Informesdegestion/InformedeGestion2014.pdf>

<sup>50</sup> As of 2015, Colombian coffee exports make up 6.8% of world exports, while in the 1970s Colombian coffee made up 20% of world coffee exports (Red Ormet. No date: 26).

<sup>51</sup> See: [http://www.federaciondecafeteros.org/particulares/es/nuestro\\_cafe/cafes\\_especiales/](http://www.federaciondecafeteros.org/particulares/es/nuestro_cafe/cafes_especiales/)

when selling their coffee to the FNC or other coffee traders. The producers receive the bonus price in two phases: the first part is given to the producer when he/she brings the coffee to the purchasing depots at the regionally distributed coffee grower cooperatives, which administer the purchase of specialty coffees in Colombia. The producer receives the second instalment as a sum that is equivalent to the load of coffee sold, once the client has paid the cooperative. According to the FNC, in 2015, USD\$9.3 million was paid out in bonus prices (at an average of COP\$26.193 per load of coffee<sup>52</sup>) to coffee farmers who traded their specialty product under the commercialization scheme run by the Federation (FNC, 2015: 25). The FNC manages 98 programs of specialty coffee across the country.<sup>53</sup> The following section will briefly examine the spread of the third type of specialty coffees: sustainable and certified Colombian coffees, paying special attention to the labour standards found in these systems.

### ***Sustainability certification programs in the Colombian coffee industry***

The FNC's attempt to transform the Colombian coffee industry in line with changing trends both in supply and demand faces significant counter-pulls and obstacles. First and foremost has been the post 1990s trend towards the international sourcing of generally homogenous, lower grade coffee (predominantly Brazilian), which has been pushed forth as a rent-seeking strategy by traders as they focus on economies of scale (Petkova, 2006: 323). Herein, the preference for robustas (generally from Vietnam and Brazil) and low-quality arabicas (mostly Brazilian) over Colombian and Central American mild varieties has become marked (Petkova, 2006: 323-324; Topik and Samper, 2006), significantly decreasing Colombia's share in the world coffee market. Nonetheless, a countervailing tendency has also appeared which does seem to lend credibility to the FNC's strategy: the increasing demand for sustainable and ethical coffee, particularly in the European and Japanese markets.<sup>54</sup> This trend offers, at least in theory, the possibility of making the coffee industry more sustainable, both environmentally and in terms of decent work practices, while also potentially opening up more possibilities for market integration.

According to recent data, the FNC supports the implementation of seven codes of sustainability via 73 farm-auditing processes, 48 certification processes and 25 processes of verification. By the end of 2015, there were 209,081 coffee farms registered in at least one certification or verification program. In total,

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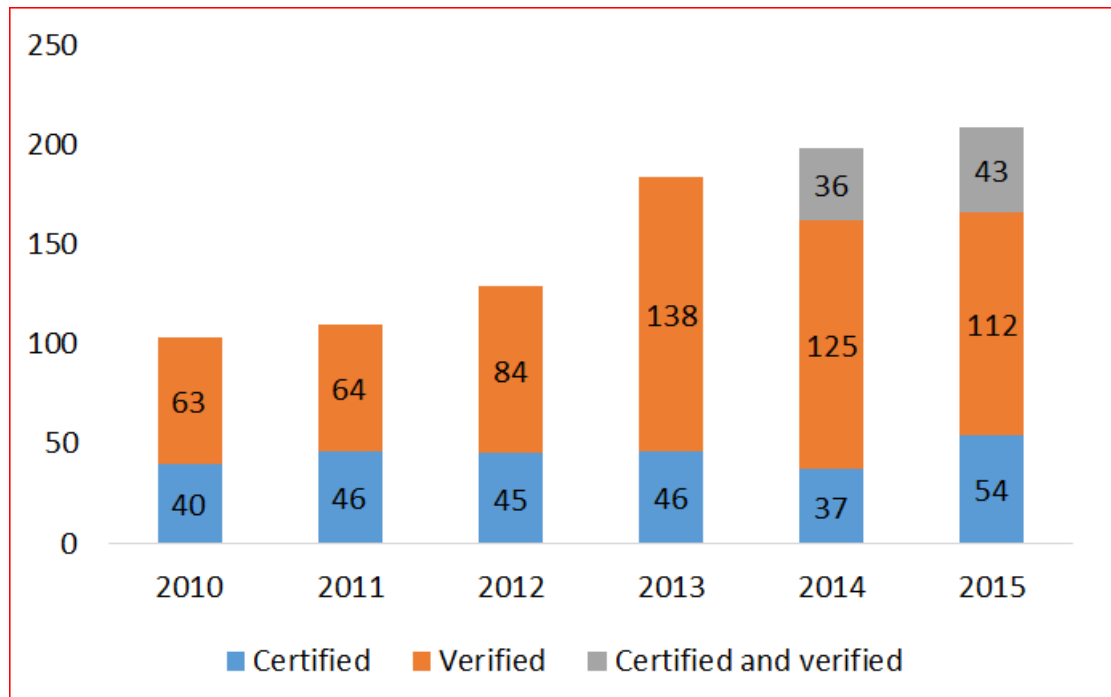
<sup>52</sup> An amount equivalent to USD 8.95 (exchange rate for the 4<sup>th</sup> October 2017), <http://www.xe.com/currencyconverter/convert/?Amount=26.193%2C000&From=COP&To=USD>

<sup>53</sup> [http://www.federaciondecafeteros.org/particulares/es/nuestro\\_cafe/cafes\\_especiales/beneficios\\_para\\_el\\_caficultor/](http://www.federaciondecafeteros.org/particulares/es/nuestro_cafe/cafes_especiales/beneficios_para_el_caficultor/)

<sup>54</sup> See: The Centre for the Promotion of Imports from developing Countries (CBI): <https://www.cbi.eu/market-information/coffee/trends/> (visited on 5 April 2017).

165,385 of these farms are owned by coffee farmers which have, collectively, 391,619 hectares of planted coffee. Of all these farms, 53,605 (26%) are certified; 112,449 (54%) have been audited; and the 43,027 remaining (21%) are both certified and audited<sup>55</sup> (FNC, 2015: 32-33), see Figure 11.3 below.

**Figure 11.3 Participating farms in sustainable coffee programs**



Source: FNC 2015: 32.

The following section offers a brief overview of two of the main certification standards in Colombia: Rainforest Alliance and UTZCertified, focusing on the labour standards they utilize so see how rigorous they are, on the ground, in the Colombian coffee industry. Both labels have expanded rapidly in recent years, with UTZ certified displaying a per annum growth of 26% between 2008 and 2012 and Rainforest Alliance a 30% growth rate for the same period (IISD and IIED, 2014).

### *Rainforest Alliance*

Rainforest Alliance, cofounded in 1987 by the environmentalist Daniel Katz was initially focused on developing the world’s first sustainable forestry certification program, later expanded into the business of carbon-offset program verification and more recently, sustainable certification of agricultural products. Currently, Rainforest Alliance works under the auspices of the Sustainable Agriculture Network (SAN), which promotes productive and efficient

<sup>55</sup> It is important to note that in Colombia, due to the predominance of small-scale coffee farms, many of the certification programs cover not only individual farms but also multi-party farms (groups of small farms or often numerous farms that are grouped together in a coffee-growers’ cooperative). When this occurs, third-party auditing takes place on randomly selected farms not on every farm that is certified.

agricultural systems, biodiversity conservation and sustainable human development through the application of its Sustainable Agriculture Standards. These include social, environmental and productive aspects. There are some 2,500 Rainforest Alliance certified coffee producers around the world, many of which have multiple operations (sometimes up to several thousands). In many cases, these are coffee cooperatives that consist of many smaller coffee farms ([www.san.ag](http://www.san.ag)).

The SAN Sustainable Agriculture Standard includes ten principles:

1. Social and environmental management system
2. Ecosystem conservation
3. Wildlife protection
4. Water conservation
5. Fair treatment and good working conditions for workers
6. Occupational health and safety
7. Community relations
8. Integrated crop management
9. Soil management conservation
10. Integrated waste management

Each of the ten principles is broken down into various criteria. The SAN standard contains 23 critical criteria. A farm must completely comply with a critical criterion to acquire and maintain certification. Regarding fair treatment and good working conditions for workers, the SAN standard includes the following critical criteria: non-discrimination; wages; prohibition of child labour; prohibition of forced labour and freedom of association and collective bargaining. To obtain and maintain certification, farms must comply with at least 50 per cent of the applicable criteria of each principle and at least 80 per cent of the total applicable SAN criteria.

Rainforest Alliance/SAN discloses a list of certified farms and operations. However, they do not disclose information concerning the performance of these certified farms and operations or the results of the audits undertaken. SAN audits always include cross verification of evidence via workers' interviews, farm documentation reviews, and the observation of farm practices and conditions in the field (Information provided by email by M. Willems, Rainforest Alliance, 22 May 2016).

**Table 11.1 Overview of Rainforest Alliance and UTZ Certified certification processes**

	<b>Rainforest Alliance</b>	<b>UTZ</b>
<b>Type of monitoring</b>	Third-party inspections are required	Third-party inspections are required
<b>Frequency of inspections</b>	Annual inspections	Annual inspections
<b>Validity of the certification</b>	3 years	1 year

### *UTZ Certified*

Initially founded as UTZ Kapeh, which translates as “good coffee” in the Mayan language Quiché, UTZ Certified was created by a Belgian-Guatemalan coffee grower, Nick Bocklandt and a Dutch coffee roaster, Ward de Groote, with the aim of developing a global market for sustainable coffee. To attain the goal, the international network organization, Solidaridad, joined and the UTZ Certified standard gradually took shape. UTZ Certified is a program and a certification label that promotes sustainable coffee production ensuring product traceability. To become certified, all UTZ suppliers must follow the UTZ Core Code of Conduct, which offers expert guidance on better farming methods, working conditions and care for nature. The standard operates through two sets of guidelines – the Core Code of Conduct (which covers the growing and harvesting process), and the Chain of Custody (which covers products from the moment they leave the farm to the moment they arrive on the shelves). UTZ Certified formulated the standard in line with International Labour Organization (ILO) conventions, among others, which means they represent an internationally recognized set of guidelines, reflecting the latest agreements, research and expertise in sustainable farming. Audits of coffee producers take place against the Core Code of Conduct and the Coffee Module. The Module contains requirements applicable to coffee production and processing activities, up until production of green coffee ([www.utz.org](http://www.utz.org)).

The Core Code of Conduct has four blocks, representing the four pillars of sustainable agriculture:

- Block A: Management
- Block B: Farming practices
- Block C: Working conditions
- Block D: Environment

Under Block C, *working conditions*, the following principles apply to producers:

- Producers observe workers' rights on freedom of association, working hours, wages and respectful treatment
- Producers do not use forced labour or child labour
- Producers promote literacy and guarantee that the children of workers go to school
- Producers guarantee healthy and safe living and working conditions for workers
- Workers earn a Living Wage to meet basic needs.

The Core Code of Conduct sets out criteria that are more specific. The UTZ certified label features on more than 20,000 different products across 135 countries (<http://colombiancoffeehub.com/>).

#### *Audit sampling*

Regarding the sampling of auditing, according to employees at the Andes Cooperative (a cooperative of coffee growers with many of its associated farms certified by both RA and UTZ), the Coffee Cooperative undertakes an internal pre-auditing process among their member farms. Then, the cooperative contracts the formal auditing process with the accredited certification body for specific certification system. The cooperative provides the auditors with specific information about the individual coffee producers that will be audited. It is likely that auditors do not undertake audits during the busy months of harvest (October-January and April-June), which means that they probably never get to see or speak with the coffee pickers.<sup>56</sup>

According to Rainforest Alliance, the certification body is the only responsible entity for determining the composition of the sample. Apart from the external audits, group administrators of the cooperatives must inspect each farm at least once per year (Willems op. cit.).

In the case of UTZ, the first certification audit must be conducted in the period spanning from four months before to four months after the beginning of the first harvest to be certified. Harvest can refer to the principal or secondary harvest period. The harvest cannot be certified if they conduct the audit outside of this period.<sup>57</sup> Any follow-up audits could take place within a certain time window. Rotating the time of the audit would allow for the assessment of different practices. The choice of the timing of the audit depends on a risk assessment undertaken by the auditors. Additionally, UTZ requires specific record keeping

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<sup>56</sup> Interview with Maria Camila Valencia, employee of the Cooperativa de Caficultores de los Andes, Andes, Antioquia, 17<sup>th</sup> April 2015

<sup>57</sup> UTZ Certification protocol; [https://www.utz.org/?attachment\\_id=3625](https://www.utz.org/?attachment_id=3625)



to permit them to capture the most important information on temporary and permanent workers and is a base for auditors' checks (UTZ Code of Conduct; criteria I. A.7; Information provided by email by P. Konijn, UTZ, 22 May 2016).

### ***The decent work deficit in the Colombian coffee industry***

The productive structure of the Colombian coffee industry has not changed significantly in recent decades, despite the hefty reconfigurations along the global coffee commodity chain. Indeed, according to the National Federation of Colombian Coffee Growers (FNC), for 2012, “96% of coffee producers farm on less than five hectares, contributing 71.4% of the total cultivated area and 69% of all production” (Rocha, 2014: 5). Such a broad distribution of coffee production is in marked contrast to the concentration of agricultural production for the three agricultural export products that follow coffee in terms of importance, measured by volume and revenue (palm oil, cut flowers and bananas). Furthermore, unlike these other agro-export commodities, the geographical spread of coffee production is vast with 10 of the country's 32 provincial departments contributing nearly 85% of the total coffee plant volume for 2013.<sup>58</sup>

The notable geographical dispersion of coffee production in Colombia explains its dynamic role in terms of job creation in the country's rural zones. Indeed, according to estimates, the coffee industry accounts for 40% of all rural employment (Merchán, cited in Rocha, 2014: 5). The FNC speaks of 560,000 families that live off the coffee industry and according to calculations made by Agronet, during the period between 2002-2012, the Colombian coffee commodity chain required between 726,000-798,000 workers (Rocha, 2014: 3), or roughly 3.5% of the country's occupied workforce for that year. In terms of supply and demand for each coffee-growing department, recent years have seen significant labour shortages (see Table 11.2 below). Indeed, country-wide, for 2012, there was a shortage of almost 12,000 labourers (1.5 % of the total labour demand), although the regional variation is enormous, with less traditional coffee regions (especially Huila, Cauca and Valle del Cauca) having a high excess supply while the main traditional coffee centres of the country (Antioquia and the coffee belt region) display significant labour shortages. This significant regional disparity has led to a large migratory coffee workforce, especially during the two main harvest seasons each year. These seasons display significant regional variations in terms of beginning and end. This is due to the diverse micro-climates along the Colombian coffee-growing belt, brought about by the Andean mountain ranges which traverse and cut across Colombia three

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<sup>58</sup> See: Federación Nacional de Caficultores de Colombia (FNC). “Área cultivada con café en Colombia, a nivel departamental”. <https://www.federaciondecafeteros.org/> (accessed July 2015).

ways: the Central mountain slopes, and the Western and Eastern slopes, as well as the different altitudes at which coffee is grown in the country. The migratory, or in Marxian terms, “floating”, nature of the coffee-picking workforce is an important factor when examining working conditions in the industry.

**Table 11.2 The demand-supply for coffee work in 2012 by provincial departments**

Department	Supply	Demand	Supply-Demand
Tolima	54,212	87,698	-33,386
Antioquia	75,219	106,740	-31,521
Risaralda	16,486	42,576	-26,091
Caldas	40,396	63,750	-23,354
Magdalena	2,010	15,116	-13,105
Cundinamarca	18,359	27,941	-9,582
Quindío	14,881	23,924	-9,043
Cesar	13,638	18,497	-4,859
Boyacá	6,784	6,764	-20
Others	5,650	--	+5,650
Nariño	31,698	29,682	+2,016
Santander	40,532	37,325	+3,206
Norte de Santander	26,360	19,878	+6,483
Huila	134,464	112,321	+22,142
La Guajira	25,350	3,014	+22,336
Valle del Cauca	83,365	55,819	+27,546
Cauca	106,127	63,447	+42,680
National Total	702,691	71,491	-11,800

Source: DANE, tabulation by Rocha, 2014: 9.

This workforce focuses, almost entirely, on the picking process. While the main harvest period is at the year’s end, most coffee-growing zones have a mid-season (*mitaca*) harvest. As such, pickers wander from region to region, following the trajectory of the flowering and ripening coffee berries. Without doubt, the most labour-intensive segments of the coffee commodity chain are those associated with planting, maintenance, picking, and washing-drying, which account for the great majority of employment (DNP, 2003: 97; Rocha, 2014: 3-4). Indeed, when one examines the participation of workers within the FNC, by far the biggest gremial organization in Colombia, the enormous concentration of employment in the productive process, versus activities associated with administration, marketing and commercialization, is highly vivid. According to the FNC, for 2013, it had on its books only 2,679 workers, 957 of these workers had permanent contracts, 1,428 had fixed-period employee contracts and the remaining 294 were hired as provisional contract workers (FNC, 2015: 114). Seasonal work, specifically, picking and processing, is said to make up approximately 20% of all work associated with the coffee chain in

Colombia (Rocha, 2014: 11), or, in numerical terms, approximately 140,000 workers.<sup>59</sup>

The coffee industry, just like Colombia's agricultural sector overall, faces several problems related to labour rights, especially due to the informality of the sector. Precarious working conditions prevail, including a lack of basic protection, low incomes (often below the minimum wage), job insecurity, lack of access to basic social security schemes and pension systems and, in most cases, the inability of workers to exercise their fundamental labour rights, particularly the right to association and the right to collective bargaining (Hawkins, 2014).

In no activity is this informality more visible than for that of coffee picking. These workers are not protected by formal labour relations and they must sell their labour to the highest bidder through verbal and informal contracts. In most cases, farm owners do not negotiate these contracts directly, instead they rely on other workers who serve as forepersons, supervisors or assistants. Pickers are usually contacted at the main squares of the coffee-producing municipalities and agree on performing daily work shifts, which are paid according to time worked or, more frequently, the weight of the coffee harvested (referred to as *kileo* or *arrobeo*, respectively, by-the-kilo or by-bag). While piece rates per kilo vary, depending on the region, they generally range anywhere from between 350 and 500 Colombian pesos (approx. US 0.14-0.19 cents; July 2015 exchange rate). Although this is a temporary/seasonal type of work, exclusively carried out during the harvest time and over the course of five to six weeks per harvest, as already mentioned, for many it is almost like a permanent occupation.

An important development is the increased migration of coffee workers to other economic sectors. For instance, a large governmental road construction project has increased the demand for workers in the construction industry, giving coffee workers the chance to change their occupation, improve their income and become affiliated to the social security system (which is something that many coffee pickers have never managed to do). Something similar has happened with the mining sector in other parts of the country, or with the production of other agricultural crops (including banana, cocoa, passion fruit and sweet granadilla), and especially, with the coca leaf, which guarantee equal or better salaries than those obtained in the coffee sector, while demanding less work effort. Factors such as these have meant that the availability of people during the coffee harvest time has decreased in recent years, a matter that has caused considerable concern in the industry.<sup>60</sup>

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<sup>59</sup> Calculation made in line with the supply figure of approximately 700,000 workers for 2012, in line with Table 2.

<sup>60</sup> See, for example: Semana. "Juan Valdez no consigue recolectores de café". 17 September 2016: <http://www.semana.com/economia/articulo/juan-valdes-escases-de-recolectores-de-cafe/494027>

The problem of labour shortage, especially at harvest time, is especially acute for the Colombian coffee industry, precisely because it is so labour intensive. The fact that Colombian coffee, as already mentioned, is grown predominantly along the mountainside (*las laderas*, in Spanish), mechanized picking, such as that which takes place in Brazil, is, so far, untenable and as such, labour costs are by far the highest component in overall costs to producers. Indeed, according to the FNC (2016: 15), labour costs make up roughly 65% of all production costs. Brazil, the world's largest producer, outmatches Colombia in terms of the participation of labour in total production costs, both due to its enormous economies of scale, mechanized picking and the fact that for much of its coffee there is no need to wash the skin off the coffee (Aguilar, 2003) or ferment the liberated bean (interview with Fernando Restrepo, 2017<sup>61</sup>). In Vietnam, meanwhile, although picking is manual, the process is much more rudimentary and as quality is not of primary concern, as is the case in Colombia, pickers can harvest much more coffee in less time, significantly reducing labour costs. Furthermore, the extent of child labour involved in the picking process in Vietnam is much higher than that found in Colombia, further reducing comparative labour costs (González-Pérez and Gutiérrez-Viana, 2012: 68). Of course, as already mentioned, the caveat must be added that most Colombian coffee receives a bonus price based on quality, something which reduces the labour cost differentials between Colombia and other leading producers.

Yet even this bonus price, while slightly mitigating the impact of the higher labour costs on Colombian coffee growers, whose coffee meets quality standards, does not rebalance the rift in the global coffee chain. Indeed, the problem of the concentration of profits at the retail end of the value chain was the main reason for organizing the first World Forum of Coffee Producers in July 2017 in the city of Medellín. At this event, the Director of Colombia's FNC, Roberto Vélez, stated that this imbalance was the key factor for the poor incomes of the world's producers: "of the \$3.50 that a cup of coffee costs in New York, the producer receives 5 cents (...) the value chain is imbalanced" (cited by Cosoy, 13 July 2017). Yet, if the imbalance inevitably leads to a poverty drag on coffee producers, how does it affect the workers that actually ensure the quality of Colombia's renowned coffee?

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<sup>61</sup> Interview with Fernando Restrepo, the Director of the Area for Development and Social Promotion of the Coffee Growers Cooperative of Los Andes, Antioquia, undertaken in Andes, 24 August 2017.

### ***Coffee pickers and labourers: the denizens of the global value chain***

Setting out to discover the extent to which coffee pickers and labourers toil in precarious conditions as they nurture the coffee beans extolled by experts in the industry, the degree of informality becomes quickly evident. Of the 142 coffee workers surveyed in the previously mentioned 2015 study<sup>62</sup>, 47% work primarily as pickers, 24% as all-round labourers, 9% are both coffee farmers and periodically, pickers, 8% apply fertilizers and pesticides and the remaining 12% undertake weeding, planting, harvest supervision supervise workers and trading activities.

