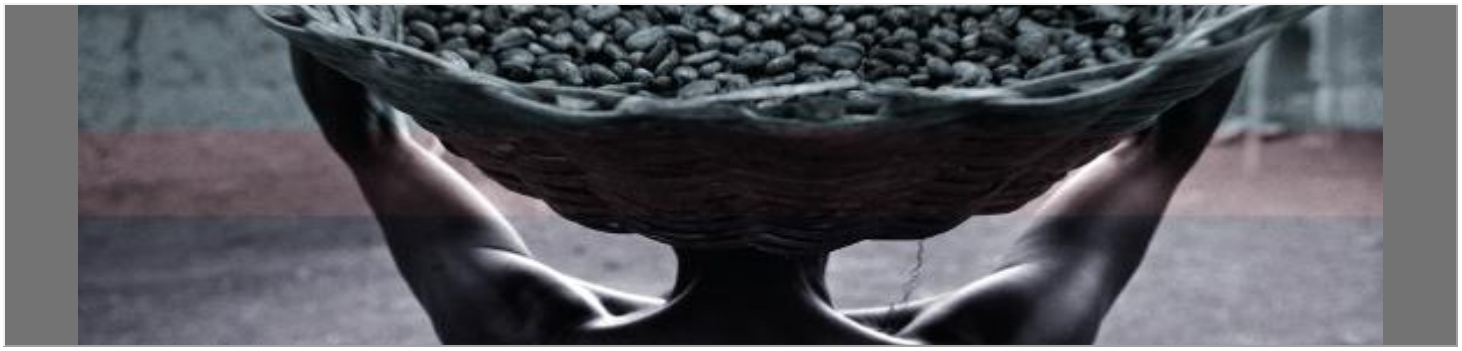

CAPTURING THE GAINS

economic and social upgrading in global production networks

Governance and upgrading in export grape global production networks in India

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Abstract

Global production networks (GPNs) are the norm in many export sectors of developing world economies like India. High-value crops, including horticultural crops and produce, are seen as candidates for exploiting global market opportunities. Indian agriculture and agribusiness are being increasingly incorporated into these GPNs. However, understanding of the dynamics and implications of this incorporation is limited in terms of research and documentation, especially from a smallholder and worker perspective. Given the smallholder dominance of the farm sector in countries like India, it is important to understand the organization and dynamics of GPNs for livelihoods of farmers and other value chain workers in terms of upgrading opportunities. It is true that global value chains (GVCs) or GPNs can be vehicles for achieving primary producer and worker wellbeing, but, at the same time, traditional pressures of costs and efficiency in competitive markets can also lead to pressures for a 'race to the bottom' in terms of labour standards in farms and factories. This paper examines the GPNs of fresh grapes for export to supermarkets. It aims to understand the significance of standards in farms and packhouses in buyer-driven GPNs. It relies on primary case studies of exporting firms; packhouse operators and facilitators; and supplying farmers, as well as workers on farms and in packhouses. It examines the nature of smallholder inclusion and the labour linkage in these global food networks, especially labour conditions at work, that is, in packhouses and farms, and the gender dimensions of labour use. It finds a prevalence of standards, including Globalgap, at some levels in these GPNs, but these are not enforced at the lower ends of the networks, that is, on farms. Small producers are able to participate in GPNs, either through membership of a cooperative or a primary marketing organization (PMO) and are often supported by public agencies in many ways. Given the increasing feminization of farm and agro-processing work in these production networks, there are issues of gender differentiation and discrimination and gendering of tasks, alongside issues of work conditions and labour rights. There has been economic upgrading of facilitators and farmers in terms of higher volumes of business and more exportable produce, and of some categories of workers, like those in packhouses, in terms of better wages and facilities, but social upgrading is not that common. The paper tries to understand the above issues in terms of global and local factors, to provide insights to help generate more relevant standards, governance and upgrading possibilities.

Keywords: global production networks, global value chains, small producers, supermarkets, high value crops, India, grapes, upgrading, governance, labour, labour standards, small farmers

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Abbreviations

APEDA	Agricultural and Processed Food Exports Development Authority
BPL	Below the Poverty Line
BRC	British Retail Consortium
cif	Customs, Insurance & Freight
CMA	Centre for Management in Agriculture
CPRC	Chronic Poverty Research Centre
DEPS	Duty Entitlement Passbook Scheme
DFID	Department for International Development
ESRC	Economic and Social Research Council
ETI	Ethical Trade Initiative
EU	European Union
F&V	Fruit and Vegetable
FDI	Foreign Direct Investment
FFVs	Fresh Fruits and Vegetables
GAP	Good Agricultural Practices
GCA	Gross Cropped Area
GDP	Gross Domestic Product
GEAI	Grape Exporters' Association of India
GPN	Global Production Network
GVC	Global Value Chain
HACCP	Hazard Analysis and Critical Control Point
ICSSR	Indian Council of Social Science Research
IIM	Indian Institute of Management
ILO	International Labour Organization
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MoA	Ministry of Agriculture
MRL	Maximum Residue Limits
MSAMB	Maharashtra State Agricultural Marketing Board
NABARD	National Bank for Agriculture and Rural Development
NAGGE	National Association of Grape Growers and Exporters
NCAP	National Centre for Agricultural Economics and Policy Research
NGO	Non-Governmental Organization
NHM	National Horticulture Mission
NRCG	National Research Centre for Grapes
PACS	Primary Agricultural Cooperative Societies
PF	Provident Fund
PMI	Primary Marketing Institution
PMO	Primary Marketing Organization
RML	Reuters Market Light
SCI	Sustainable Consumption Institute
SPS	Sanitary and Phytosanitary
UAE	United Arab Emirates
UK	United Kingdom
US	United States
VKUY	Special Agriculture Produce Scheme

Introduction

Horticulture, defined to include fruit and vegetable (F&V) crops generally, faces increasing domestic and global demand, owing to various factors, including trade liberalization, urbanization and health consciousness. Horticulture can lead to high profits, increase employment through high labour intensity (Weinberger and Lumpkin 2007) and bring about commercialization of rural economies, contributing to poverty reduction. Agricultural growth and development is still crucial for poverty reduction, as it is argued that there has been 'no example of mass reduction of poverty in modern history that did not start with sharp rises in employment and self-employment income due to increased productivity among small family farms' (Lipton 2005: 1). It also fits the agricultural diversification agenda, which could mean diversity of crops and a shift to high-value crops or non-farm activities like processing, manufacturing or food services. Since horticulture in general involves more women workers, it can be further helpful in reducing gender disparities in poverty and wellbeing (Weinberger and Lumpkin 2007). F&V crops are more suitable for smallholders than grain crops as they are more labour intensive, provide recurring income, have high-value markets (domestic and export), offer value addition possibilities and are a mechanism of risk management against field crop failure risk. However, some F&V crops, especially fruit trees, have long gestation periods, and most are more input intensive, require careful post-harvest handling, are highly perishable and have profitability increasingly dependent on rapidly changing quality/standards. They also suffer from high wastage/rejection, there is no protection against price risk and local markets are either absent or too small to absorb such high-value and perishable produce. Thus, this is a high-risk business for smallholders and requires good market linkages for viability.

Small producers have many competitive advantages, including lower costs owing to labour abundance, higher flexibility in their working capability, availability of family labour and traditional knowledge that can be harnessed