Of all the surveyed workers, 64% have been working in the coffee sector for over 10 years and 71% perform their jobs on a permanent basis, although not always on the same farm. Furthermore, for 86% of the respondents, their work in the coffee industry is their only source of income, something that highlights their economic dependence on this sector. Due to the rampant informality of this sector and the almost complete lack of labour contracts —only 5% of the surveyed workers had a labour contract — as well as the prevalence of piece-meal forms of hiring (for pickers, sprayers, and general crop maintenance labourers), it was near impossible to determine average incomes. Especially for coffee pickers, income depends on the season, region in question, the farm in question, and most importantly, the skill and energy of the picker. For example, in high season, some pickers stated that they could pick anywhere from 200-300 kilos in a day, while others only managed around 100<sup>63</sup>.

Beyond focusing solely on income, it is important to examine the question of labour rights for coffee workers in Colombia, especially, as the sustainable certification schemes, such as the two mentioned already, have explicitly set out their standards to ensure that certified farmers more effectively guarantee and respect their workers' core labour rights. In terms of freedom of association and collective bargaining, akin to being the civil rights of workers, as argued by certain labour experts (see: Kucera, 2002), coffee workers, at the production end, have never had the opportunity to either form a union or collectively bargain conditions and benefits either industry-wide or farm-by-farm. At the FNC and in a few large roasting or processing factories, there are a number of small trade unions. Yet there has never been either a pickers' union or a workers association that seeks to fight for the rights of coffee workers at the farm level.

For pickers the floating nature of their work and the complete informality of their activity have made it almost impossible to create and build a workers'

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<sup>62</sup> The surveys were applied in four of the main coffee-growing provinces of Colombia: Antioquia (in Andes and Jardín), Caldas (Quinchiná), Tolima (Ibague) and in Huila (Pitalito) during the months of March through to June 2015.

<sup>63</sup> During a more recent fieldtrip to Andes and Ciudad Bolívar, Antioquia, during which the ENS' reserachers interviewed 45 coffee pickers (30 September and 1 October 2017), who confirmed the high fluctuations of coffee yields per picker.

union. Over the decades, the Colombian government has focused its efforts on supporting coffee growers, via the creation of the National Coffee Growers Federation, with its institutional structure that stretches out across the main coffee-growing regions. Yet, there is almost a complete silence regarding the need for a workers' based organization to pressure for the improvement of working conditions and the respect of workers' rights. This void of the key "enabling right" of workers (see: Anner, 2012) seems to be more related to institutional and regulatory obstacles more than anything else. Indeed, over half of the surveyed workers said that if a union was created, they would join as it could improve, most especially, their working conditions as well as their wages, stability and social security. Only 8% of all respondents stated that they would not join such an organization due to a lack of time, distrust or fear of employer retribution or violence by third parties.

The survey asked workers why there had never been a union in this sector. Workers highlighted the following points:

(A) The lack of unity among workers due to their constant mobility (according to 43 per cent of the respondents);

(B) The lack of interest from the Colombian government to support these processes (27 per cent);

(C) The lack of interest or leadership of coffee workers to disseminate this topic (25 per cent);

(D) the lack of support from coffee associations and institutions for such processes (15 per cent); and,

(E) Due to the risk of violence in rural areas, especially when people organize and protest (10 per cent).<sup>64</sup>

Alongside the non-existence of freedom of association rights in this industry, a factor that was specified by UTZ as being of key concern<sup>65</sup>, the topic of health and safety raised considerable when the worker responses were analyzed. Fifty-one percent of respondents said that they received no personal protective equipment (PPE) while at work, despite exposure to changing temperatures, pesticides and ergonomic risk-related factors. Furthermore, 91% of respondents had no occupational hazards' insurance scheme or pension program, leaving

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<sup>64</sup> The total adds up to more than 100 per cent because respondents could provide more than one response.

<sup>65</sup> In response to the draft study's report, edited and presented by SOMO, UTZ commented that they were aware of this issue and that they had designed new criteria to reinforce the concept of freedom of association. UTZ new code (I.C.79) requires management of farms to inform workers of their rights to organize and to collectively bargain. See: email from Peter Konjin, UTZ Certified Manager for Monitoring and Evaluation, to the Coordinator of the 2015-2016 Research Project, at SOMO, Mark Van Dorp, April, 2016.

them facing high levels of vulnerability and insecurity. This lack of protection becomes even more problematic when we take into consideration the fact that 37% of respondents said that they or one of their work mates had suffered from a work-related illness and 20% had suffered or witnessed directly a work-related accident. Some of the most frequently mentioned accidents were poisoning, cuts, falls and snakebites. The most common illnesses were colds and flu, headaches and nosebleeds, allergies and fungal infections caused by the coffee pulp and excess sweat and humidity.

The final section of the worker survey asked respondents to prioritize themes in terms of their importance for improving their working situation.<sup>66</sup> The main areas of concern mentioned were wages (57 per cent), health coverage and social security (44 per cent), better food provision (44 per cent), more job stability (20 per cent), holidays and rest time (10 per cent) and finally, better facilities in the coffee farms' worker camps (9 per cent).

While themes associated with worker comfort often came to the fore in these responses, without doubt the informal nature of their work condemns these workers to working lives without basic protection and stability. Herein, we arrive at perhaps the most acute problem facing the numerous sustainable coffee certification systems: in an industry that is structured on such informal labour relations, is it possible to expect that certified growers will gradually embrace the need to formalize their workforce, much of which is temporal, when to do so necessitates a significant increase in labour costs? To answer this question, we must assess more closely the economic viability of the "bonus price" for specialty coffees in relation to production and especially labour costs.

### ***Are certification standards sustainable for coffee growers in Colombia?***

One argument that was repeatedly expressed by several coffee producers and experts of the coffee industry in Colombia during the fieldwork conducted by the author, dealt with the many requirements of the certification systems and how, most of the time, the benefits they provide do not compensate for the investments and effort required on the part of the certified producers. For instance, a former representative of the National Coffee Growers Committee and a medium-scale coffee farmer in Pitalito, Huila, argues that despite the willingness shown by many producers to be certified, the investments required can be quite exorbitant when it is taken into consideration that the average extension of Colombian coffee farms is merely 1.6 hectares.<sup>67</sup>

Achieving a certification on environmental conservation requires, from the coffee producer, "(...) *investments in wastewater management, cutting-edge*

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<sup>66</sup> The responses could be multiple and, while the respondents were asked to rate specific themes, they were also permitted to include different themes and to rate them in terms of importance.

<sup>67</sup> Interview with Dr. Fernando Castro, Pitalito, Huila, April 30, 2015.

*water-saving beneficiaderos (coffee bean processing stations), (...); these investments may not seem excessively pricey but you have to think that they are to be paid by small-scale farmers who live on the coffee they grow and barely have enough money to feed their families and send their children to school.*"<sup>68</sup>

In the same vein, the previous head of the specialty coffee division of the Andes Cooperative of Coffee Growers, mentioned that the certification systems, regarding environmental conservation, tell you what the requirements are to comply but never explain the process of actually adhering to them. For example, in order to avoid polluting the sources of water "(...) *they advise farmers to install a treatment system that can use either infiltration, tank or irrigation methods, but the standard never tells you how to adapt this system to the particular conditions of each farm.*"<sup>69</sup> While this type of flexibility is positive, according to her, the small-scale farmers face an imbalance between the costs of the investments and the benefits obtained via the premium price: "*A long time will have to pass before the premium price received by a small-scale farmer from the selling of their coffee covers the costs of their investments.*"

The weak-spot of certified sustainable coffee lies in its cost-benefit when compared to a non-certified brand of coffee. The premium prices paid for specialty coffee are often dressed in controversy. For instance, the certification system sets them unilaterally and they fluctuate widely. Maria Camila Valencia mentioned the impact of the volatility of the premium prices for specialty coffees on coffee growers' willingness to certify their farm. Indeed, this price can move anywhere from \$50.000 Colombian pesos per load of coffee, to only \$7.000-10.000 pesos, depending on the price of coffee on the New York Stock Exchange and the decisions taken by the brands and the certification systems.<sup>70</sup>

Fairtrade coffee is perhaps the only certification system that breaks with the instability generated by the volatility of the prices. This system determines a "guaranteed minimum price" that is paid to the certified small-scale coffee-growing organizations. Furthermore, this brand eliminates intermediaries, obliging bulk buyers of green coffee beans to pay the small-scale producers a minimum price (Calisto Friant, 2016: 223). However, this certification system only exists to guarantee a minimum price and, in consequence, the certification regimes for specialty and sustainable coffee have not been able to generate confidence among the thousands of coffee growers who do not want to put themselves at risk of not being fairly compensated for their coffee, after having invested significant sums of money. So far, we have only referred to the risks of the cost-benefit with respect to the environmental issues. However, analyzing

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<sup>68</sup> Ibid.

<sup>69</sup> Interview with María Camila Valencia, op cit.

<sup>70</sup> Interview with María Camila Valencia, op cit.



the issues that deal with the socio-labor management as requirements for certification, creates a sea of further ambiguities and doubts.

### ***Selling sustainability in a non-conducive environment***

We have already mentioned the labor informality that abounds not only in the Colombian coffee industry but also across the country's agricultural sector. However, the most controversial issue with respect to the informality and this new period characterized by specialty coffees and certification systems is the broad gap that exists between the formal requirements and the concrete reality of the workplace.

In addition to the aforementioned requirements regarding environmental issues and administrative transparency, most of the certification systems found in the Colombian coffee sector (UTZ Certified, Rainforest Alliance, Nespresso, Fair Trade and Starbucks) demand compliance with their standards regarding the working conditions on certified coffee farms and they place particular importance on guaranteeing freedom of association and collective bargaining.

The standards of these systems are more than reasonable and are a fine mix of minimum standards and basic rights. Indeed, the inclusion of the guarantee of freedom of association and collective bargaining is particularly important because these are enabling rights, meaning that if they are protected, they have the power to improve other standards via the pressure exerted by trade unions. However, considering that the structural informality of the Colombian coffee industry, largely located outside governmental regulation and the Labor Code, there is, in reality, little chance of ensuring the implementation of minimum standards and fundamental labor rights.

As already mentioned, throughout its history, the Colombian coffee industry has never had a trade union organization and/or association that represent the thousands of coffee workers that do not work directly for the FNC. The FNC has always attempted to protect the coffee growers of the country, but has never tried to implement a policy that protects the thousands of coffee workers who do not own property or directly grow coffee. Therefore, not a single coffee picker has had the possibility of exercising his/her fundamental rights of freedom of association and collective bargaining, and few have been able to earn a salary equal to or higher than the legal minimum. The discord between the international requirements of the certification systems and the reality lived by thousands of workers in this sector requires significant effort, intervention, and commitment on the part of the certification systems, the FNC, and especially the Colombian State, which has historically received the most benefit from the contribution that the coffee workers have provided to the country.

Given the structure of the small farms, which has served as the basis for the development of the coffee industry, and knowing the many difficulties faced by the small-scale farmers in breaking even, it would be unrealistic to expect that

they willingly agreed to labour formalization if this meant that they alone assumed the associated increase in costs. As Fernando Castro and Fernando Restrepo both argued, in their respective interviews, the need to improve working conditions in the coffee industry, while very much part of the process of modernizing the rural zones of Colombia, is also a task that the State must lead, via the design and implementation of public policies geared towards labour formalization.<sup>71</sup> This would enhance the possibility of bringing about gradual changes within the institutional architecture of the country, in line with the need to protect and guarantee labour rights domestically. Nonetheless, cut off from the global coffee value chain, such efforts would only place increasing pressure on the already overly stretched competitiveness of Colombia's coffee industry. Until there is a global compromise between the key actors within this chain (the main producing countries, the main roasters and the principal retailers) that ensures a more balanced distribution of the income generated along the value chain, the crises of coffee growers and the precarious working conditions of coffee workers will only continue or indeed grow worse.

In the First World Forum of Coffee Producing Countries, held in Medellín in July 2017, one participant, Fernando Morales de la Cruz, from Café for Change, proposed that a 10 cents surcharge on each cup of coffee sold in the world's premier retail markets (the US, Europe and Japan) would effectively guarantee agricultural security in the world's coffee growing regions. This proposal encountered keen debate in terms of its monetary level,<sup>72</sup> but Roberto Vélez, the Director of Colombia's FNC, supported it as a positive step in rebalancing the present system. However, as he himself mentioned, the key factor in ensuring its effectiveness, if it was formally endorsed, would be the creation of the institutional mechanisms of collection and redistribution (see: Cosoy, 2017).

### ***Proposals for improving decent work in the Colombian coffee industry***

In a global value chain marked by the increasing monopolization of power by the leading economic agents from the segments of trading, branded merchandizing and retail (Petkova, 2006: 319), the emergence of new governance regimes, grounded in sustainable and ethical standards for trade in agricultural commodities, is without doubt, in and of itself, a positive development. For a country such as Colombia, for so long almost totally dependent on the coffee market for export revenues and a path to development, the growth of such sustainable initiatives is perhaps the one positive trend in an otherwise hostile pattern of structural changes in this industry ever since the beginnings of deregulation from 1989 onwards. Nonetheless, while the

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<sup>71</sup> Interview with Dr. Fernando Castro, Pitalito, Huila, April 30, 2015; Interview with Fernando Restrepo, Andes, Antioquia, Agosto 24, 2017.

<sup>72</sup> Jeffrey Sachs, in his own intervention at this event, proposed that the surcharge be set at \$0.05 cents rather than 10 cents.

expansion of sustainable certification programs in Colombia's coffee industry, and across the world, has seen noticeable improvements in environmental management (See: Crece, 2014; Ponte, 2004), significant controversy remains regarding the degree to which such programs have helped to empower workers and improve working conditions (see: Davenport & Low, 2012; Wright & Madrid, 2007). Despite the notorious growth of these systems across Colombia's coffee growing regions over the past decade, as yet there have been no studies showing that this expansion has brought about consistent improvements in working conditions and especially, in the fulfilment of coffee workers' fundamental labour rights. Outside of the National Coffee Growers Federation (FNC) no trade unions exist in the coffee industry and recent studies have shown that labour informality (taking into account wages and social security) is nearly universal (Rocha, 2014). As such, the rigorous labour standards utilized by the main sustainable coffee brands (Rainforest, UTZ Certified, Nespresso, Starbucks and Fairtrade) remain extremely alien to the vast majority of the roughly 700,000 coffee workers.

Obviously, one should not expect these brands to change a historical reality overnight. Nonetheless, they are important actors in the value chain. As such, together with the FNC, the Colombian government, and other key agents such as traders, merchandizers and roasters and retailers, they need to design and put together a mid- to long-term path that seeks to gradually formalize labour relations and enhance the protections afforded fundamental labour rights, especially at the farm level of the coffee industry. These actors should not ignore the need to improve working conditions and protect workers' rights or treat them as secondary concerns any longer. Colombia must put its house in order before waiting for change at the global level, coffee workers have waited far too long.

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## **12. Trade Union's Response to Decent Work Deficit among Agricultural Workers in Ghana**

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### ***Introduction***

With resurging interest in Africa's agricultural sector, the focus has shifted towards its labour force which is considered to be the panacea for improved productivity and food security. Acknowledging a steady decline in per capita food production in Africa due to multifaceted challenges, Matofari and Muthui (2016) maintain that the fullest potential of agricultural production can only be realised when labour's concerns are addressed. The agricultural sector employs 42% of Ghana's working people, aged 15 years and above. Almost 70% of this constitutes the rural agricultural workforce, with 49% of them being women. Accounting for almost 37% of the GDP, rural informal agriculture is considered the mainstay of Ghana's economy (GSS 2014). Besides the proportion of working Ghanaians involved, rural agricultural workforce in Ghana is predominantly made up of peasant farmers and remains highly subsistent, largely informal, with a small labour force paid through wages.

The informal character of rural agricultural work leads to what has been described as the worst working conditions. Akorsu (2013) reports that informal economy work forms, whether in urban trading or rural agriculture, are fraught with low incomes, long working hours, no social security or social protection, and hazardous and unsafe working conditions. Other studies note that Ghana's mainly peasant agricultural workforce operate under production relations situated within socio-cultural systems that make the application of standard labour practices challenging (Britwum, Ghartey, and Agbesinyale 2006; Osei-Boateng and Ampratwum 2011). Peasant agricultural work is typically associated with decent work deficits, raising the need to explore the means of application of the ILO Decent Work framework that could offer viable avenues for secured and sustainable livelihoods.

A number of studies have highlighted rural peasant agriculture as the hallmark of decent work deficits, having severe consequences on household food security (Matofari and Muthui 2016; Osei-Boateng and Ampratwum 2011). Although interest representation remains a fundamental pillar of the ILO's decent work agenda, studies exploring how informal agricultural workers are being organised and represented remain few with most focusing on the efforts made by the unions at organising rural workers (Britwum and Akorsu 2017; Britwum 2018). However, the unions fail to specifically deploy existing instruments to promote decent work among rural workers. This chapter seeks to expand an understanding of how union structures have been deployed to respond to the decent work deficits of rural agricultural workers. This is done by means of an

instrumental case study of the General Agricultural Workers' Union (GAWU) of the Trades Union Congress, Ghana (TUC).

GAWU is examined beyond its capacity of organising the rural informal economy workers so that an insightful understanding of trade union responses in the area can be obtained. GAWU is generally acclaimed as successful in offering meaningful union representation for rural self-employed agricultural workers. It makes up a remarkable case worth studying for alternatives in union representation. Several appraisals have been made of the various projects and programmes utilised to provide union membership to GAWU's rural self-employed members. Guided by donor-driven project objectives, the resulting information have been mainly descriptive falling short of a critical analysis of the efforts, and the purpose for extending union coverage beyond the formal economy. Missing also is an analytical examination of how such efforts impact the achievement of decent work for rural agricultural workers. This chapter, therefore, seeks to explore GAWU's organising strategies for the rural self-employed and how they have helped to address the three remaining decent work components of the ILO's agenda. These are the rights at work, employment promotion and social dialogue.

Data for the chapter is obtained from project and quadrennial conference documents<sup>73</sup> and interviews with GAWU officials like the General Secretary and the Deputy, the national programme officers and regional officers. Farmer groups, few female food-processing groups, and tractor flywheel operators were the groups examined. The data has been collected in two phases. The initial one was in 2010, and the follow-up interviews were conducted in May, 2017. The documents from GAWU and Ghana TUC were investigated to analyse the extent to which union policies, strategies, and actions supported the effective mobilisation of rural agricultural workers to address decent work deficits in other productive activities. Also of interest was the extent to which international labour instruments supported the union organisation of such self-employed workers.

The chapter is organised into nine sections, including this introductory one. Section 2 focuses on a discussion of the concepts of decent work and organising. The findings from the study are discussed under separate themes in sections three through to eight. The ninth and last section offers the concluding remarks and the implications of the main findings for policy.

### ***Decent Work and Organising Discourses***

The ILO's concept of decent work can be described as a strategic framework for the achievement of the mutually reinforcing goals of social and economic development. Predicated on four pillars—rights at work, employment

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<sup>73</sup> See end of for full list of documents used for composing this paper.

promotion, social protection and social dialogue, the Decent Work agenda summarises the aspirations of working people everywhere, regardless of their geographical location or social status. It emphasises the creation of opportunities for productive work including an income for self-sustenance, security, social protection, freedom to organise and participate in decisions that affect a person's working life, equality of opportunity and treatment for all regardless of sex, and prospects for personal advancement (FAO 2011; ILO 2007; ILO 2006). Decent work goals are not necessarily new but only a re-branding of the ILO's founding goals and aims—Fundamental Principles and Rights at Work. Despite the ILO's efforts and successes over the years, indications are that, life at work still presents serious deficits for many workers around the world as a result of economic globalisation (Egger and Sengenberger 2001; Rodgers 2002; Trebilcock 2005; Barrientos 2007).

The wording of this re-branded agenda in 1999 is instructive of what it seeks to achieve. First, the word 'decent' as used by the ILO is not simply the opposite of indecent. Its use connotes adequacy on the one hand, and on the other hand, suggests the need to conform to recognised standards of propriety and good taste. In the former sense, decency relates to how sufficiently or adequately the individual's or society's aspirations are met. According to Rodgers (2002), this aspiration far from being exaggerated, falls within the reasonable ambitions of rational people. Regarding this practical desire, Egger and Sengenberger (2001: 1) state that 'a basic aspiration of people everywhere is to be able to secure work to sustain themselves and their families in conditions of freedom, equity, security and human dignity'.

The second concern implied in the word decency, the recognised standards of propriety relate to the universally recognised labour standards. Labour standards serve the dual purpose of guiding the setting of reasonable targets as well as the means for satisfying those goals. The word 'work' as in decent work is generally understood to mean both an exertion (labour) directed to produce or accomplish something and the object on which labour is expended (Akorsu 2010). Thus, labouring for income-earning purposes as in wage employment is a form of work, just as domestic chores like cleaning or child-minding. According to Rodgers (2002), by using the term 'work' instead of employment, the decent work agenda moves beyond the confines of waged employment to reflect a broader notion of participation in the economy and the community. The term decent work is as relevant to informal, rural agricultural working conditions just as it is for formal sector employment.

Decent work, as a recognised instrument, is achievable only under right institutional arrangements (Rodgers 2002). This suggests an engagement with aspects of institutional theory and when extended to the informal economy, its success, according Rodgers, 'may involve new actors and new institutions' (2002: 24). There is also a connection between decent work and human well-



being, which is seen particularly in Amartya Sen's freedom discourses. The 2000 Human Development Report states:

Human development and human rights are close enough in motivation and concern to be compatible and congruous, and they are different enough in strategy and in design to supplement each other fruitfully. A more integrated approach can thus bring significant rewards, and facilitate in practical ways the shared attempts to advance the dignity, well-being and freedom of individuals in general (UNDP 2000:19).

These echo Sen's classic view of development as freedom and freedom as constituting the ability to improve the quality of life (Sen 1999). Attempts to enhance the quality of human lives have revealed the critical need to improving the quality of work. Until labour is adequately protected and rewarded in a way that emphasise rights at work and rights to decent incomes in line with the ILO Decent Work framework, issues of equity will continue to remain an elusive worldwide goal (Budd 2004).

Although Trebilcock (2005) has described decent work as the backbone of ILO's approach to improving employment conditions in the informal economy, the real challenge, however, remains in extending its ideals to cover all segments of the informal economy. At the General Discussion on Decent Work and the Informal Economy in June 2002, the International Labour Conference (ILC) adopted a new resolution to make decent work a reality for all workers (ILC 2002). Goldman (2003) reports that the ILO approach is to reflect the diversity of situations and their underlying causes as found in the informal economy. Within the four mutually reinforcing dimensions of decent work, the right to organise, even among informal economy workers, is critical in the sense that it is an enabling right, on which the others are predicated and can be developed.

Organising, in addition to enabling the defence of workers and therefore promoting decency at work, is widely recognised as the possible solution to decline of union membership (Bonner and Spooner 2011; Heery 2003). With the majority of the world's workers engaged in informal work forms, the legitimacy of trade unions as the voice of the wider working class is brought to question. Trade unions have become increasingly aware of, and confronted with, the need to organise workers outside their traditional jurisdictions like peasant agricultural workers as well as urban-based informal economy workers. Organising workers in these domains, however, have their own challenges. Bonner and Spooner (2011) for example, have questioned the nature of membership status granted informal economy workers in unions. They note in addition that attempts at organising informal worker tend in some instances to weaken their political voice and ability to make demands on their unions to protect their rights as workers.

Some academics, notably Heery (2003), have argued that for trade union organisations, the conceptual framing of the organising agenda, the level of commitment, institutional context, opportunity structure, and organising strategies are critical and must be right. The conceptual framing of the organising agenda is critical to the success of trade union organising because the meaning a union ascribes to membership decline determines whether it will focus solely on consolidation or expansion or a combination of both. Consolidation or internal organising seeks to increase density in areas where unions already have a presence. Expansion implies recruiting and building membership in virgin sectors and among unorganised workers. A focus on both consolidation and expansion often described as the ‘organising model’ offers a wider ranging approach (Bowden 2009). From Bowden’s (2009) exposition on the organising model, we derive a major critique, about its rather broad focus and over-emphasis on internal organising (union mergers, worker activism, democratic participation and improved services), approaches that have been noted to distract from external organising. Expansion or external organising, we contend, is an important strategy, which we find relevant for reaching peasant farmers and other agricultural workers based in the rural setting. Trade union level of commitment is also crucial in sustaining an organising culture. This may be manifested ‘in the existence of formal organising policies, either by the national union confederations or individual unions, comprised of budgets, objectives, targets and procedures for audit and review ... in the creation of a dedicated organising function’ (Heery 2003: 3). Organising informal economy workers like peasant farmers is unattractive for trade unions in view of the daunting nature, the challenge of collecting dues, and the value of the dues (Bonner and Spooner 2011). Thus, the economic worth for organising rural workers has served as a disincentive, contributing to the lack of seriousness with which unions approach organising.

Discourses on organising strategies go beyond what methods trade unions are using to reach their target groups. It covers the other possible organisational forms, membership-based organisations (MBOs) emanating from the informal workers themselves or Non-Governmental Organisations (NGOs) (Akorsu and Odoi 2017; Gadgil and Samson, 2017; Booner and Spooner 2011). Lindell (2010) applauds the efforts of MBOs, insisting that informal economy workers are not powerless victims but social actors with the potential to display agency. Other authors like Britwum (2013) as well as Brown and Lyons (2010), note how some informal groups have exhibited political influence. Cooke (2011) calls for a deeper understanding of what she describes as the new actors in industrial relations, such as NGOs, with their burgeoning role. While such appeals accentuate the need to pay attention to non-traditional worker organising strategies, the relative effectiveness of the emerging organisational forms in securing decent working conditions remains a pertinent issue that takes us back to trade unions. For instance, the limitations of NGOs in offering

informal workers organisational empowerment and clout have been reported by several authors, who assert that they, at best, achieve nominal rights protection, hardly transformatory, unable to offer opportunities for workers to assert themselves in ways that bring changes in their working conditions and life situations (Akorsu and Odoi 2017; Bonner 2010; Hayashi 2010). Yet beyond the limitations outlined trade unions organising informal workers remain critical to filling the representation gap. Trade union strategies toward informal workers have been shown to include direct mobilisation, granting affiliation status to existing informal workers' groups and providing support to autonomous associations (Akorsu and Odoi 2017; Britwum 2010; Webster and von Holdt 2005).

### ***The Challenging History of the General Agricultural Workers' Union***

On 5 February 1959, GAWU was formed out of a merger of five agriculture-related unions on the premises of the then West African Cocoa Research Institute now Cocoa Research Institute of Ghana (CRIG) at New Tafo in the Eastern Region of Ghana. The founding unions, the Agricultural Division Workers' Union, Animal Health Workers' Union, Forestry Division Employees' Union, and the Produce Inspection Employees' Union were responding to demands of the Industrial Relations Act of 1958, Act 299, to create larger and more viable National Unions (Britwum 2007). The founding name, Union of General Agricultural Workers was later changed to the present General Agricultural Workers' Union. GAWU's membership jurisdiction was mainly in the formal sector and included public sector workers in agricultural and some forestry institutions. Its membership was also located within irrigation institutions, public and private sector based plantations, livestock farms as well as agricultural tools and machinery manufacturing industries.

A little over a decade after the formation of GAWU, in the 1970s, private plantation agriculture began to change its shape through the adoption of typical forms of production relations in formalising existing formal working conditions. This occurred with the introduction of small holders, and later, out-growers' schemes relieving plantation companies from absorbing the overhead costs of workers that would otherwise have accompanied an expansion of their plantations. This scheme introduced a group of agricultural workers who though on the surface were self-employed, in reality operated under the dictates of the plantations. This meant that GAWU, as the union organising agricultural workers, was denied the opportunity to increase its membership with the expansion in the production capacity of the plantation companies. GAWU as a result, was compelled to redefine its membership and the ILO Convention 141 on Rural Workers provided the framework for this redefinition (Britwum, 2018). GAWU thus, ventured into the mobilisation of informal economy workers in 1979.

Events in the late 1980s and early 1990s however intensified GAWU's incursions into the informal economy. The liberalisation of the Ghanaian economy in response to IMF/World Bank imposed structural adjustment (SAP) conditions and later the demands of globalisation brought in their wake the privatisation of Ghana's highly formalised plantation agriculture. Globalisation came with challenges that compounded GAWU's membership crisis. The government of Ghana (GOG) privatised, restructured, or liquidated public enterprises like the Cocoa Marketing Board and State Farms including the Ghana Cotton Company Limited, Ghana Rubber Estate Plantations (GREL), Ghana Oil Palm Development Company (GOPDC), Twifo Oil Palm Plantation (TOPP), and Benson Oil Palm Plantation (BOPP). With these changes, agriculture progressively took on an informal character, due to the ensuing tendency for agricultural industries to rely on peasant small-holders and out-growers. A good example is the situation at GOPDC (Britwum and Akorsu 2017a).

The collapse of state-owned agricultural companies and the restructuring of public enterprises removed large scores of formal workers from their secured employment status with public enterprises. The privatised agricultural enterprises resorted to atypical work forms, removing the key beneficiary plantation concerns further from those whose labour they are exploiting. This distancing of relations between operators at the two ends of the production chain produces different pockets of aggregation of workers occupying diverse spaces with dissimilar production relations. Thus, within plantation agriculture one finds diverse players along the production chain, with several layers of employment relations invading the entire continuum from formality to informality. These different forms of production relations remove the key beneficiaries of production further away from the direct producers blurring the inherent exploitative relations between the direct producers and enterprise.

Trade union organising traditionally has been built on relations with a common employer and workers congregating in the one space; these were features which used to define a group of workers into a single category. Features that are lost as plantation agriculture informalises, as it introduces several layers of employment relations and obscuring the employee/employer relations. These employment forms lead to a de-concentration of workers, undermining one of the most important elements of trade union solidarity. Workers at different positions on the diffused production chain have diverse interests as a result of their varying relations and connections with the final beneficiary of their labour. It becomes difficult as a result to organise around a single agenda as was the case when the enterprise was one big plantation, directly employing all whose labour it depended on.

GAWU is one of the national unions, which suffered severe membership loss from workers' retrenchment, induced by SAP in Ghana captioned Economic Recovery Programme (ERP). GAWU's membership of 130,000 in 1982 had

declined in 2005 to 27,017 with less than 50% of this number being formal sector workers. The proportion of informal waged sector workers grew from 5% in 2005 to 50% in 2010 (Britwum 2010). This fact served as an additional stimulus for GAWU's early engagement with the informal economy workers. GAWU's challenges are several and its entry into the informal economy was both strategic and necessary. Thus, as formal worker membership fell, the informal membership increased making GAWU more of an informal worker-based union than formal. This change represented some of the challenges GAWU has undergone. Reduced union membership is associated with a declining financial capacity to carry out union activities.

Currently, while there have been some increases of membership within the informal sector, there has also been withdrawals and breakaways that have had a significant toll on membership figures. There has been stiff competition among national unions with unions organising across industries. These developments are influencing workers to break away and join other national unions, and GAWU is the hardest hit by this. For instance, considerable number of GAWU members at TOPP and Golden Exotics Limited withdrew their membership and joined the Industrial and Commercial Workers Union (ICU), and GAWU lost the collective bargaining certificate in these establishments as a result. Also, almost all members of the union at Cocoa Research Institute of Ghana (CRIG) constituting the Local Union and a national officer of GAWU broke away and formed a union, Cocoa Research Institute Workers Union (CRIWU), which is now affiliated to the Trade Union Congress, Ghana.

The varied workforce calls for innovative and untested organisational methods and approaches. Once organisational challenges are surmounted there are problems of organising union meetings and collecting union dues to finance union activities and determining how to meet the numerous demands of varied workforce forms along the elongated production chain. This complicates the union's traditional collective bargaining role. One practice that characterised the implementation of SAP in Ghana was the emergence of a plethora of NGOs whose growth, fuelled by the donor funds, served as the support wing of International Monetary Fund (IMF) and the World Bank austerity measures for the diminutive social role of government. This readily available donor fund was extended to unions and served as a welcome support for cash strapped unions like GAWU. The implications of this development in union organising are discussed later.

### ***GAWU's Motivation to Organise Rural Self-Employed Workers***

In the sections above we have accounted for the number of factors prompting GAWU to venture into the informal economy. Exceptional among them is a response to shrinking membership size caused by the diminishing formal sector

work and the increased informalisation of the private formal sector employment relations. According to one GAWU officer:

*“Trade unions thrive on numbers and so expanding our membership base is the greatest source of our motivation for reaching out to different categories of workers in the sector. We organise or we perish. This is especially so because now, there are more informal agricultural workers than there are formal workers.”*

Inherent in these words are two concerns. The first concern is recruiting and servicing members, whose dues sustain the effective operation of the union and without whose interests the union is rendered redundant. The second concern is the union’s legitimacy as representative of the working people within the sector. With the majority of agricultural workforce eluding the ambit of the union, GAWU cannot qualify as the mouthpiece of agricultural workers if it does not reach out to the significant number of working people within the sector. For GAWU, as a result workers’ organisation in the informal economy is crucial for addressing most of the current challenges of globalisation to agricultural work and the rights of its workforce

GAWU recognises that the interests of formal and informal workers’ are sometimes intertwined and that securing the interest of one set has ripple effects on the other. A union officer suggested this fact, explaining that the union’s interest in some categories of rural agricultural workers, like peasant cocoa farmers is to protect the jobs of their formal sector members in the Cocoa value chain.

*“Now consumers in the west will not consume cocoa produced under certain conditions. If the cocoa is produced with child labour for instance, or if the quality is not up to their standard, they will not consume its products and that will affect not only the farmers but workers at Cocoa Board as well. So our moving to reach cocoa farmers is directly to empower the farmers, ensure quality control and ethical production, which indirectly advance the interests of our formal workers to secure employment tenure.”*

By this, GAWU responds positively to consumer pressure so as to protect their formal sector workers. In this regard, reaching out to cocoa farmers is a two-pronged agenda in the sense that it benefits both the farmers and the formal workers at the other end of the value chain. The inclusion of processors of agricultural products in GAWU’s effort is also noted to be yet another response to western consumer emphasis on value chains.

Matching the desire of unions to engage informal economy workers is the desire of some informal economy groups to seek greater protection and avenues for engaging state institutions and processes. For GAWU, the awareness of the organisational needs among rural informal agricultural workers is a driving force for the zeal to organise and represent them. Particularly, the farmers located therein are predominantly tenant farmers, sharecroppers, small owner-occupiers, and landless farm hands, including landless women engaged in the processing of agricultural products. As part of the marginalised and vulnerable

categories within the Ghanaian population, the self-employed rural workers live under extreme poverty due to economic liberalisation policies that had succeeded in removing state social protection schemes and introduce international competition into the agricultural sector, making it possible for the dumping of cheap agricultural products on the Ghanaian market (Britwum 2013). Again the introduction of state-sponsored agricultural technologies tended mainly to favour export-oriented commercial farmers who are in a position to afford their high costs. GAWU's conviction to extend unionisation to these workers was strengthened by the ILO convention 87 on the right to freedom of association which is applicable to all workers and Convention 141 on the rights of rural workers (Britwum forthcoming).

Donor drive constitutes one of the factors promoting GAWU's work with rural agricultural workers. The GAWU programme officers both admitted that all their activities with rural workers are mainly donor driven, starting with projects and ending with issues of sustainability. 'Donor interest is driving us to a large extent; we cannot function in the informal economy without donor support.' Notable among the partners who have provided funding have been mainly Europe Trade Union federations like the Dutch Federation of Trade Unions (FNV) and the Norwegian and Danish Confederations of Trade Unions. GAWU's international partner, the International Union of Food and Allied Workers (IUF), also gives support, likewise international NGOs like Action Aid Ghana and Business Sector and Advocacy Challenge Fund (BUSAC) and the ILO. GAWU has never received any direct support from FAO since according to the key informants, the FAO is purported to work with governments and not with unions.

Also relating to Heery's (2003) opportunity structure is GAWU's institutional context, both at the international and national federation levels. Internationally, the ILO's 2002 Resolution Concerning Decent Work and the Informal Economy spurred trade union commitment towards organising informal workers. The following words of one GAWU officer allude to this fact. 'ILO's decent work framework definitely offers prospects to GAWU to address the needs of our rural self-employed workers.' Further impetus derives from the overarching framework of TUC (Ghana) for union work in the informal economy. The 5th Quadrennial Delegates Congress (QDC) of the TUC in 1996, adopted its first policy on informal economy and accepted to create a desk with responsibility for the sector. The Ghana TUC's commitment is seen in the setting up of the informal economy desk to coordinate the activities of its affiliate national unions in the informal economy. The informal economy desk is located in the organisation department. Its role over the years has been to provide support to national unions in their organisational work. The TUC Ghana has since provided the overarching framework for union work in the informal economy through its four yearly policy outlines provided by various QDCs. The three key roles of the Ghana TUC as outlined in policy are to:

- Provide instruments to support the organisation of the informal economy in the affiliate unions;
- Co-ordinate activities of the national unions in the informal economy through the informal sector desk;
- Offer technical support to facilitate the organisational work of the national unions.

GAWU's own organising policy reinforces this demonstration of commitment. One wonders, however, if policies are an adequate expression of commitment. Heery (2003), while acknowledging the importance of policy, highlights the creation of a coherent organising strategy supported by a dedicated budget as pointers to commitment. The fact that GAWU's organising happens mainly within the context of donor funding, raises concerns about the union's willingness and ability to expend resources in pushing this agenda forward.

Currently, our study reveals the high desire of rural self-employed groups to seek greater protection and avenues for engaging state institutions and processes through union membership. The GAWU officers indicated that the requests from rural farmers' and non-farmers' groups to affiliate with the union far outweighs the union's initiating effort to reach them as well as their ability to support them. They attribute this to the observable benefits of associating with the union. Although Britwum (2013) and Brown and Lyons (2010) report remarkable demonstration of political influence among some urban informal economy workers, the situation of rural workers is different and inhibiting in ways that make the achievement of political clout difficult on their own. Recognising their limitations, rural informal economy workers initiated the process of obtaining affiliation status with GAWU. For us, this reinforces Lindell's (2010) insistence that informal economy workers are not powerless victims but social actors with the potential to display agency. It is worth noting, however, that rural workers seek support not only from GAWU but NGOs as well. Though NGO interventions with informal economy workers have been viewed as hardly far-reaching and limited to the achievement of nominal welfare gains, they are increasingly being viewed as new actors in filling the representation gap among such workers. What this means for GAWU is not yet clear; what is clear from the key persons' interviews is that GAWU does not feel threatened as it would if another trade union were interacting with their members or even potential members. This is because, what GAWU stands to gain in terms of funds from informal contributions is minimal and does not commensurate the investments in time and effort.

Payments of union dues by informal sector members continue to be a challenge for the union. Many informal sector members are smallholder farmers without regular incomes and located across the country. Unlike formal sector members who pay a percentage of their salaries as monthly dues, informal sector members are expected to pay annual membership dues which vary among the



various economic groups. The membership dues among informal sector members are therefore not structured and largely irregular. The dues of informal sector members have remained at GHC 1(or € 0.19) and, in most cases, these are utilised as social fund for the benefit of members within their groups in a community. Additionally, informal workers' participation in the Union's activities cannot be said to be active. Their participation often does not go beyond the region. Only informal groups that have attained divisional status such as the cocoa and cotton farmer groups are represented at the National Executive Committee (NEC), the highest decision-making body of the union. The attainment of divisional status is derived from the number of farmers in the group as well as economic importance of the sub-sector to the economy. Clearly then, the small holder and out grower farmers, who in absolute terms are in the majority and are also the most vulnerable, miss out on representation and voice. At best, one representative each is allowed at NEC from northern and southern sectors.

### ***Rural Self-employed Work Forms Covered by GAWU and Their Needs***

Agricultural workers can be categorised into formal and informal. At present, the union organises workers in both the formal and informal sectors of the economy, this includes rural self-employed agricultural workers. Formal sector workers organised by GAWU are drawn from public agricultural institutions like cocoa marketing and cocoa processing companies, forestry and its related institutions, as well as irrigation organisations. Others are workers on private plantations and commercial food, poultry, and livestock farms, as well as enterprises producing agricultural tools and machinery. The informal workers within the sector are made up of:

- Casual workers in formal farming and fishing businesses;
- Self-employed farmers;
- Labourers for self-employed farmers;
- Processors of agricultural products;
- Marketers of agricultural products.

GAWU covers all the above-stated categories except marketers of agricultural products. Specifically, middle women and men who live outside the farming communities and come to purchase the products for sale in the cities are not covered by GAWU.

GAWU's self-employed members are organised either into economic or community groups. The economic groups consist of farmers with similar economic interests within the agricultural value chain such as cocoa farmers, fishermen, and fish processors. Examples of such economic groups include rice farmers of the irrigation project at Asutsuare, Afife, Dawhenya, Ashiaman, Tono, inland canoe fishermen/fishmongers, vegetable farmers, oil palm and

rubber out-growers, and cassava out-growers of the erstwhile Presidential Special Initiative at Bawjiase and Agona and smallholder food producers. Others include grass cutter farmers, and fly wheel operators' division.

In addition to workers specific to the agriculture sector, GAWU covers rural workers engaged in all other economic activities in the informal economy based on their geographical location. GAWU categorises these as community groups. Community groups do not share a common economic interest that unites them, except that they belong to the same community. They may be engaged in all kinds of informal economic activities, not necessarily related to agriculture. One justification for this is that since agricultural work is seasonal, it is common to find people engaged in agricultural as well as non-farm activities, making the identification of clear-cut categories impracticable. Another rationalisation is in furtherance of extending the achievement of decent work goals to all informal economy actors.

According to the GAWU officers interviewed, though the rural workers live with all the known decent work deficits, they have no perception of their decent work deficits. 'They do not know what that means, all they know is that they have problems.... When we started, the needs of the rural workers did not reflect the traditional trade union needs as we know them.' In GAWU's interaction with the rural workers, however, certain needs have often emerged and these include: insecure income due to seasonality, low incomes, low prices and insufficient marketing, inputs issues and high dependence on child labour due to labour cost. Though outside the traditional issues trade unions have had to deal with, these are the issues important to the workers. The GAWU officer in charge of its rural self-employed programmes explains that 'In the communities we have worked, especially in the Kpando Torkorarea, child labour was big issue for them... while the children were out of school, adults were out of jobs, losing their jobs to the children.'

GAWU has had to draw the workers' attention to other needs such as occupational health and safety, particularly hazards from chemicals in the cocoa sector as well as lack of representation and voice in accessing state welfare services like pensions and health insurance coverage. In doing this, GAWU has addressed the challenge of translating the needs of the rural self-employed into union language.

### ***GAWU's Organising Strategies***

We identify three broad organising strategies used by GAWU. The first relates to who are organised, the second to the type of organising frame, and the third covers specific strategies for gaining members. We have noted that GAWU targets different categories of the rural working population organising them either by their spatial location or their economic interests. Rural agriculture workforce are organised into community groups based on their geographic

location; usually engaged in a variety of livelihood activities, both farm, non-farm, and off-farm. The other method we mentioned is to organise according to similarity in their economic products. Thus they may be farming the same produce, like rice cotton. This second GAWU strategy manifests both consolidation and expansion, though we find more of the latter. To a very large extent, GAWU seeks to expand membership by reaching unorganised workers more than anything else. In a single instance of organising cocoa farmers, however, indications are that, part of the motivation border on the protection of formal workers, and this boils down to consolidation of existing members of the union.

GAWU has utilised three trade union organising strategies outlined in literature to expand membership. These are: direct mobilisation, granting affiliate status to existing informal workers' groups, and providing support to independent associations. However, the last two which feature predominantly characterises GAWU's organising strategy outside donor funding. When there is no donor funded project, GAWU's organising strategies is not characterised by direct mobilisation. One of the programme officers commented regarding the rural workers:

*"They have their own associations. When they hear about us in terms of what we are doing for other groups, they request for our support and we go in to register them and offer support. ... We get more request for support than our human and financial resources can handle."*

These words suggest that rural workers are aware of their organisational needs and are especially mindful of the limitations of their association's ability to operate beyond traditional communal welfare issues or to function with the authority needed to bargain with state officials. They seek trade union support to overcome these shortcomings. It appears, however, that the main source of information about GAWU is not from GAWU officers but from other groups, who have had interactions with GAWU.

On the occasions GAWU has resorted to the use of direct mobilisation, it has been within the context of a project. This is so because of the financial implications of direct mobilisation of members. The direct mobilisation is done in a two-stage process. The first stage involves the use of 'canvassers'. These are persons within the community, contracted to conscript members and organise them into groups for a small income for their efforts. The first stage of direct mobilisation is accomplished through the identification of the needs of the target groups and GAWU's attempt to satisfy them. Britwum (2018) call them the 'organisational entry points'. Once groups are formed, GAWU officers then go in to register the groups, affiliating them to the union, which then qualifies them for other services from GAWU. This constitutes the second stage in the direct mobilisation process and what Britwum (2018) terms 'group maintenance' interventions.

Rural self-employed members have no established relations with known employers to necessitate bargaining. They are also left out when it comes to accessing the state's social protection provisions. GAWU's strategies have, therefore, consisted of service provisioning. Most of the services GAWU renders to its rural members services have been built around programmes like the Right to Work; Sustainable Agricultural and Rural Development, Organising Rural Informal economy Worker for Decent Work, to service both current and potential members in the informal economy. These programmes involve trade union education and gender sensitisation, the promotion of child rights, and the eventual withdrawal of children as agricultural labourers in fishing communities. Other services are the Institutional Development and Empowerment and the Policy Advocacy and Campaign. Other projects include that on violence against women and children in nine communities in the Kwaebibirem District of the Eastern Region. GAWU, in addition, carries out income and employment generating activities. Notable GAWU projects targeting rural workers are:

- Rural Workers Organisation Department Project (RWODP);
- Self-Employed Rural Workers' Project (SERW);
- Non-farm Economic Activity Project (NFEA);
- Child labour project: mainly in oil palm and cocoa growing as well as fishing communities;
- Trade advocacy project: rice campaign project and cotton out-growers programmes; this has been in collaboration with Action Aid Ghana;
- Global pesticide project: Health and safety.

Together, these projects serve the two purposes of organisational entry and group maintenance. Examples of specific services include: Loan schemes and credit union facilities; workshops, literacy classes and skills acquisition; supply of inputs (bee hives, farm machinery, construction of fishponds and Chokor smoker<sup>74</sup>, supply of seedlings) and provision of facilities (day care centres, clinics). Figure 12.1 attempts to broadly categorise GAWU's services.

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<sup>74</sup>A Chokor smoker is an oven used for fish smoking.

**Figure 12.1 Summary of GAWU's services**



Source: Field data: 2010 and 2017

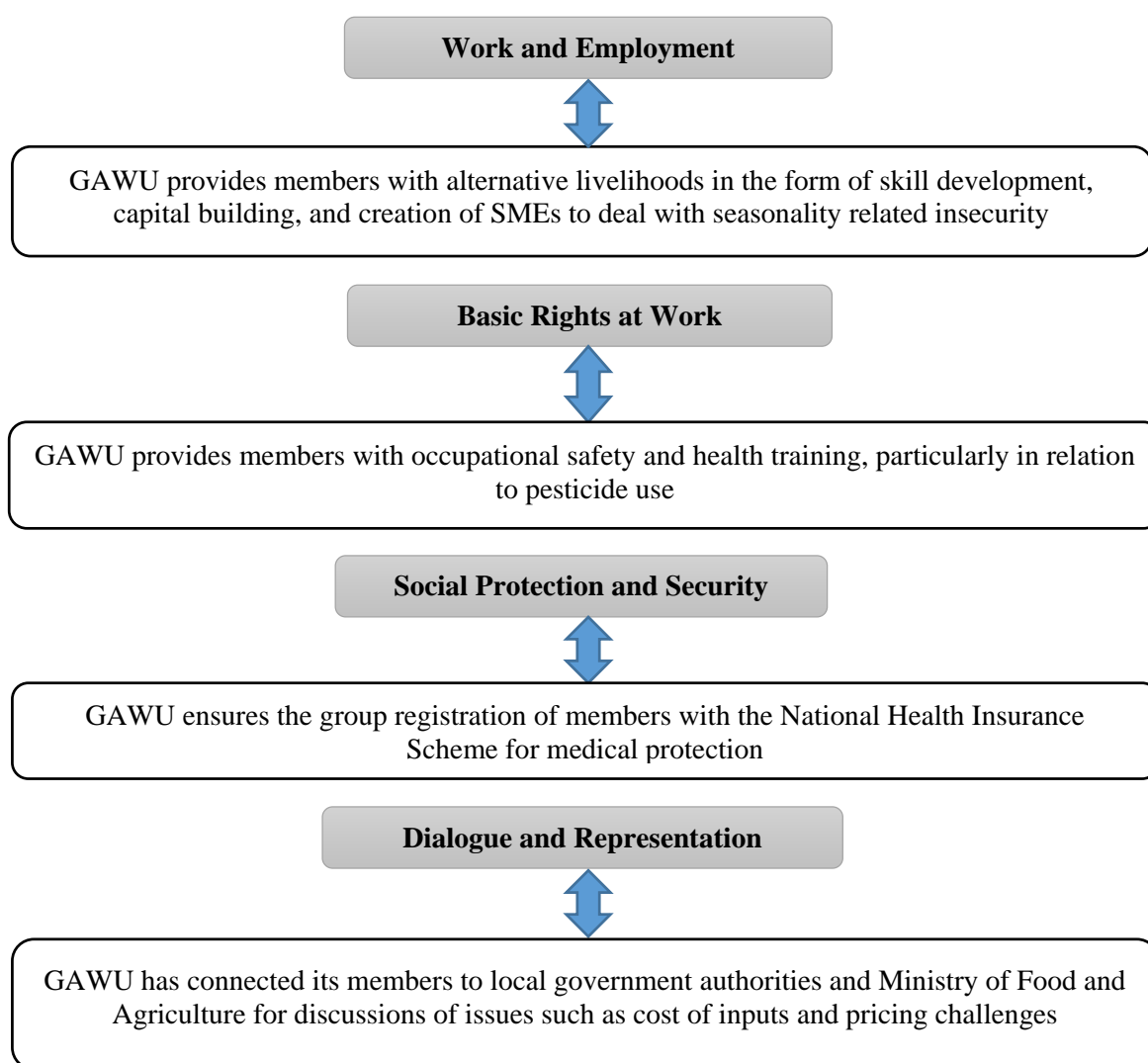
GAWU has also provided the framework for informal economy engagement with national policy to ensure that government policies do not undermine the livelihoods of their members. In 2003, for example, GAWU and some Civil Society Groups pressurised the government to raise custom duties to protect the threatened poultry and rice industries. Their success was short lived, however, when the government of the New Patriotic Party (NPP), under a certificate of urgency, repealed the law. Thereby, it prevented Ghanaian farmers from enjoying state protection of their livelihood. Again, GAWU was very vocal in terms of resistance to Ghana government's plans to sign on to the Economic Partnership Agreements of the European Union (Britwum 2010).

GAWU's efforts permeate all the 10 administrative regions in Ghana but the project spread are determined by the agricultural activities and concerns of the regions. One project that has a nation-wide coverage is the Non-farm Economic Activity Project (NFEA).

### ***GAWU Responses to Decent Work Deficits among Rural Workers***

GAWU's organising strategies are driven by projects; therefore, it has a heavy donor dependence. Though informed by ILO's decent work framework, the ILO agenda has hardly on its own provided direct incentive. One key informant insists that 'ILO's decent work framework definitely offers prospects to GAWU to address the needs of our rural self-employed workers. We have always been guided by it and so you will find that most of our interventions have invariably addressed one decent work deficit or the other.

**Figure 12.2 GAWU’s Practical treatment of decent work pillars for rural workers**



Source: Field Data 2017

Remarkably, we find that GAWU has redefined the pillars of decent work to render them practical for implementation and to fit the specific rural workers’ needs. For instance, when GAWU makes it possible for farmers to meet with government officials either at the local government or at the ministerial level, it views it as satisfying the social dialogue and representation pillar of the ILO decent work framework. This, we find interesting and useful since in their context, dialoguing within a tripartite consultation may not work out well in their interest. Figure 12.2 shows examples of how GAWU has dealt with specific decent work pillars within the context of rural workers.

The GAWU officers interviewed bemoan the fact that the provision of pension for their informal members is one social protection issue they have been battling with and are yet to find a workable solution. The social security policy for the informal economy they find is ambiguous and restrictive. One officer is of the view that if the policy would be responsive to the needs and circumstances of

rural agricultural workers, issues of low and irregular incomes, as well as the number of years they can contribute must be recognised and appropriately addressed. Only then, he explains, will GAWU be able to take advantage of the policy to secure pensions for rural agricultural workers and thus deal with that aspect of social protection for workers.

### ***GAWU's Organising Weaknesses and Strengths***

The costs of maintaining informal economy as union members seem to be a major challenge in GAWU's efforts towards organising. Transport bills sum up to a high amount as union staff and officers travel around various groups in the country with unreliable public transport and poor road network. So do efforts at bringing together informal economy group members together for union activities. There are also the cost of meetings and group activities. Venue costs and refreshments also add to the bill of commitments that GAWU has to contend with organising informal economy groups. There are also questions about GAWU's internal human resource capacity to support the numerous administrative demands that organising informal economy brings. One such demand is building a membership data base, registering, and issuing identity cards for union members. Limited capacity of GAWU in terms of its human resource base poses a strain on its ability to offer coverage to groups eager to join it and funding agencies ready to offer the funds for organisational work in rural agriculture. A significant challenge, however, is intra union tensions derived from the formal sector located members, who feel the rural self-employed are a drain on scarce union resources, the bulk of which they believe, is derived from their subscriptions. One key informant mentioned resistance from formal against informal members as a challenge. We also note the following as additional organisational challenges for GAWU:

- Absence of an organised front for farmers who work mainly as individuals;
- The inability of rural workers to appreciate the benefits of organisation;
- The multiplicity of donor interventions, often with the same groups rendering monitoring and evaluation problematic;
- Financial capacity to sustain organising activities beyond donor support;
- Capacitating the rural self-employed members to solve their own problems. This includes developing the ability to engage government and other public officers in ways that allows them to challenge unfavourable state policies and support favourable ones.

GAWU's strength has been the extent of its activities with the rural self-employed. The nation-wide coverage provides both strength and opportunity for GAWU's future organising work. This is more so since GAWU has the regional and district structures to support such nation-wide reach. GAWU has undoubtedly developed capacities and expertise over the years. The

development of capacities is not limited to the union's programme officers alone but also the community canvassers as well as the executives of the rural worker groups.

### ***Concluding Reflections***

This chapter highlighted the possibilities for trade unions to empower smallholders and agricultural labourers through the example of GAWU in Ghana. The study reveals that apart from decline in union membership and density, the historical and institutional context of trade unions as well as donor drive may serve as incentives for expanding organising to rural agricultural workers as it has in the case of GAWU. Also, the varied characteristics and needs of the rural agricultural workers call for flexibility in the provision of services outside the traditional trade union services. Regarding strategies, the offering of affiliation and support for existing informal groups is most prominent since rural agricultural workers mostly have existing groups formed for various intents and purposes.

A major interest for this contribution though has been the extent to which GAWU efforts have been able to respond to the peculiar needs of informal agricultural workers, and ensure representation and a political voice for workers, having the potential for tackling decent work deficits. The chapter has highlighted the fact that among the several needs of rural workers, union affiliation is the strongest. Rural workers' awareness of the potential for political voice pushes them to seek support from GAWU. This we find striking as it offers opportunities for trade unions. GAWU's inability to fully satisfy this need and thus grab the opportunity to increase membership is blamed on inadequate financial and human resources. Donor support as a result plays a key role in filling this need; limited outcomes can be achieved in terms of representative structures for rural workers. We found though that once the rural workers are organised, GAWU is able to enlarge their voice by giving them access to policymakers. Most outstandingly, GAWU overcomes the challenge of extending decent work ideals to cover all segments of the informal economy by redefining the pillars of decent work according to the specific needs of the rural workers. These needs are identified, not by GAWU programme officers, but by the rural workers themselves. Though the needs of rural workers hardly fit the traditional worker's needs, GAWU's priorities are directed at interventions that address their special needs and categorise them under the pillars of decent work. Any address of decent work deficit then is invariably the result of addressing the rather varied needs of rural workers, needs that are unconventional to the formal sector-based workers. Thus, while GAWU considers ILO decent work framework, particularly the 2002 resolution concerning the informal economy as offering additional impetus for organising rural agricultural workers, organising such workers in turn, offers prospects for achieving decent work ideals.



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### **13. Value Chain Development and Social Upgrading: A Case of Pakistan's Mango Industry**

Mubashir Mehdi, Burhan Ahamad, Muhammad Bilal Ahsan

Linking farmers to markets has become an integral part of the rural development agenda of the world donor agencies. Changes in the competitive business environment brought about by globalisation, technological advancement, and change in consumer preferences have caused donor agencies such as the World Bank, USAID, AusAID, OECD, FAO, and IFAD to re-focus their approach. Rather than dealing with rural communities in isolation from their markets, agencies are now investigating opportunities and means of improving existing practices to enable rural producers to augment their economic position.

The ultimate aim of linking farmers to market is to transform traditional practices in the agro food system of developing countries so that they can participate towards producing standardised quality products which are desired by end consumers. In order to achieve this rural industry development agenda, three major challenges have been identified literature:

- The fostering of market-based capacity building among growers so as to equip them with the required knowledge and skills to compete effectively (Hall and Nahdy 1999; Dixon et al. 2001; World Bank 2010).
- The reorientation of support services or the enabling environment in which the businesses operate. Capacity building of research, extension, and development agency personnel is central to this orientation so that they can reform their structures and processes to fit with the new institutional practices required of them to effectively assist their stakeholders to compete in a globalized business environment (Collinson 2001; Davidson and Ahmad 2002; Van de Fliert and Braun 2002; Van de Ven and Hargrave 2004).
- The monitoring and evaluation of interventions, from need recognition to the overall impact, to determine the effectiveness of rural industry development projects at each level of the chain/stakeholders so as to refine development initiatives for further replication in the same or other industries (World Bank 2005; Chadwick and Gordon 2007).

These challenges, within the production process and extending to the marketing system, have been existing on the landscape of rural development since the 1950s. The change in the production or rural development system is discussed further under the evolving themes of rural development in developing countries.

The principal author of this chapter was involved in an industry development project, the ASLP Mango value chain project in Pakistan, as project evaluator, from 2009 to 2013. Under the Australia-Pakistan Agriculture Sector linkage

Project (ASLP), a bottom–up approach was adopted that aimed at building the capacity of the mango value chain players so that they can address industry challenges. This chapter presents an overview of the approaches of the rural industry development and its importance to the Pakistan mango industry, the challenges and opportunities of adopting a participatory method with a particular focus on the value chain approach in the context of Pakistan’s mango industry.

### ***A Paradigm Shift in the Agriculture Production System***

The evolution of rural development thinking has been a dynamic process that has involved various strategic themes such top–down ‘blue print’ state-led approaches in the 1950s to bottom- up market-led participatory approaches in the 1980s (Ashley and Maxwell 2001; Ellis and Bigg 2001). It is dynamic in the sense that the ideas that first appeared in a particular decade began to be refined and implemented much later. This is true, for example, of ‘community development’ through the modernisation of agriculture under top–down approaches in the 1950s to being refined as ‘Farming System Research’ (FSR) under bottom–up approaches in the 1970s (Dixon et al. 2001; Ellis and Bigg 2001). Thereafter, in the late 1990s, the FSR evolved to adopt a holistic view which was characterised by the recognition that the internal determinants of production and consumption decisions at the farm level must be analysed in accordance with the external determinants such as government policy, market structures and information, and vice versa (Dixon et al. 2001; Packham et al. 2007).

The dynamic nature of rural development thinking has recently led to a renewed interest in the interaction between the ‘agriculture lead’ and ‘market lead’ approaches to rural development as ‘linking farmers to market’ (Estelle et al. 2004) which is mainly conceptualised under the new paradigm of rural development such as ‘network’ or ‘cluster’ development (Amin and Thirft 1995; Lowe et al. 1995; Cooke and Morgan 1998; Murdoch 2000; World Bank 2010). Consequently there was a radical shift from the top–down rural development approach to bottom–up participatory approaches (Dixon 1990). The essence of participatory approaches to rural development is that change or motivation to change, resides within the population of the local community because they are more capable of doing their own appraisal and analysis than when done from outside (Dixon 1990). Ideologically, a participatory approach seeks and embodies ways of empowering local people, enabling them to express and enhance their knowledge, take action jointly and receive feedback on desired action from facilitators (Chambers 1994a).

The evolution of participatory approaches for the development of rural industry has the potential to enhance learning among rural producers through the engagement of stakeholders in the appraisal of existing problems, designing of

capacity-building projects, and active involvement in the learning process (Coutts et al. 2005; Percy 2005). However, in practice, more emphasis is placed on participation in the appraisal process to define the learning ‘content’ at the expense of participation in the determination of learning ‘style’ (Chambers 1994b, 2007). For example, in Pakistan, ‘practitioners have sought to accommodate the shift in practice by taking PRA to mean participatory reflection and action’ (Chambers 2007: 7).

Consequently, to address these problems the rural development approach, which was previously focused on improving the productive capacity of rural producers in isolation, needs to be revisited in a more holistic way to emphasise on the interdependency of the on-farm activities and those further downstream in the marketing system (Murdoch 2000; Packham et al. 2007; World Bank 2010). The rural development approach, therefore, has been conceptualised as ‘learning and innovation network’ or development of ‘clusters’ which holds production challenges ‘inside’ the rural areas with opportunities ‘outside’ in the external environment or ‘marketing’ (Hakansson et al. 1999; Murdoch 2000; World Bank 2010). Batt and Purchase (2004) supported the network approach in a supply chain management context and emphasized on the need to build coordination among the enrolled entities on commonly identified issues so as to achieve a collaborative action based on trust and commitment.

### ***Production System and Supply/Value Chain Thinking***

The impact of globalisation along with the increased presence of supermarket chains in developing countries brought new challenges for rural producers in terms of greater access to export markets as well as meeting the demands in domestic markets that are exposed to competition from imports (Reardon and Barrett 2000; Wilkinson 2002; Spriggs et al. 2005; Van der Vorst et al. 2007).

Maintaining reliable supplies of a product that meets consumers’ increasing quality standards is one of the biggest challenges facing growers in the developing countries (Estelle et al. 2004; Batt 2005; Murray-Prior et al. 2007; Shepherd 2007; Van der Vorst et al. 2007). Some critical issues in this regard are the lack of technical knowledge and skills at the farm level in establishing and implementing quality management systems, inadequate off-farm logistics infrastructure, and an inadequate government policy environment. These deficiencies inhibit efforts to improve the functioning of commodity chains (Batt et al. 2005; Murray-Prior et al., 2007). For example, efforts directed to on-farm capacity building in quality management, such as Europe Gap certification, have little impact because of poor infrastructure (Humphrey 2005; Shepherd 2007) or outdated marketing systems (Spriggs et al. 2004).

The government is often the principal actor in rural industry development interventions in developing countries because of its impact on reforms via its regulatory powers and R& D institutions (Rondinelli 1983; World Bank 2010).

The World Bank (2010: 139) identified that the ‘burden of managing the regulatory environment severely hinders the growth of the industries which diminished competitiveness and success in the global market’. In fact, the lack of skilled people at the institutional levels and appropriate laboratory facilities were some major challenges in the rural industry development in developing countries (Van de Ven and Hargrave 2004). Burki (2010) supported this argument and declared that a lack of business support services both at the institutional level as well as the commercial level, was one of the major impediments to improving the competitiveness of agribusiness firms in Pakistan under the new global market challenges facing them. From a rural industry development prospective, the participatory approach discussed earlier is still relevant. The composition of the participants involved is extended to include off-farm members of the marketing network which means adopting the whole of a supply chain approach rather than dealing with the rural producers in isolation.

A shift from top–down approach to bottom–up market lead approaches can be described in terms of objectives declared, people targeted, activities designed, and outcome achieved in Table 13.1. Global production networks (GPNs) or value chain is transforming their processes to achieve higher product quality with minimum cost characterised as functional or economic upgrading of the system. Since the economic and social upgrading are positively correlated (Gundersen 2003), the workers’ rights, in this case, rights of the on-farm workers, must be considered for sustainable global production system (ILO 2015). International Labour Organisation (ILO) has been advocating decent work agenda from the last one decade in this regard. One of the obvious reasons is that production is in most an independent process that requires active cooperation among workers and employers as well as along the value chain. Low cooperation typically means low productivity and profits and high cooperation means the reverse. Many factors influence partners’ willingness to cooperate but among the most important are trust, fairness, health, and job security (Scherrer 2017).

**Table 13.1 Changing themes of agricultural production system**

	<b>Government-Driven 1950–60</b>		<b>Market-Driven 1970–Present</b>	
Objective	Increase Productivity	Increase Productivity	Increased prices	increase competitiveness
Target	Farmers	Farmers	Linking farmer to market	Farmers-middle men-retailer (whole of chain)
Activities	Technology adoption skill development	Technology adoption skill development	Skill development, market knowledge, quality management	Skill development, market knowledge, quality management, supply chain management
Outcome	Poor adoption	Improve productivity	producer cooperative/ poor market penetration	Supply chain/value chain development
Cause	Lack of ownership and relevance	poor market links poor infrastructure	lack of business skills / inadequate business services	cooperative relationship (trust and commitment)

The ASLP mango value chain approach adopted in Pakistan mango industry was a participatory action-oriented approach which was evaluated in the context of economic and social upgrading of the growers and workers respectively. The key lessons are learned that indicate the effectiveness of the ASLP approach.

**Challenges of Adopting Participatory Supply/Value Chain Approach: A Case of Pakistan Mango Industry**

Pakistan is an agriculture based country. Nearly, 50% of the total workforce is directly involved in agriculture (GoP 2017). Therefore, the government of Pakistan considers agriculture as the engine for industrial growth and scarceness reduction and gives it high priority. Some agricultural industries in Pakistan such as the horticultural industry have received adequate attention both from the government as well as development agencies such as USAID, UNIDO, and ACIAR, etc. Value chain development strategy has been adopted by various development agencies to improve the competitiveness of farmer enterprises in this sector. For example, projects like mango value chain improvement by the Australian Centre for International Agricultural Research (ACIAR), Trade Related Technical Assistance in the mango sector by UNIDO, improving on-farm capacity of growers in mango value addition through pack house



development by USAID, played an important role to upgrade Pakistan's mango value chain system.

Mango (*Mangifera Indica*) also called 'king of fruits' is inherent to eastern India and Burma. After Citrus, Mango is the second major fruit crop in Pakistan. Pakistan is the fifth best producer of mangoes after Indonesia, Thailand, China, and India (FAOSTAT 2015). Many varieties like Anwar Ratol, Dodheri, Langra, Malda, Siroli, Alphonso, Gulab Khas, Fajri, Golden, Began Phali, and Swarnarika characterised by their distinctive shape, size, acidity, aroma, taste, and colour are produced in Pakistan. Two varieties, Chaunsa and Sindhri, dominate others and are commercially grown varieties.

Punjab and Sindh are the two major provinces of Pakistan that contribute around 98% of the total mango production in Pakistan. The mango season extends over five months, starting in mid-May in Sindh and finishing in late September in Punjab, with the peak production period being from late June to mid-August. Sindhri (*Mangifera Indica*) variety is commonly recognised for its aroma and mainly grown in Sindh while Chaunsa is famous due to its sweetness and is a popular variety of the Punjab. Multan Division in Punjab and Hyderabad Division in Sindh are famous regions in Pakistan for these two main cultivars (Chaunsa and Sindhri) of mango.

Pakistani consumers are mango loving and 92% of the total mango production is locally consumed, 7% exported, and 1% sent to the processing industry. The main marketing channels are farmers, contractors, wholesalers, retailers, and consumers. Most of the fruit value chains are governed by middle men, especially agents who demand commissions and are the more powerful persons in the chain.

The domestic retail markets are dominated by small retail shops, street hawkers, and road-side stalls. The prices of the mango in the domestic markets start high in the beginning of the day and are discounted up to half of its price at the end of the day. The grower's share of the consumer dollar in these markets is estimated at approximately 28% (PIAM 2007; PARC 2009).

Well organised 'superior' retail markets are uncommon except in big cities like Karachi, Lahore, Islamabad, and Faisalabad, and these retail outlets are setting trends for quality products among consumers (Mustafa and Mehdi 2007). They mainly source fruit from wholesale markets and sometimes directly from commission agents. Some additional retail markets for mangoes are multinational chains like METRO and national-level superstores. These outlets are increasing in the major cities but are still in an introductory phase of procuring premium quality fruit from reliable sources. Food service outlets include better quality hotels, which may include mangoes in fruit baskets in guestrooms, and restaurants that serve mangoes in season.

After citrus fruits, Mango is the leading fruit that is exported. Pakistan is the fourth largest exporter of mangoes in the world followed by Mexico, India, and Brazil (Ghafoor 2010). Gulf countries (UAE, Saudi Arabia, and Oman) are the major traditional export markets. The United Kingdom is the major market in Europe; Germany, France, Norway, Denmark, Switzerland, Singapore, Malaysia, and Hong Kong are other important markets. The People's Republic of China and Iran are likely to emerge as future prominent markets for Pakistani mangoes. Exports are freighted by air to Europe and by sea to Gulf countries.

Since the government of Pakistan and international donor agencies have taken many initiatives to empower of Pakistani mango growers and exporters to meet the protocols of premium quality of international super retail stores in Europe and United States of America. But there are many deterrents in terms of global certification systems (HACCP, International Featured Standards and Global GAP), post-harvest management, and lack of management-certified nurseries.

Constraints in the mango industry were identified using supply chain appraisal approach by various development agencies such as ACIAR and USAID. Supply chain appraisal approach involved key stakeholders, commercial and non-commercial, that play critical role in the overall mango chain. For example, growers, traders, exporters, retailers, extension agencies, R&D organizations, service providers were invited to apprise the issues along the chain. It was identified that constraints at the production level revolve around orchard management, harvesting practices and post-harvest handling. Traditional orchard management in Pakistan perpetuates a variety of diseases that afflict the fruit. Powdery mildew (*Oidium mangifera*), Stem end rot, anthracnose (*Glomerellacingulata-Colletotrichum gloeosporioides*) and stem blight (*Diplodia spp.*) are recorded as the most common diseases that impact on all varieties of mango (Jiskani 2005; Amin et al. 2008).

Moreover, orchard management has divided responsibility between growers and contractors and contributed to the prevalence and persistence of disease in mango orchards which is compounded by harvesting and post-harvest handling practices. Traditionally, contractors are responsible for harvesting, sorting, packing, and transport of mangoes. These practices include:

- **Strip harvesting** involves harvesting of fruits whose period of maturity varies widely. This practice reduces costs of harvesting.
- **Hand picking** prevents inattention to stem removal and sap burn. When the sap is affected unattractive blemishes appear on the skin of the fruit.
- **In-field sorting and packing** involves collection of the fruit and removal of diseased and damaged fruit prior to packing in wooden boxes. The use of wooden boxes exposes the fruit to pathogens. Moreover, overloading of boxes causes further harm. The wooden boxes are designed to contain 10kg fruit; however, it is common practice to fill the boxes up to 13kg in

order to reduce transport and handling costs. A by-product of this practice is increased physical damage and bruising of the fruit.

- **Transport** practices are unregulated too. The over-packed boxes are left in the fields until they are loaded on open trucks for transport to the wholesale markets. The trucks are usually overloaded, have poor suspension systems, and travel on poorly maintained roads. This practice again contributes to physical damage and bruising of the fruits. The lack of any temperature control accelerates ripening. Hand picking also attracts soil particles, as well as microorganisms attracted by the sugary sap; ultimately fruit appearance and firmness is badly affected.

The combined effect of these traditional practices is a high level of product waste and low market prices (Amin et al. 2008). Research indicates that across the two main varieties (*Sindhri and Chaunsa*), on an average 72% of the fruit harvested do not reach the consumer, mainly because of physical damage or breakdown (Collins and Iqbal 2010). In the domestic retail market, research has shown that 25% of the fruit was diseased, 58% physically damaged, and 14% had sap burn, thus leaving only 3% free of any disorder (Mazhar et al. 2011). This research which was the first to quantify the losses along the supply chain clearly showed the gains that could be made in the development of Pakistan's mango industry if these traditional practices are improved.

The Research, Development and Extension institutions such as the University of Agriculture Faisalabad (UAF), Ayub Agricultural Research Institute (AARI) and provincial Extension Agencies have an important role to play in this respect. However, these institutions had little capacity, particularly in post-harvest management, to ensure that relevant knowledge and skills are developed and transferred to the mango industry. This deficiency was most evident in the provincial extension services, where the lack of a flexible information dissemination system in the wider farming community was a major impediment to the adoption of improved agricultural systems and practices in Pakistan. The supply chain appraisal approach set out issues and opportunities which can be addressed in a more systematic way.

### ***The Australia-Pakistan Agriculture Sector Linkage Program (ASLP)***

To grasp the opportunities towards a wholesome approach, a certain extent of willingness among the commercial stakeholders in the industry to modify their traditional practices, cooperate with each other and jointly invest in their future is required. The government too, must play its part through investment in infrastructure and capacity building within its research and extension agencies. As a sign of its commitment to the mango industry the government in 2005, nominated it as a priority for development assistance under the Australia-Pakistan Agriculture Sector Linkage Program (ASLP).

The objective of the ASLP, which is funded under the Australian government's AUSAID programme and administered by the Australian Centre for International Agricultural Research (ACIAR), is to strengthen interaction between Australian and Pakistani commercial, academic, and research institutions (ACIAR 2008). The ASLP agreement with Pakistan has three generic goals:

- Transfer Australian knowledge and expertise to key sectors of Pakistan's agribusiness to increase profitability and enhance export potential
- Contribute to poverty reduction of small holders through collaborative research and development
- Enhance the capacity of Pakistan's research development and extension system to deliver targeted and practical research outputs to agribusiness and farmers

The project management team concluded that if its activities were to be effective, they would need to adopt a multi-disciplinary approach in a 'whole of chain' context. In such a context, four sub-systems were identified as critical areas—production, value creation, communication, and governance—for the improvement of the overall performance of the system. The major issues associated with each of these sub-systems were:

- **Production:** Poor quality mangoes produced at the consumer level was the result of a combination of poor pre and post-harvest management, inadequate handling, inappropriate storage, and inefficient transport system.
- **Value:** Low reward for quality in the domestic market de-motivated producers to take the initiative to make improvements. In export markets, superior quality demand was recognized, but profitability was undermined due to inconsistent and unreliable supply. Large variations in price were identified at the farm—wholesale and retail.
- **Communication:** There was asymmetry of market information and lack of reliable consumer data.
- **Governance:** The dominant role of commission agents makes it difficult to change the status quo without their involvement. There has been little cooperation or coordination within the present system.

As with most development projects, a lack of resources required the project team to focus its direct activities towards a selection of collaborators, both from commercial and non-commercial (government agencies) stakeholders, who had been identified as having the capacity and willingness to change.

Working with these partners, the project team developed a series of activities designed to improve:

- Post-harvest quality management
- Market understanding
- Supply chain cooperation

The rationale guiding the development of the project's activities was that the Pakistan mango industry needed to understand the needs of its consumers in both domestic and international markets, develop technology and practices to provide consumers mangoes that meet their expectations and build supply chain partnerships that deliver value to these consumers consistently, reliably, and efficiently. This approach sought to engage key industry stakeholders from all segments of a chain in a rural industry development project; with a 'whole of chain' focus, it would link farmers to their markets (Collins et al. 2006).

### ***Outcomes and Implications of the ASLP Approach***

The outcomes of the approach were multi-faceted. More than 500 growers participated in on-farm capacity-building workshops organised over a period of eight years (2007–17). The core growers (around 40) who were involved directly in the development projects were motivated to investigate and develop opportunities for self-marketing. These growers were successful in developing links either directly with retailers or via progressive wholesalers. The growers had established these links with progressive wholesalers attending field workshops organised under the ASLP project. This was a practical example of growers finding compatible supply chain partners who shared their vision and were willing to share the rewards of cooperation. One of the key factors behind their motivation was the knowledge and skills they had acquired during capacity-building activities. For example, the grower learned how to harvest the fruit with mechanical instruments to avoid physical injury, as well as became familiar with techniques of de-sapping to save the cosmetic appearance of the fruit. These two features of the fruit ensured adequate economic gain in the market place which was identified during market research activities of the project.

While the growers had been made aware of market opportunities and consumer expectations, especially in the domestic market, through market research and feedback activities undertaken as part of the ASLP marketing and supply chain management activities, there were no specific marketing skills development activities for them to develop their capacity in this area. Attempts were made to involve growers in the trial shipment monitoring activities which were designed between the growers and the high-end retailers, but with one exception. These attempts were unsuccessful due to circumstance beyond the control of the ASLP

team, for example, poor road infrastructure and poor fruit handling platform in the wholesale markets.

The research findings indicated that the ASLP project activities were successful in changing the knowledge, skills and attitude of the growers and the wider industry particularly with respects to on-farm post-harvest practices or skills development.

These outcomes demonstrated that the influence of the project activities in facilitating learning among growers in which the participants (growers) observed ‘best practices’, in comparison to their traditional practices, led them to change their existing post-harvest practices. The extended influence of the ASLP project activities designed to change the knowledge and skills of growers was also observed in the recruitment of several of the ASLP growers by another development agency (USAID) to participate as resource persons in their grower seminars and trial shipments. In both cases, the skill materials developed by the ASLP team were used extensively. This provides a clear example of the relevance and effectiveness of ASLP activities.

The adoption of ASLP ‘best practice’ was a result of growers, particularly some influential growers, adopting new practices and, in a growing number of cases, they were able to obtain a price premium for their efforts as indicated in Table 13.2.

**Table 13.2 Growers profit/margin (Rs. Kg) in 2016**

<b>Description</b>	<b>Traditional mangoes through wholesale market</b>	<b>Best Practices mangoes through wholesale market</b>
Pre-Harvest Costs	4.38	4.38
Post-Harvest Costs	7.65	29.62
Logistics Costs	6.22	5.00
Working Capital	3.00	3.00
Total Costs	21.25	42.00
Farm Gate Price	44.73	73.33
Grower’s Margin/Profit	23.49	31.33
Additional Profit	-	7.84

Source: Mehdi et al. (2016)

An additional flow-on effect from the success of these influential growers was the increased attention they attracted from government agencies and other aid donors such as USAID. This increased attention has resulted in additional funding being made available for infrastructure such as on-farm pack house and cooling facilities. The provision of these facilities acts as a further motivator for growers to participate more actively in the marketing of their fruit.

These outcomes clearly indicated the effectiveness of the participatory learning approach (Chambers 2007) adopted in the ASLP project. Some of the key activities in this regard were problem appraisal through detailed workshops with these growers in Scoping Study workshops, experiential learning through ‘walking the chain’, and trial shipment activity. Importantly, in ‘walking the chain’ activity some selected growers with their corresponding chain partners (traders, exporters) observed market phenomenon while walking from consumers’ end to their farm both in local as well as in the export market. The attitude and aspiration towards improved knowledge and skills were reinforced by market feedback of trial shipments conducted during the project and on-farm capacity building field workshops organized by researchers and trainers.

Quality improvement in the product leads to increase of the economic value of the product reflected in terms of increased profit which is established in the mango value chain project. Since on-farm workers are also contributors in the economic upgrading of the farmers their well-being lies in their collective bargaining and power to grow the workers in the Global Agriculture Production system (Mehdi et al. 2017). For example, the core conventions set by the International Labour Organization (ILO) covers the decent work agenda which described that the dependents of workers and their well-beings are affected by informal and formal social rights (Barrientos et al. 2010).

Many previous studies have explored that social empowerment of workers led to economic upgrading:

1. Unionised workers are supposed to gain more wages by approximately 20% and increase fringe benefits and compensation by nearly 28% (Diewert 1974; Lewis 1986; Freeman and Medoff 1984; Hirsch and Macpherson 2003; Freeman 1981).
2. Wage inequality is reduced with the presence of unionisation because lower and middle wage workers got more benefits from social dialogue and collective bargaining power than higher wage workers (Hirsch and Schumacher 1998; Freeman 1980; Card, 1991).
3. Fringe benefits (economic upgrading) are the one of the main comprehensive advantage for unionised workers. For example, unionised workers receive paid leave more than their counterparts who are non-unionised (Piper 2008).
4. More generous occupational health benefits are received by unionised workers with respect to non-unionised ones. Costs for family health coverage are covered to some extent. Unionised workers got 24% more health insurance after retirement (Mishel and Walters 2003).
5. Occupational health and safety standards checkups increase when labour unions are working at the farm level and working safety conditions are being improved according to standards of global value chains. Therefore,

social upgrading leads to economic and occupational health and safety upgrading (Weil 2003; Freeman and Medoff 1984; Freeman and Rogers 2006).

6. Unionised workers get superior compensation plans. They are expected to have an advantage at the time of retirement. Contribution toward pensions by their employers is 28% more (Wandner and Stettner 2000; Hirsch et al. 1997).

These indicators can be described into five key decent work indicators such as labour union, professional training, OH&S, compensational payment, and credit facility. Most of the on-farm workers are socially deprived in Pakistan. However, the evaluation of the ASLP mango value chain project indicated that conditions are much better on certified orchards (best mango producing orchards), as indicated in Table 13.3. It was also estimated that labour unions have positive effects on incomes of workers.

**Table 13.3 Decent work indicators (Figure in percentage)**

DW Indicators (%)	Non-Certified Orchards	Certified Orchards
Labour unions	28	100
Professional Trainings	31	66
Occupational Health & Safety	4	100
Compensational Payments	27	66
Credit Facility	36	64

Source: Bilal (2017)

This indicated that sustainable value chain system can be derived by intermingling sustainable developments goals into traditional value chains. Decent work deficits are taken as one of the emerging issues in developing agricultural value chains. Global GAP certification system with some provisions congruent with ILO Decent Work goal facilitates the implementation of different food qualities and on-farm workers' safety standards. Social standards like inequality in wages and health facilities should be regulated at the institutional level.

### **Concluding Remarks**

Under the pressure of globalisation, the agricultural marketing system in developed countries is changing to encourage local participants to become more competitive. Therefore, the rural industry development approaches adopted in developing countries must adapt to improve the competitive performance of the industry, not only at the farm level, but along the entire chain. The whole of value chain approach to rural industry development provides an effective



framework to link farmers with the market, bringing in there by the economic and social upgrading of the farmers as well as workers working on the farm. However, the impact of economic and social upgrading is limited to those farms who got certification; therefore, it is essential for the government and supporting agencies to create an enabling environment of inclusive workers.

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## **14. Providing Rural Areas with Decentralised Energy**

Anjum Munir, Oliver Hensel, Abdul Ghafoor, Waseem Amjad

Pakistan is one of the major agricultural countries growing five major cash crops like wheat, rice, cotton, maize, sugarcane, 21 different types of fruits, and 40 different types of vegetables along with other perishable and medicinal plants. Being a developing country, the lack of processing facilities and high conventional energy costs associated with processing is causing 20%–30% spoilage of farm produce and consequent economic losses to farmers. At the same time, the introduction and promotion of demand-based renewable energy technologies for on-farm processing can play a vital role for value addition of agricultural produce and income generation of farming community. Under the umbrella of the International Center for Development and Decent Work (ICDD) and German Academic Exchange Service (DAAD) projects, the University of Agriculture Faisalabad has successfully developed a variety of renewable energy technologies for on-farm processing, namely, solar based distillery for distillation of medicinal and aromatic plants, a continuous solar roaster for the roasting of coffee, groundnuts, pine nuts, etc., a glass-glazed solar tunnel dryer for drying perishable products, an energy-efficient solar milk chiller, solar assisted bakery, and solar based autoclave unit. The performance evaluation of newly developed technologies has also been carried under local climatic conditions. It is concluded that these decentralised solar-based technologies are sustainable energy solutions for value addition and income generation for rural community.

In this chapter, we present some details of renewable energy technologies developed for community development.

### ***Energy-Efficient Solar Milk Chiller***

Pakistan is among the major milk-producing countries and is ranked fourth with an annual production of 34 million tonne. About 80%–85% share of milk is produced by the rural community to meet the country's demand. Due to lack of processing facilities and high primary energy cost, only about 5% milk is processed to enhance its shelf life but the remaining is treated improperly by the local milkman. Most of the raw milk gets spoiled due to lesser shelf life and is unsafe for consumption, especially by infants. The availability of low-cost sustainable processing facilities will not only enable the farming community to increase the shelf life of raw milk but will also increase its cost to above PKR 100 per litre as compared with unpasteurised milk which is sold at PKR 60–70 per litre. Pakistan being blessed with plenty of solar energy has extraordinary opportunity to exploit solar energy for milk pasteurisation. In this regard, an energy-efficient solar milk chiller was developed in the University of Agriculture Faisalabad-Pakistan.

### *Development of Energy-Efficient Solar Chiller*

The newly developed solar milk chiller (Fig. 14.1) consists of a 200 litre semicircular pug mill-type chiller unit made of food grade material (SS-304). An electric motor driven agitator using PV electricity has been installed inside the tank for continuous stirring of the milk to ensure equal cooling distribution and avoid ice freezing at the bottom of the chiller. The chiller unit is coupled with eight solar modules (250 Wp each) with a total capacity of 2kWp. A 3kVA hybrid inverter and two backup batteries each of 150Ah is used for the continuous operation of the chiller during cloudy or scarce radiation. For the refrigeration of milk inside the chiller, a 1 tonne vapour compression system has been installed using coils at the bottom of the chiller unit.

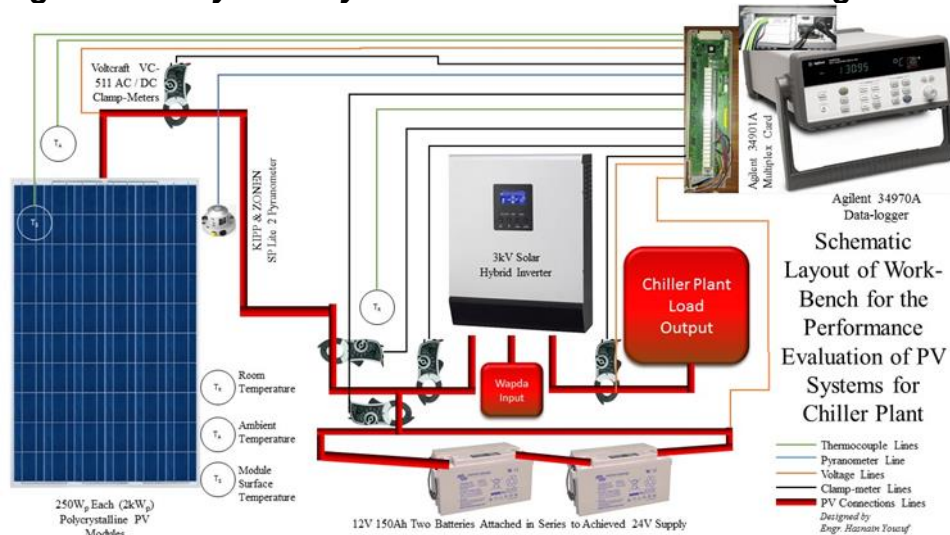
It is worth mentioning here that in order to eliminate the torque load, a rotary type compressor with inverter technology has been used; this also helps to make it compatible with the PV unit and to decrease the initial cost of the installation.

To assess its performance the system was equipped with a pyranometer to measure solar radiation, thermocouples for measurement of temperatures, voltmeters and ammeter as well as a data logger for real-time data monitoring of the system. The system layout for data monitoring of solar-based chiller is shown in Fig. 14.2.

**Figure 14.1** *Newly developed solar-assisted milk chiller*



**Figure 14.2 System layout for real-time data monitoring of solar milk chiller**

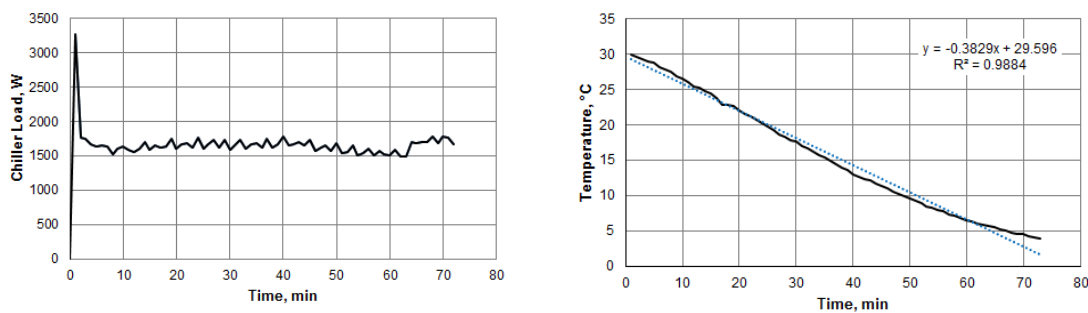


**Performance evaluation of energy efficient solar milk chiller**

The system performance has been carried out in the following three phases:

During the first phase of this research, an electric-driven conventional reciprocating vapour compressor system using R22 refrigerant was tested. The system was able to reduce the milk temperature from 30°C to 4°C as per standards provided by WHO. The major drawback of this system was higher starting torque load of 3.7kW which hinder its economical coupling with solar PV system. The overall average load monitored during the operation of the chiller was greater than 1500W as shown in Fig. 14.3. The milk temperature of 4°C was achieved in 72 minutes which is within the standards of WHO.

**Figure 14.3 Variation of chiller load and milk temperature (Refrigerant: R22)**

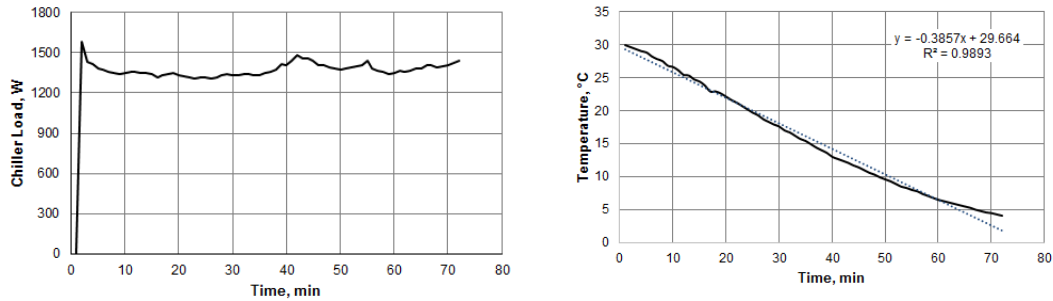


During the second phase of the research, the conventional vapour compression compressor was replaced with a rotary type compressor using environment-friendly R-410 refrigerant. The variation of chiller load and milk temperature during chiller operation for rotary type compressor is shown in Fig. 4. The result shows that the torque load was recorded to be greater than 1.7kW while the running load was above 1.2kW. The system has shown satisfactory performance however, the installation of solar system was still on higher side which will result to higher initial cost because a higher backup system is



required to run this system. The temperature of milk decreased from 32°C to 4°C in 72 minutes.

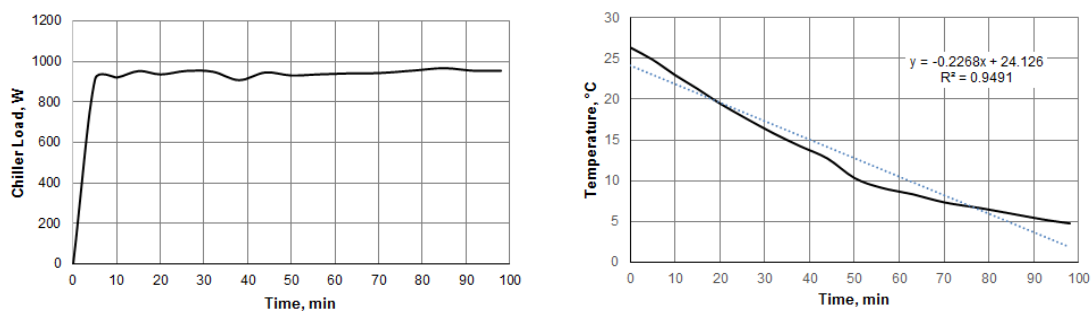
**Figure 14.4 Variation of load and milk temperature using rotary compressor (Refrigerant: R410)**



Finally, a rotary-type compressor with inverter technology using R410 refrigerant has been used to make it compatible with solar PV system by reducing the torque load of the system and minimising the initial cost of the system. This inverter-type system reduced the torque load up to 20%. The overall average load was recorded below 1000W during the operation of the chiller as shown in Fig. 5. This torque load was found to be 45% lower than the conventional vapour compression system. Figure 5 shows that a temperature of milk at 4°C was achieved in 100 minutes. The figure also depicts a linear relation between temperature and time ( $R^2 = 0.95-0.99$ ).

It is concluded that this optimised system (rotary compressor with inverter technology) can be operated smoothly and efficiently using 1kW solar PV system without compromising COP of the system. The overall efficiency of the system was achieved to be 69%.

**Figure 14.5 Variation of chiller load and milk temperature during chiller operation for rotary compressor with inverter technology (Refrigerant: R410)**



It can be concluded that energy-efficient solar milk chiller is a state-of-the-art technology with minimum running and maintenance costs which can successfully be employed for on-farm milk processing undertaken by the farming community and dairy industry. The adoption of energy-efficient solar milk chiller will not only be a sustainable energy solution but will also help to reduce carbon emission for sustainable environment.

### ***Solar Continuous Roaster (SCR)***

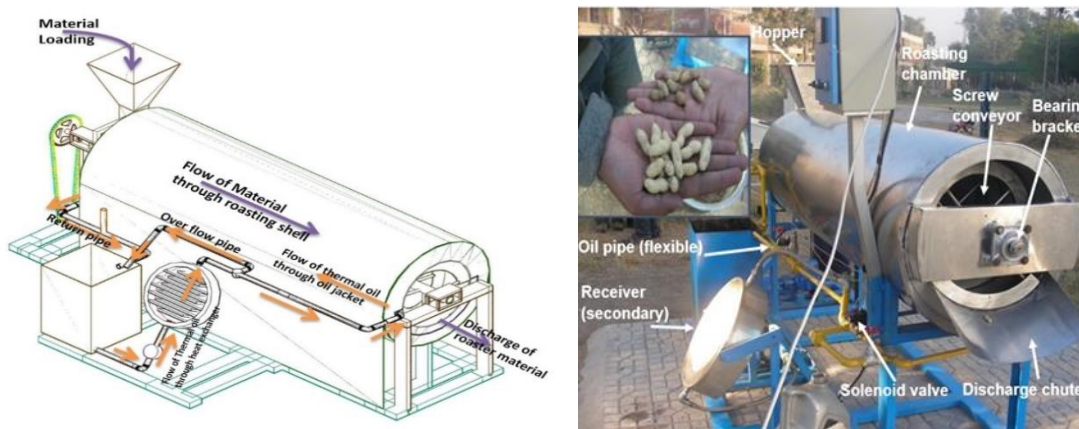
Solar thermal energy can be used for low to medium temperature applications in the industrial sector using evacuated tube collectors and solar concentrators because most of the industrial processes require heat below 180°C. To minimise the post-harvest losses, different processing technologies are employed throughout the world using conventional energy sources. Use of solar thermal energy for roasting purpose is an attractive opportunity to be employed in different parts of the country like Asia and Africa. The roasting process without using state-of-the-art roasting systems results in different physical, chemical, and nutritive changes in products which can cause health-related issues especially in infants and children. Other technical problems associated with conventional roasting techniques include difficulty to maintain controlled roasting, contamination of product by foreign objects, harmful gas emissions, hygiene concerns, transportation losses, as well as quality losses due to delayed roasting process.

Keeping in view the above discussion, a solar continuous roaster system was developed to use the full potential of solar thermal energy for the roasting of different agricultural products like peanuts, coffee, pine nut, etc. The use of solar roasting system provides excellent opportunity for on-farm processing, value addition and income generation for small entrepreneurs and rural community.

#### *Development of continuous solar roaster*

The solar roasting system comprises a 10 sq. metre Scheffler reflector, a roaster unit having feeding and discharge chute, roasting drum, and a jacket for thermal oil circulation as heating medium. A gear pump powered by 0.25hp motor was used to circulate the thermal oil through roasting system through a heat exchanger (350 mm dia. and 16 mm of wall thickness). A triangular hopper is used for the feeding of material into the roasting drum. A stainless steel (food grade material) is used for making a roasting drum with the length, diameter, and wall thickness of 2000, 450, and 6mm, respectively. The product is conveyed from the feeding chute to discharge unit using a screw conveyor. A control unit is provided with the system so that it can be connected to the solar PV system and conventional electricity source. It is also used to control the speed of the conveyor and gear pump for thermal oil circulation as per the processing requirement of specific agricultural product. The schematic and actual view of solar roaster is shown in Fig. 6.

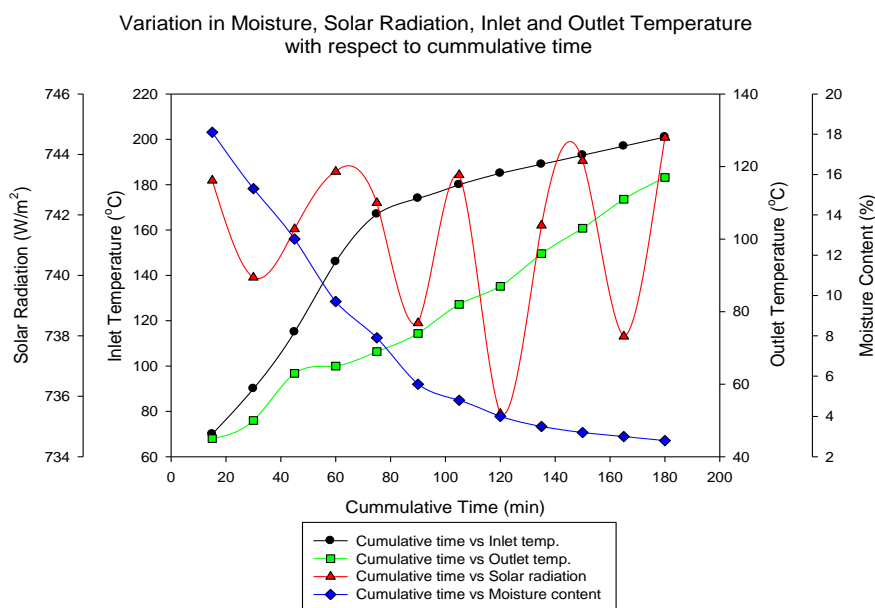
**Figure 14.6 Schematic and actual view of solar roasting system**



**Performance evaluation of continuous solar roaster**

The experiments were conducted for the roasting of peanuts and the moisture content was reduced from 18% to 5%. Data has been recorded at each 15 minute interval for the roasted product to measure temperature (inlet and outlet), solar irradiance, and moisture content, as shown in Fig. 7. The result shows that ambient, thermal oil and roasting chamber temperatures were found to be in the range of 10–15, 0–200, and 130°C–180°C, respectively.

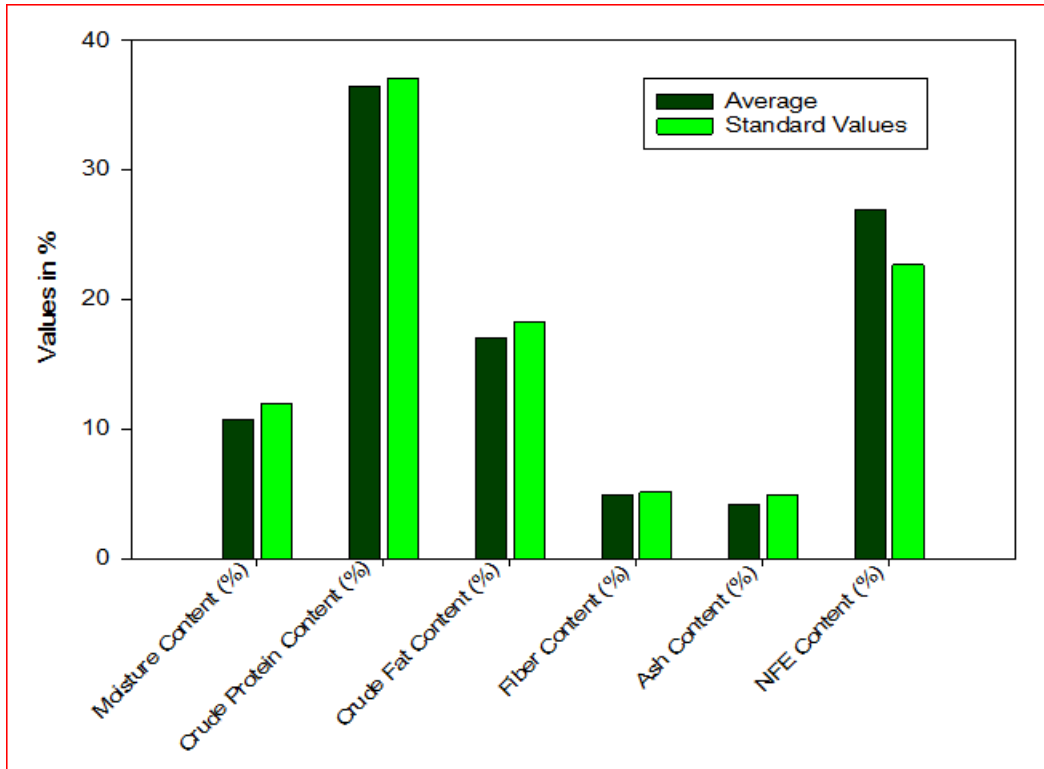
**Figure 14.7 Variation of solar radiation, inlet temperature, outlet temperature, and moisture content during roasting process**



Similarly, experiments were also conducted for roasting soybeans. The proximate analysis of roasted soybean was carried out at the laboratories of the NIFSAT-UAF to assess the quality of roasted products. The result showed that about 70% of a batch was successfully roasted while each 15% was found damaged and unroasted respectively. The unroasted product was recycled. The results of proximate analysis for soybean and its comparison with standard values are shown in Fig. 8. The results have shown close comparison with

standard quality parameters, thus proving that the roasting can be performed successfully. Economic analysis was also performed and the amount saved was calculated to be PKR 104.12/h.

**Figure 14.8 Proximate analysis of roasted soybean**



It is evident from the study that a variety of agricultural products can be successfully roasted at the farm level to add value to the products and to enhance the profit margin of the farming community due to low operational costs. In another study, the payback period of solar continuous roaster was found to be less than five years.

**Solar-based distillery**

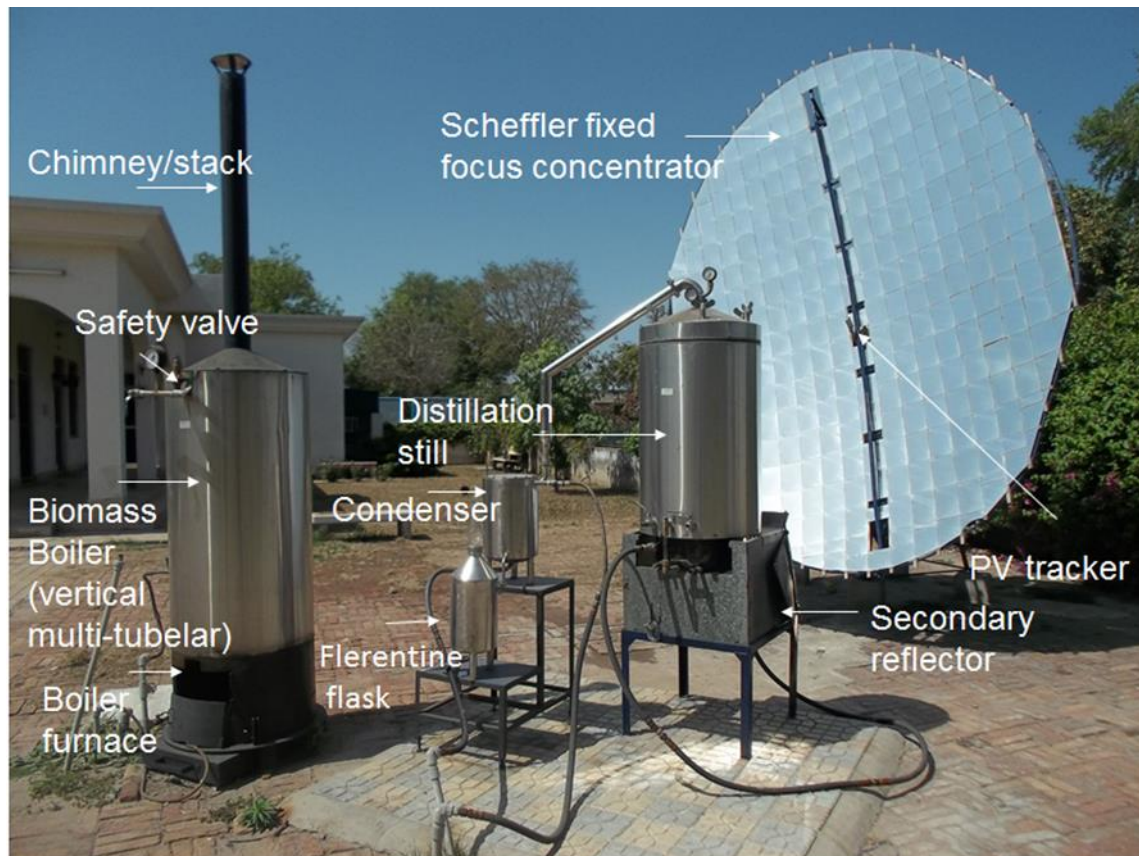
The essential oils extraction from different plants (medicinal and aromatic) is an energy-intensive process which is mostly carried out using conventional electricity source and fossil fuels. The essential oils have many applications like in medicines and pharmaceuticals, perfume industry, cosmetics, dying of textiles, food ingredients, herbal tea, aromatherapy, etc. One ounce of some oils is worth thousands of dollars. The useful plant materials for essential oil production include fruits, leaves, wood, flowers, buds, branches, etc. Different methods of extraction of essential oil are used around the world, out of which distillation techniques are more advantageous as clean and refine oils are produced employing evaporation of volatile essence of plant matter. Due to higher operational costs, there is a lacking interest amongst farming community for the distillation of plant materials. Therefore, in order to reduce the

operational cost of distillation and to promote on-farm distillation, a solar-based distillation system has been developed at UAF.

*Development of solar distillery*

The solar distillation system consists of Scheffler reflector, receiver, PV-based tracking system for daily and seasonal tracking, distillation still, Florentine vessels, and condenser as shown in Fig. 14.9.

**Figure 14.9 Solar distillation system**

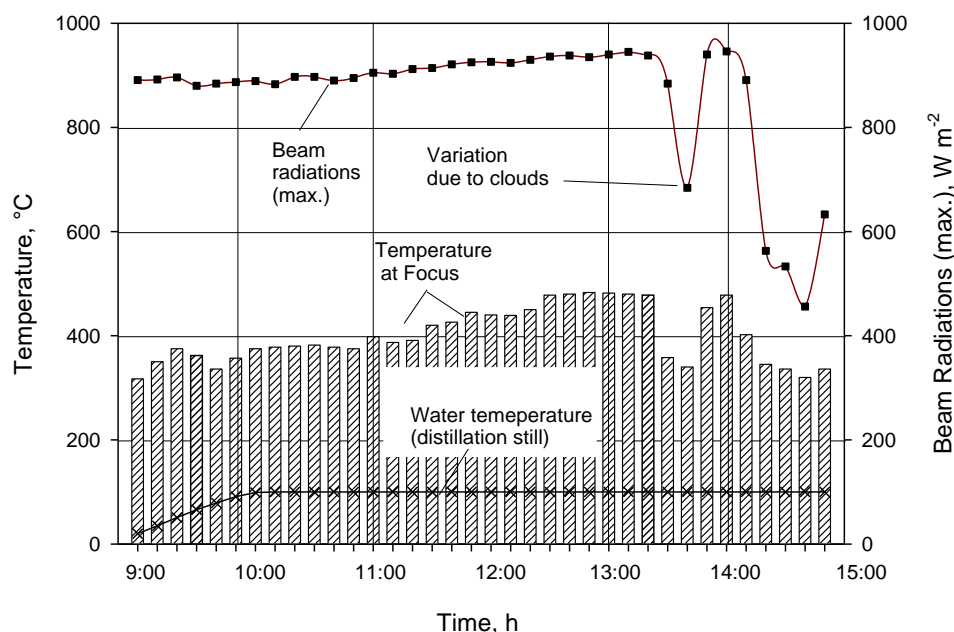


The main function of primary reflector is to focus the reflected beam radiation at fixed focus secondary reflector throughout the year. The radiation is further reflected at the bottom of the still. The still is made of 3mm stainless steel food grade material with a column height and diameter of 1210mm and 400mm, respectively. The distillation still is equipped with safety valve, water level indicator, and pressure gauge for better operation. The distillation system can be operated for steam or water distillation. A steel condenser is connected with the top lid of the distillation still. A countercurrent heat exchanger (current flow type) is connected for inlet cold water and hot water outlet. The distillation system is also equipped with thermocouples and Pyranometer for data monitoring of temperatures via data logger for solar irradiance respectively.

### Performance evaluation of solar distillation unit

The performance evaluation of solar distillation system has been carried out using 20kg water on a sunny day as shown in Fig. 14.10.

**Figure 14.10 Measurement of beam radiation and temperature of solar distillation system**



The results indicated that the still temperature was lower as compared with focus temperature. It is important to mention here that distillation experiments have been carried out under ambient conditions which mean that the still temperature was not above 100°C. The temperature at focus was ranged between 500°C –600°C during experiments. At an average beam irradiance of 863Wm<sup>-2</sup>, the power produced by solar system was found to be 1.548kW, while the total thermal energy added to the water was found to be 9.14kWh. The efficiency of the system was found to be 33.21%. It was found that about 3.5kWh energy was consumed for the processing of 10kg product batch. Various experiments were conducted on the solar distillation system for essential oils extraction from melissa, cumin, peppermint, cloves and rosemary, using different weights and moisture contents. In each experiment, the amount of oils produced per unit dry matter was also measured. The results showed that the quantity of oil produced per unit dry matter was found different for different types of plant materials. The oil extracted for different plants materials like melissa, rosemary, cumin, cloves, peppermint) is shown in Fig.11.

**Figure 14.11** Process curves of oil extracted from different plant materials

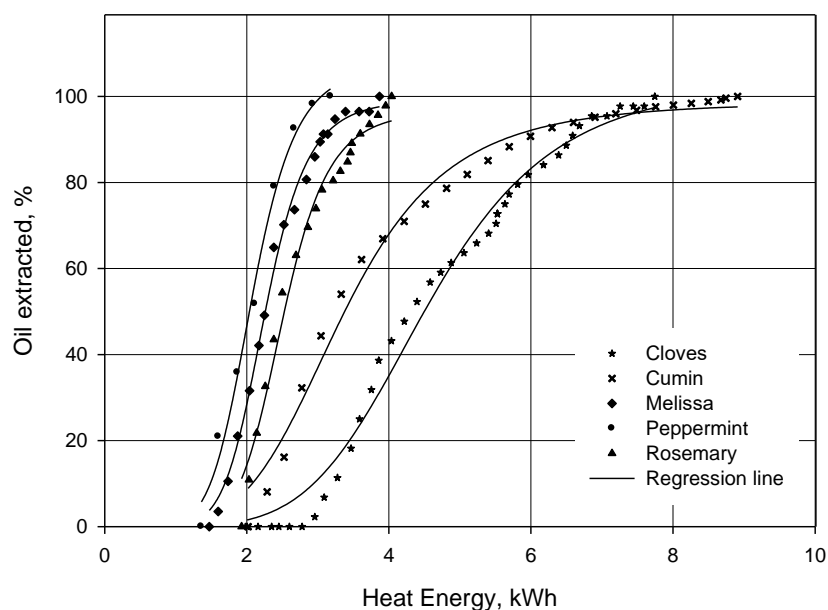


Fig. 14.11 shows that fresh plant materials need lower input energy for oil extraction as compared with dry plant materials. Oil extraction was also found to be higher at the start of the experiment. It is concluded from the study that different types of plant materials can successfully be processed employing on-farm solar distillation system.

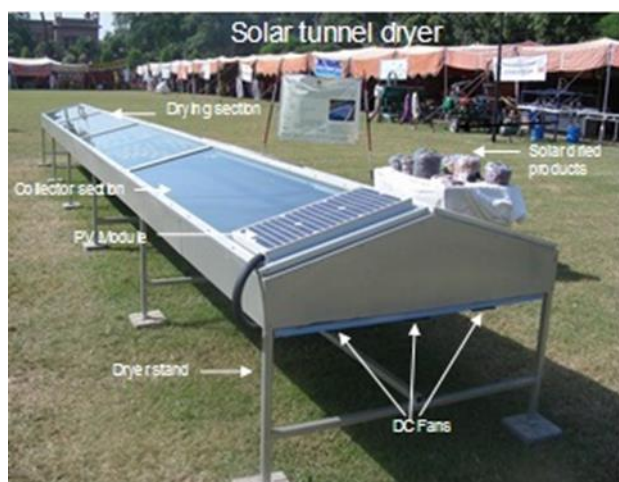
### **Glass-glazed solar tunnel dryer (STD)**

The drying of perishable agricultural products is an energy-intensive process and with rapid increase in the use of primary energy (electricity and fossil fuels), the interest in conventional drying is decreasing among various stakeholder due to which perishables losses are increasing. In the meantime, the use of solar thermal energy for drying is an interesting and economical method due to less operational costs. By promoting use of solar energy for timely drying of perishable products, perishable losses can be decreased to a significant level. In developing countries, the open sun drying method is commonly used for product drying. The sun drying method deteriorate product quality due to varying ambient temperature, relative humidity, dust and rainfall, attack of insects, pests, rodents and other animals. Alternately, for controlled drying conditions, fossil fuels driven food dryers are used which are expensive and cannot be afforded by small scale farmers to process their product at the farm level. Therefore, a low cost sustainable energy technology named solar tunnel dryer has been developed to process agricultural produce at farm level. In this dryer, the air is passed over the product for drying purposes. The glass dryer has many advantages over polythene dryer, namely, unhindered solar irradiance and easier cleanability.

### *Working principle of solar tunnel dryer*

The solar tunnel dryer consists of 4m long heating section and 6m long drying section. The overall length and width of solar tunnel dryer is 10m and 1.32m, respectively, as shown in Fig. 12. The black plate in the heating section acts as an absorber to collect solar radiation in the form of solar thermal energy. The air is heated while passing through the heating section which is used for the drying of food products in the drying section. Three DC fans each of 2.5W operated by PV module are used at the inlet of heating section to supply air in the dryer.

**Figure 14.12** *Glass-glazed solar tunnel dryer*

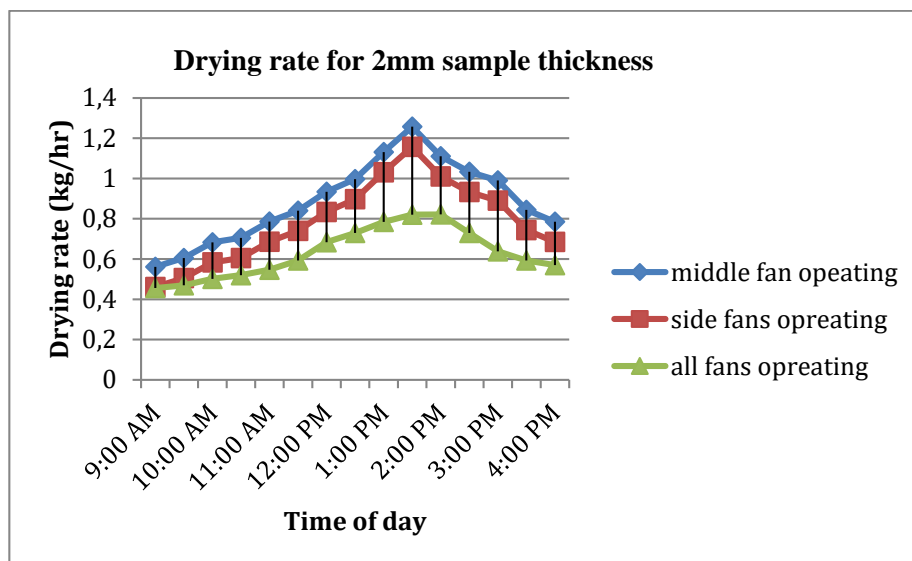


### *Performance evaluation of solar tunnel dryer*

The experiments have been performed for the drying of 2, 4, and 6mm potato slices to assess the performance of the dryer. A single layer of 9.6kg potato slices was loaded onto the trays of the drying section at 9a.m. and dried until 5p.m.; the potato slices shrunk and became leathery. The data regarding periodic sample weights, air temperature, solar irradiance, relative humidity, and airflow rate was also recorded during the experiment. The experiment was conducted under different conditions of fan operations like single fan, two fans, and all fans as shown in Fig. 13. The potato slices were dried from a moisture content of 89.14 to 15.8%. The final weight of the dried slices was found to be 1.354kg having a drying duration of 8hours. The changes in shrinkage and colour throughout the drying chamber proved uniformity in the drying process.

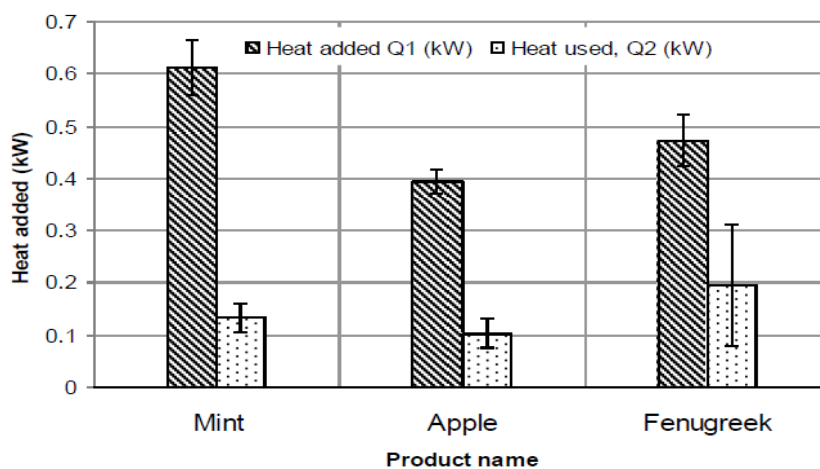


**Figure 14.13 Working of STD under different conditions of fan operation**



The heat available and used by the dryer for drying of different products is shown in Fig. 14.14. The result shows that solar tunnel dryer can successfully be used for drying vegetables, fruits, and medicinal plants. The study concludes that this locally developed low cost dryer can successfully be used for quality drying of various perishable products, especially by small-scale farmers.

**Figure 14.14 Heat available and used to process different products in STD**



### **Socio-economic impact of decentralised renewable energy sources**

Pakistan is an agro-based country in which two-thirds of the population live in rural areas. Under the changing geo-global political and business environment, the importance of developing rural–urban linkages has become the development agenda of the world development agencies. Importantly, the linkages between energy and Millennium Development Goals (MDGs) are well established and agreed upon by the international community. The MDGs emphasised to reduce the disparity between rural and urban consumers in terms of access to the basic necessity of life such as electricity.

Majority of the rural population in Pakistan is dependent on traditional sources of energy for their daily life operations such as solid fuel for cooking, heating houses with coal, wood, and dung in winter seasons, etc. Moreover, the National Grid's irregular and long hours of load-shedding made the rural people dependent on diesel or kerosene-based energy sources for their field operations. These energy sources not only affected the green environment making it more polluted but also raised their economic cost of production. In fact, rural electrification was never considered as a basic need like food, cloth, and water. It is an established fact that without economical and affordable source of energy in the rural areas the lives of the rural people in terms of better health, desired education, and rising poverty cannot be addressed under any development agenda. Furthermore important income possibilities like decentralised food processing for adding value to agricultural products are based on the availability of energy.

Energy is central in achieving the goal of sustainable development and rural electrification may be considered as the basic necessity to improve socio-economic conditions in rural areas. Electric light from the solar system plays an important role in this regard. There are many benefits of solar energy sources such as low investment during installation as there is no other cost involved in the generation of solar power except the solar panels. Solar power can be extended to remote areas such as in mountains and deserts, where use of other types of energy would involve high cost of distribution. The increasing cost of fuel can easily be reduced through the solar energy system. Last, but not the least, provision of solar energy system in rural areas can improve local ownership of the people as the existing energy system is in the hands of capitalists.

Given the distribution of ownership of solar systems among the rural community, productivity both in rural production system as well as human resources can be improved. It may reduce poverty in rural areas through business as well as by supporting the use of electric light for key social activities such as children's study in the evenings, or for household activities like watching television, hearing radio, charging cell phones for uninterrupted communication, heating houses, cooking, etc.

The benefits of solar energy or renewable energy are ever increasing with upcoming technologies. The economic and affordable sources of solar energy will create a sense of equality among different economic groups of society particularly in developing countries like Pakistan. Therefore, the government should devise a policy to promote the ways of investment in this industry as well as create awareness among users for this energy source.

We hope to have demonstrated the feasibility of making use of decentralised, renewable energy sources for farming communities. Our technologies allow for on-farm processing of a variety of agricultural products such as medicinal and

aromatic plants, coffee, groundnuts, pine nuts, or perishable products such as potato slices. On-farm processing diminishes post-harvest wastage and is a source of income for rural communities.

## 15. Sustainable agriculture through resurrection of indigenous fruits

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At a time when the world's population is increasing rapidly while the climate is changing and the resources are becoming limited, it is essential to think of novel strategies to meet the global demand for food and raw materials, essential for the survival of humankind. Agrobiodiversity is the subset of biological diversity with relevance to food and agriculture, selected naturally and through human intervention over the millennia (FAO, 1999a). It includes variety and variability of living beings at different levels (genetic, species, and ecosystem levels) which are indispensable to maintain the key functions of the agroecosystem (Martins, 2015).

There is a tight link between agrobiodiversity and culture. The diversified agroecosystems implemented by different ethnic groups have played a crucial role in the conservation of these resources and the associated local ecological knowledge (Altieri, 2004). Presently, the greatest genetic diversity can be found in the fields of developing nations where agrobiodiversity is considered a form of life assurance for traditional small-scale farmers (Andersen, 2008). However, in the last 100 years about 75% plant genetic diversity has been lost as farmers have replaced their local varieties and breeds with genetically uniform and high-yielding varieties (FAO, 1999b). Thus, modern agriculture has been identified as the main driver of decrease of agrobiodiversity (Brush, 1986; Wolff, 2004; Maxted et al., 2011). This process is of particular concern in areas of crop diversity because traditional agroecosystems also include wild and weedy relatives of crops that enhance genetic diversity (Altieri, 2004).

Mayan home gardens are the most intensively utilized agroecosystem by the campesinos in the Yucatan Peninsula, Mexico (Toledo et al., 2008). Home gardens involve different agricultural techniques. They are rich in wild and domesticated plant species and the structure is defined by multipurpose perennial species. Ethno-historical documents suggest that the Maya people made use of at least 39 fruit species since the Pre-Columbian era (Rivas et al., in press). Some of these species were native to the region whereas others were introduced in an earlier period from other areas of The Americas (Colunga et al., 2002).

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<sup>75</sup> The authors acknowledge the support received for the project 'Agrodiversity, labour migration, decent work and agricultural development in Yucatan, Mexico' by the ICDD and for the project 'Strengthening social capital to contribute to food security and sovereignty in eight municipalities in the state of Yucatan' by the W.K. Kellogg Foundation.

Many of the numerous fruit species that were used in the past as food are presently not cultivated. Apparently, this is due to the limited market demand for these fruits, the changes in eating habits and the loss of knowledge regarding meal-preparation techniques in which these fruits are included as ingredients. Besides, the biological importance in terms of conservation and storage of useful germplasm, the rescue of such techniques and species could help to improve the nutritional status and the economy of rural people. At present, only few of these fruits have been successfully introduced in the market, hence, the potential of the majority of these species has not been fully tapped.

New types of communication, organisation, and cooperation between different stakeholders are necessary for evaluating the potential for the utilization and conservation of agrobiodiversity (Banks, 2004; Brush, 2008; Robertson and Swinton, 2005). This chapter builds on the project Local Human Development Agencies, which was launched in 2014 with the objective of alleviating poverty in households with high marginalisation in Yucatan. It included a diagnostic of the families from 21 of the poorest municipalities of Yucatan state (CONEVAL, 2010) who had participated in the governmental programme of organic backyard vegetable garden proposed by the Secretaria de Desarrollo Social from Yucatan State. The baseline was established considering economic, social, and ecological aspects. A section is dedicated to reassess the indigenous fruits of Yucatan as a strategy to conserve indigenous species and encourage small-scale farming systems in which these species are cultivated. From the data obtained about three different historical periods, we present an analysis on the presence of the native fruit species in Yucatecan home gardens, as well as information related to the commercial potential of these fruits. We propose the establishment of training programmes for locals regarding cultivation, transformation, commercialisation, and consumption of indigenous fruits. Through the development of sustainable food networks and a diversified fruit chain in the region, it will be possible to revalue these indigenous fruit species. This strategy is also expected to contribute to improve social and economic sustainability in the rural areas of Yucatan.

### ***Materials and methods***

Researchers and students of the Department of Management and Conservation of Tropical Natural Resources from The Autonomous University of Yucatan have studied the home gardens from the Yucatan Peninsula during the last 25 years. As mentioned earlier, we present the data, concerning the incidence of the indigenous fruit species in the Maya home gardens, from three different periods (Pre-Hispanic, 1990–2000, and 2014–16).

The data from the Pre-Hispanic period includes information from De la Garza, 1983; Landa, 1986; and Ciudad Real, 1993; the period 1990–2000 was obtained from Ruenes, et al., 1999 and García de Miguel, 2000; and the last period

comprises the data collection in home gardens from 21 municipalities of Yucatan from 2014 to 2016. A table with species' presence in different periods was constructed and analysed (Table 1).

With the most recent information, it was possible to estimate the relative frequency and abundance of indigenous fruit species present in the home gardens. In total 3,001 home gardens were surveyed from 2014–16 but only 2,360 home gardens were selected and included in the analysis; the remaining 21% was discarded because the studied species were not present. The following formulas were used for the estimation of relative frequency and relative abundance (Mueller-Dombois and Ellenberg, 1974):

$$\text{Relative frequency} = \frac{\text{Frequency of the species } i}{\Sigma \text{Frequency of the indigenous species}} \times 100$$

$$\text{Relative abundance} = \frac{\text{Number of individuals from the species } i}{\text{Total number of individuals from the indigenous species}} \times 100$$

### ***Historical incidence of the indigenous fruit species in the Maya home gardens***

Historical records suggest that Maya people made use of at least 39 fruit species since the pre-Hispanic period; the list of species is shown in Table 1. The data collected between the years 1990 and 2000 indicated the presence of 35 indigenous species in the home gardens. The indigenous species that were not found during this period were *Bromelia pinguin*, *Chrysobalanus icaco*, *Theobroma cacao*, and *Casimiroa edulis*. In the most recent survey, 2014 and 2016, only 27 indigenous fruit species were present, the following species were not found in the home gardens: *Anacardium occidentale*, *Spondias mombin*, *Bromelia plumieri*, *Couepia polyandra*, *Malpighia glabra*, *Casimiroa tetrameria*, and *Ximenia americana*.

It is important to mention that some of the reported species were probably misidentified. It has also been noted that some of these species still can be found in the natural vegetation of the region but not in the home gardens, such as *Spondias mombin*.

**Table 15.1 List of indigenous species and their incidence in Mayan home gardens across three different periods**

Species	Common name*	Pre-Hispanic <sup>i</sup>	1990 – 2000 <sup>ii</sup>	2014 - 2016
<i>Anacardium occidentale</i> L.	Cashew tree, Marañón	×	×	-
<i>Spondias mombin</i> L.	Yellow mombin, Ciruela amarilla, Huhub	×	×	-
<i>Spondias purpurea</i> L.	<b>Purplemombin, Ciruela, Abal</b>	×	×	×
<i>Annona cherimola</i> Mill.	Chirimoya, Cherimoya	×	×	×
<i>Annona muricata</i> L.	Soursop, Guanábana, Tacob	×	×	×
<i>Annona purpurea</i> Moc. & Sessé ex Dunal	Soncoya, Cabeza de negro, Poox	×	×	×
<i>Annona reticulata</i> L.	Bullock's-heart, Anona, Oop	×	×	×
<i>Annona squamosa</i> L.	<b>Sugar apple, Saramuyo, Ts'almuy</b>	×	×	×
<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex Mart.	Grugru palm, Cocoyol, Tuk,	×	×	×
<i>Sabal</i> spp.	<b>Huano, Xa'an</b>	×	×	×
<i>Parmentiera aculeata</i> (Kunth) Seem.	Cow okra, Pepino Kat, Katku'uk	×	×	×
<i>Cordia dodecandra</i> DC.	<b>Ciricote, Copté</b>	×	×	×
<i>Ehretia tinifolia</i> L.	<b>Cherry ehretia, Roble, Beek</b>	×	×	×
<i>Bromelia plumieri</i> (E. Morren) L.B. Sm	Piñuela, Chom	×	×	-
<i>Bromelia pinguin</i> L.	Piñuela, Tsalbay	×	-	-
<i>Hylocereus undatus</i> (Haw.) Britton & Rose	Dragon fruit, Pitahaya, Chakuob	×	×	×
<i>Mammea americana</i> L.	Yellow mammee, Mamey	×	×	-
<i>Carica papaya</i> L.	<b>Papaya, put</b>	×	×	×
<i>Jacaratia mexicana</i> A.DC.	Bonete, K'uunché	×	×	×
<i>Chrysobalanus icaco</i> L.	Icaco	×	-	-
<i>Couepia polyandra</i> (Kunth) Rose	Uspib	×	×	-
<i>Diospyros digyna</i> Jacq.	Black zapote, Zapote negro, Ta'uch	×	×	×
<i>Persea americana</i> Mill.	Avocado, Aguacate, Oon	×	×	×
<i>Byrsonima bucidifolia</i> Standl.	Sour craboo, Nance agrio, Sac paj	×	×	×
<i>Byrsonima crassifolia</i> (L.) Kunth	<b>Craboo, Nance, Chi</b>	×	×	×
<i>Malpighia glabra</i> L.	Barbados Cherry, Nanche,	×	×	-
<i>Theobroma cacao</i> L.	Cacao	×	-	-
<i>Brosimum alicastrum</i> Sw.	<b>Maya nut, Ramon, Ox</b>	×	×	×

Species	Common name*	Pre-Hispanic <sup>i</sup>	1990 – 2000 <sup>ii</sup>	2014 - 2016
<i>Psidium guajava</i> L.	<b>Guava, Guayaba, Chak-pichi</b>	×	×	×
<i>Coccoloba uvifera</i> L.	Seagrape, Uva de mar	×	×	×
<i>Casimiroa edulis</i> La Llave & Lex.	White zapote, Zapoteblanco	×	-	-
<i>Casimiroa tetrameria</i> Millsp.	Woolly-leaf white sapote, Matasano	×	×	-
<b><i>Talisia oliviformis</i> (Kunth) Radlk.</b>	<b>Yellow genip, Huaya País, Wayun</b>	×	×	×
<i>Chrysophyllum cainito</i> L.	<b>Star apple, Caimito, Chi'kéej</b>	×	×	×
<b><i>Manilkara zapota</i> (L.) P. Royen</b>	<b>Sapodilla, Chicozapote, Sak-yá</b>	×	×	×
<i>Pouteria campechiana</i> (Kunth) Baehni	Egg fruit tree, Canisté,	×	×	×
<i>Pouteria glomerata</i> (Miq.) Radlk. subsp. <i>glomerata</i>	Zapote de monte, Choch	×	×	×
<b><i>Pouteria sapota</i> (Jacq.) H.E. Moore &amp; Stearn</b>	<b>Mamey apple, Mamey, Chacal-hazz</b>	×	×	×
<i>Ximenia americana</i> L.	Napalche	×	×	-

The symbol × indicates the presence of the species and - is for absence.

Names in **bold** letters represent structural species of the home gardens according to Jiménez-Osornio et al. 1999.

\*The common names are provided in English, Spanish, and Maya language, respectively.

<sup>i</sup> De la Garza 1983; Landa 1986; Ciudad Real, 1993.

<sup>ii</sup> Rivas-Novelo, et al., in press.

According to De la Garza (1983), the most common fruit species grown in the Yucatan during the pre-Columbian period were: *Talisia oliviformis*, *Manilkara zapota*, *Pouteria sapota*, *Spondias purpurea*, *Pouteria campechiana*, *Parmentiera aculeata*, *Annona squamosa*, *Jacaratia mexicana*, *Persea americana*, *Acrocomia aculeata*, *Annona reticulata*, *Byrsonima crassifolia*, *Psidium guajava*, *Carica papaya*, *Brosimum alicastrum*, *Pouteria glomerata*, *Hylocereus undatus*, and *Annona purpurea*. Such species can still be found in present-day home gardens emphasising the importance of these agroecosystems as sites for *in situ* germplasm conservation.

By the end of the 16th century, fruits brought by Spaniards were cultivated in Mayan home gardens due to the influence of the Franciscan friars, who had gardens in their numerous convents (Garcia de Miguel, 2000). At the end of the 19th century, the production of many fruit species reached important levels. These fruits, mainly native species, were marketed throughout the entire Peninsula which includes the states of Yucatan, Campeche, and Quintana Roo (Secretaría de Fomento, 1895).



A large diversity of fruit species is reported between 1990 and 2000. A total of 54 species were found, of which 35% had their origin in the Old World, suggesting that the introduction of new species in home gardens enriched the diversity of this Mayan agroecosystem. Jimenez-Osornio et al. (1999) proposed a group of 24 structural species in the Mayan home gardens in Yucatan, several of which such as coconut (*Cocos nucifera*), banana (*Musa paradisiaca*) and sour orange (*Citrus aurantium*) are common species in present times. Structural species are those that define the structure and physiognomy of the agroforestry system. This association of species will create a heterogeneous habitat and allow the owners to harvest different products throughout the year. Products obtained from the trees of the home gardens include food, fodder, fuel, timber, and medicines (animal and human) for local use and sale. Eighteen of the structural species are fruits, and from these 13 correspond to native species that have been maintained in the home gardens for the millennia (Table 1).

The number of indigenous fruits species present in the home gardens has decreased at a higher rate in recent years. Our results show that until the year 2000, only 10% of these indigenous species were relegated from the home gardens and yet, this percentage tripled in the next 16 years. In addition, from 3,001 home gardens sampled, 641 did not have any of the studied fruit species indicating changes in the household structure of the rural communities. There are less extended families and the size of home gardens has been reduced due to the division of land. In addition, families have increased construction of houses leaving less space for agricultural production.

### ***Relative frequency and abundance of the indigenous fruit species in the home gardens***

The relative frequency and abundance of the 27 indigenous species from home gardens in present times are depicted in Table 2. The total number of home gardens included in this study was 2,360. *Spondias purpurea* was the most frequent species with a value of 14.06, followed by *Brosimum alicastrum* which obtained a score of 9.9. The specie *Carica papaya* was included in the category of structural species because 18 years ago its cultivation was widely spread in the Yucatecan home gardens; nevertheless, the results show that papaya is no longer a common species in these agroecosystems. For species with the lowest frequency ( $\leq 0.1$ ) in the home gardens, see Table 2.

The total number of individuals from the indigenous species that were recorded in the home gardens accounted for 17,318. The most abundant fruit species (23.62) was *Brosimum alicastrum*, followed by *Spondias purpurea* (14.48) and *Talisia oliviformis* (7.18). The more scarce species (relative abundance of  $\leq 0.1$ ) were *Annona cherimola*, *Coccoloba uvifera* and *Diospyros digyna* (Figure 15.1).

**Figure 15.1 Fruits from some scarce and neglected indigenous species in the Mayan home gardens**



**Legend:**

- a) *Diospyros digyna*,**
- b) *Cordia dodecandra*,**
- c) *Parmentiera aculeata*  
and**
- d) *Jacaratia mexicana*.**

*Brosimum alicastrum* is a multipurpose tree that provides shade, fodder, and timber. Furthermore, the fruit and the seed are edible and its latex is still used in traditional medicine. Currently, the main use of this species is related to fodder extraction, particularly during the dry period when resources become scarce. Every year, the trees are intensively pruned in order to feed animals. The average amount paid for the forage from a mature tree is eight dollars and the tree can be pruned once a year. *Spondias purpurea* is a fruit well adapted to the region; it has different types which can produce fruit for at least six months throughout the year (Ruenes et al., 2010).

Urbanisation, population growth, as well as the impact of some governmental programmes have reduced the size of the home gardens in rural communities. This has caused a loss of many of the indigenous fruit trees, especially the trees that require more space. Based on the frequency with which some authors report the species in their studies, fruits such as *Pouteria glomerata*, *Jacaratia mexicana*, *Annona purpurea*, and *Pouteria campechiana* are no longer widely cultivated in the home gardens. However, other species such as *Hylocereus undatus*, *Carica papaya*, *Pouteria sapota*, *Byrsonima crassifolia*, and *Manilkara zapota* have been successfully positioned in the market and, as a consequence, their cultivation have shifted from the home gardens to orchards located in the surroundings of the communities.

**Table 15.2 Relative frequency and abundance of the indigenous species between 2014 and 2016 (n=2360)**

Family	Species	Relative frequency	Relative abundance
Annonaceae	<i>Annona cherimola</i> Mill.	0.01	0.01
Polygonaceae	<i>Coccoloba uvifera</i> L.	0.01	0.01
Ebenaceae	<i>Diospyros digyna</i> Jacq.	0.03	0.01
Cactaceae	<i>Hylocereus undatus</i> (Haw.) Britton & Rose	0.16	0.37
<b>Caricaceae</b>	<b><i>Carica papaya</i> L.</b>	0.27	0.31
Sapotaceae	<i>Pouteria campechiana</i> (Kunth) Baehni	0.34	0.24
Bignoniaceae	<i>Parmentiera aculeata</i> (Kunth) Seem.	0.61	0.79
Sapotaceae	<i>Pouteria glomerata</i> (Miq.) Radlk. subsp. <i>glomerata</i>	0.92	0.75
Annonaceae	<i>Annona purpurea</i> Moc. & Sessé ex Dunal	1.08	1.92
Caricaceae	<i>Jacaratia mexicana</i> A.DC.	1.09	0.64
Arecaceae	<i>Acrocomia mexicana</i> Karw. ex Mart	1.43	1.22
<b>Arecaceae</b>	<b><i>Sabal</i> spp.</b>	1.58	2.89
Malpighiaceae	<i>Byrsonima bucidifolia</i> Standl.	2.46	2.10
<b>Boraginaceae</b>	<b><i>Ehretia tinifolia</i> L.</b>	2.63	3.79
<b>Boraginaceae</b>	<b><i>Cordia dodecandra</i> DC.</b>	3.55	2.51
<b>Sapotaceae</b>	<b><i>Pouteria sapota</i> (Jacq.) H.E. Moore &amp; Stearn</b>	4.24	2.74
Annonaceae	<i>Annona reticulata</i> L.	4.41	2.69
<b>Malpighiaceae</b>	<b><i>Byrsonima crassifolia</i> (L.) Kunth</b>	5.22	3.82
<b>Sapotaceae</b>	<b><i>Manilkara zapota</i> (L.) P. Royen</b>	5.48	3.32
<b>Sapotaceae</b>	<b><i>Chrysophyllum cainito</i> L.</b>	5.82	4.06
Annonaceae	<i>Annona muricata</i> L.	6.10	5.01
<b>Myrtaceae</b>	<b><i>Psidium guajava</i> L.</b>	7.00	4.00
Lauraceae	<i>Persea americana</i> Mill.	7.06	5.00
<b>Annonaceae</b>	<b><i>Annona squamosa</i> L.</b>	7.29	6.73
<b>Sapindaceae</b>	<b><i>Talisia oliviformis</i> (Kunth) Radlk.</b>	7.31	7.18
<b>Moraceae</b>	<b><i>Brosimum alicastrum</i> Sw.</b>	9.90	23.62
<b>Anacardiaceae</b>	<b><i>Spondias purpurea</i> L.</b>	14.06	14.48

Names in **bold** letters represent structural species of the home gardens according to Jiménez-Osornio et al. 1999.

Some species, once considered human food in the past, are currently not consumed in the present. For example, the Maya nut (*Brosimum alicastrum*), described by Fr. Diego de Landa as “*delicious little figs*” (Landa, 1986), and the Huano fruits (*Sabal* spp.) both were popular among the pre-Hispanic Mayans (Puleston, 1982). Although these two multipurpose species are still common in home gardens, the fruits are no longer intended for human consumption. In the last years, the potential uses for *Brosimum alicastrum* have been explored, the edible products are currently being promoted but more efforts will be required for its re-introduction in the local diet. Some fruit flavours and textures that were highly appreciated seem to be not so appealing for the new generation; this is also the case for fruits such as *Parmentiera aculeata* and *Diospyros digyna* (Rivas et al., in press; Pastrana, 2014).

Another important factor that caused the displacement of the indigenous species from the home gardens was the loss of competitiveness compared to more productive species (Rivas, 2003). For example, it is likely that coconut (*Cocos nucifera*) was displaced by cocoyol palm (*Parmentiera aculeata*), which has smaller fruits and presents a lower germination rate (Zuart-Macías et al., 1999) or, the mango (*Mangifera indica*), which has replaced species such as the caniste tree (*Pouteria campechiana*) due to its high variability in fruit sizes (Geilfus, 1994).

### ***The potential for commercialisation of indigenous fruits***

The indigenous species have been given little attention, hence, information about commercialisation and market studies of the fruits are scarce. For commercial purposes, the local people prefer exotic crops and only few producers make significant investment for the propagation, harvesting or marketing of these products. In general, the commercialisation of fruit species in the region is characterised by the low prices and disorganised conditions of the markets. According to Castilla (2013), the value chain that follows the marketing of native and other species presents an economic and social disadvantage for small and medium producers because transnational corporations are the ones that set food prices, and intermediaries get the highest percentage of profit.

As previously mentioned, some of the studied indigenous species are still present in the home gardens but they are no longer used for human consumption. This is the case of species multipurpose whose main uses has changed: *Sabal* spp. (represent an important element for the construction of traditional houses), *Brosimum alicastrum* (mainly used as forage species), *Ehretia tinifolia*, and *Cordia dodecandra* (both considered important timber species). Table 15.3 shows the market penetration of 13 indigenous structural species at different scales. It is important to indicate that this table only contains information related to fruit commercialisation.

**Table 15.3 Market penetration for the fruit of the indigenous structural species cultivated in Yucatan at four different scales**

Species	Common name	Local	Regional	National	International
<i>Manilkara zapota</i>	Chicozapote, Naseberry	×	×	×	×
<i>Pouteria sapota</i>	Mamey, Mamey apple	×	×	×	×
<i>Carica papaya</i>	Papaya		×	×	×
<i>Psidium guajava</i>	Guayaba, Guava		×		
<i>Annona squamosa</i>	Saramuyo, Ts'almuy, Sugar apple	×	×		
<i>Brosimum alicastrum</i>	Ramon, Ox, Maya nut	×	×		
<i>Byrsonima crassifolia</i>	Nance, Craboo	×	×		
<i>Chrysophyllum cainito</i>	Caimito, Star apple	×	×		
<i>Spondias purpurea</i>	Ciruela, Red mombin	×	×		
<i>Talisia oliviformis</i>	Huaya, Yellow genip	×	×		
<i>Cordia dodecandra</i>	Ciricote, Copté,		×		
<i>Ehretia tinifolia</i>	Roble, beek				
<i>Sabal</i> spp.	Huano				

Many of the indigenous fruit species present in the home gardens are primarily destined for self-consumption, while some families share the fruits among relatives and friends. The simplest mode of commercialisation in the rural communities consists of acquiring the fruits directly from the home gardens in which the species are present. This situation often takes place when fruits are scarce in the community and not readily available in local markets. Examples of such species include *Parmentiera aculeata*, *Diospyros digyna*, *Pouteria campechiana*, *Jacaratia mexicana*, and *Cordia dodecandra* (Pastrana, 2014).

According to Martínez (2008), the commercialisation of several indigenous fruits is limited to local markets because in most cases, these plants do not receive the adequate care to produce fruits with high commercial value often coupled with short shelf life. The species that are commercialised in both local and regional markets are *Manilkara zapota*, *Annona muricata*, *Pouteria sapota*, *Annona squamosa*, *Brosimum alicastrum*, *Byrsonima crassifolia*, *Chrysophyllum cainito*, *Spondias purpurea*, and *Talisia oliviformis*. However, it is relevant to mention that these fruits are often imported from commercial fruit

fields located in other Mexican states. In consequence, consumers have to pay for the costs of transportation and for the pollution generated by these transports (Castilla, 2013).

According to the data from the Mexican Agrifood and Fisheries Information Service (SIAP, 2010), for the species *Spondias* spp. and *Byrsonima crassifolia*, the expected demand in the city of Mérida was estimated above the total production in Yucatan, this is equivalent to a demand of 2,606 and 1,713 tonne against 60 and 204 tonne produced. In the case of *Pouteria sapota*, there is an overproduction estimated in 9,600 tonne while the expected demand in Merida was projected as 3,150 tonne. Conversely, for the specie *Manilkara zapota*, a total production of 2,500 tonne has been estimated and the expected demand in Merida by 2014 was estimated as 2,777 tonne; therefore, an increase in the production is necessary to satisfy the local and regional markets (Castilla, 2013).

Castilla (2013) suggests that the production costs generated by the indigenous species result in similar investment between species but with different incomes derived from the sales in local and regional markets. The species *Pouteria sapota*, *Annona muricata*, *Talisia oliviformis*, *Spondias* spp, and *Hylocereus undatus* permit higher profitability in comparison to *Manilkara zapota*, *Persea americana*, and *Annona squamosa* as a result of their variable prices due to seasonality.

Extensive commercial plantations of fruit species have been developed in Yucatan. Species such as *Carica papaya* and *Hylocereus undatus* are cultivated but the fruits are destined to the most important regional markets as well as in national and international markets. Other fruits that have reached international markets are *Manilkara zapota*, *Hylocereus undatus*, and *Pouteria sapota*. Worldwide, the potential industrial uses for several indigenous species are currently investigated. It is important to further explore the potential of these indigenous tree species as value crops; this will contribute to both: increase family income in the rural areas and conserve these species (Padulosi and Hoeschle-Zeledon, 2004; Scheldeman et al., 2012; Urzedo, et al., 2016).

The linkage of small and medium producers to the markets will improve their commercialisation opportunities; in fact, this is considered an essential component of the agribusiness for the future that will help to reduce poverty of small farmers around the world and feed an ever-increasing world population (Ruiz, 2015). Such collective business system is expected to increase farmer's income as a result of cost reduction (production, storage, and transportation), elimination of intermediaries, increase of bargaining power, and improving access to financial credits and extension services (Markelova et al., 2009).

**Figure 15.2 Retail sales of local fruits**



***Carica papaya* var. *Mamey*, *Annona muricata* and other local species in the most important fruit market of the region: 'Mercado Municipal 20 de Noviembre' in Oxcutzcab, Yucatan.**

Huertas Magaña depicts a remarkable example of sustainable agribusiness based on the production of indigenous fruit species in southern Yucatan. More than 40 years ago, Mr Carlos Magaña Reyes started a breeding programme to improve the agronomic traits of mamey (*Pouteria sapota*), his endeavours led to the development of two varieties named as Magaña I and Magaña II (M1 and M2). Presently, their business model covers the entire commercial value chain: propagation, establishment, harvesting, and packaging of fruits. Furthermore, they generate and disseminate agricultural information with students and producers from all over the country through several participation agreements with schools and research centres.

The farm management in Huertas Magaña is agroecological; the National Health Service, Food Safety, and Food Quality in Mexico have awarded them with certifications for good agricultural and manufacturing practices, and responsible agrochemical management. They propagate M1 and M2 plants with excellent agronomic quality. In order to obtain the optimal spatial and temporal arrangement for mamey cultivation, they have developed agroforestry systems that include different plant densities and intercropping with species such as avocado (*Persea americana*), persian lime (*Citrus × latifolia*), lima (*Citrus × aurantifolia*), and passion fruit (*Passiflora edulis*). Until date, Huertas Magaña has more than 100 hectare intended for mamey cultivation and, in 2013, the annual production accounted for 1,800 tonne.

Huertas Magaña generates 52 direct jobs throughout the year, 15–20 temporary jobs during the harvest season, and approximately 100 indirect jobs. The employees of this agricultural company receive continuous training about agricultural management practices, risks prevention at work, as well as fruit packing and processing. One of the main strengths of this agribusiness is the strategic alliance established, since 2008, with a group of 16 associated mamey producers from the area. Huertas Magaña will support farmers by transferring agricultural technology, granting credits, providing agricultural inputs at low cost, and ensuring the purchase of production at the best price in the area. In exchange, associated producers need to compromise to meet the quality and innocuity standards.

The conservation and re-valorisation of native crops and local varieties together with the promotion of diverse agroecosystems are recognised as vital activities, critical to the sustainability of humanity, today and of the future (Gruberg et al., 2013). Converting neglected and underutilised crops into more commercially important ones is accompanied with many challenges, including improving varieties and developing management practices for the cultivation of these species (Scheldeman et al., 2012; Martínez, 2008). As demonstrated by Huertas Magaña, the cultivation and use of underutilised or neglected species can be improved and increased by using existing traditional knowledge of management techniques in the area along with innovative farming practices (Padulosi and Hoeschle-Zeledon, 2004).

### ***Local Agencies for Human Development***

In 2015, we started the establishment of Local Agencies for Human Development which involves participation of locals, NGOs, the academia, and the other governmental agencies. Its goal is to decrease rural poverty in the poorest municipalities through coordinated actions of organisations working in the region and active participation of communities to warranty human rights in these localities.

In the diagnostic conducted in 2014, it was found that

- There are multiple income-generating activities conducted by members of rural households, which include a broad range of economic activities to generate a viable income, ranging from own-account farming to off-farm employment.
- Organic vegetable production has been well accepted; in the communities more than 25 different tropical fruits, as well as poultry and pigs are being produced.
- Food security has increased, production can be increased and many of these vegetables can be sold locally or at regional level.



- Training and education is necessary to maintain production in agroecosystems, as well as improve consumption habits of the local population.
- There is a need to determine which products can be sold regionally, establishing a fair price. This will contribute to the family income.
- Capacity building and financial strategies with regard to savings and investment in the agroecosystems are necessary.

Agrodiversity must be seen as an integral part of landscapes. It must contribute to achieve food security, nutrition, and family income in rural communities of Yucatan, as well as bring forth conservation and sustainable use of the genetic diversity of cultivated plants, domesticated animals, and their wild relatives. These species can carry symbolic meanings that express producers' desire to maintain identity through cuisine, traditions, medicine, and social exchange. The cost of conservation of these species tend to be local while the benefits might be even global. Smallholder producers require incentives to conserve agrodiversity; one of these incentives might be to expand agricultural markets and value chain development to promote the use of undervalued fruit species, making consumers pay for *in situ* and on-farm maintenance of them through participatory certification or denomination of origin schemes (Drucker and Appels, 2016). A strategy to commercialise surplus agricultural products among participating communities in Mérida is being developed together with *Puntos Verdes*, a local cooperative. Collection centres for agricultural products in different communities are organised and the products are offered to people working at Universidad Autónoma de Yucatán, local restaurants, and also to some schools. *Puntos Verdes* pays 15% more than intermediaries but it is necessary to work with local producers in good agricultural practices in order to ensure good quality and maintain costumers.

New policies are required that implement and grant decent work criteria along the agricultural value chains and provide secured and regular access of smallholder producers. This represents an opportunity and a challenge to develop local strategies that revalue agriculture as a job-creating activity for policymakers. The project will establish together with the support of municipalities, storage centres allowing for better commercialisation, receipt and distribution of agricultural products from local producers (Figure 15.3).

**Figure 15.3 Storage center in a municipality participating in the Local Agencies for Human Development**



### **Conclusion**

An increase in the consumption and usage of the indigenous fruit species is expected to alleviate prevalent challenges in rural households concerning poverty, nutrition and food security, income generation and environmental health. The re-evaluation of the indigenous species represents a strategy to achieve these goals; such re-evaluation should take into account several aspects of the value chain, beginning with cultivation to the final consumers. Implementation of good agricultural practices is needed for the cultivation of these species and to increase the quality of the fruits. The nutritional values, organoleptic qualities, bioactive compounds and other phytochemicals required and other new potentials of these species can be explored. Furthermore, awareness-raising campaigns and tasting panels for the fruits should be launched with the purpose of informing the society and promoting their active participation in the conservation of the indigenous fruits.

Mayan home gardens have been an important depository of agrobiodiversity including the underutilised indigenous fruit species. Nevertheless, these traditional agroecosystems are presently facing several changes. The people inhabiting the home gardens make adaptations with regard to the selection of species and management practices in order to meet their needs and preferences. Therefore, reduction of available land space for home gardens development, changes in food preferences and market trends might represent a threat for the permanence of the Mayan home gardens and for the conservation of agrobiodiversity contained in these ancient agroecosystems. New ways of organisation between producers, NGOs, academia, and governmental agencies are required for the development of strategies that guarantee the conservation

and sustainable use of agrobiodiversity. Local human development agencies is an option that can contribute to sustainable development in the Yucatán.

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# Decent Work Deficits in Southern Agriculture: Measurements, Drivers and Strategies

Labor and Globalization | Volume 11

Christoph Scherrer, Santosh Verma (Eds.)

Up to 60 percent of the Global South's work force toils in agriculture. Most smallholders and waged agricultural workers labor under poor health, safety and environmental conditions. This volume explores

- the extent of the decent work deficit with a focus on women in agriculture
- the drivers of the poor remuneration and working conditions
- some strategies for mitigating the decent work deficits.

Its contributors argue that the severity of the decent work deficits in agriculture calls for action. Given the diverse contexts of agricultural work and the many factors reproducing the deficits, action is needed in a comprehensive as well as context-specific form.

The contributors are academics from Brazil, Columbia, Germany, Ghana, India, Mexico and Pakistan.

**Key words:** employment in agriculture, smallholders, landless workers, labor rights, food regime

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Rainer Hampp Verlag ISBN 978-3-86618-896-9  
Augsburg, München ISSN 2196-5382  
2018 € 32.80

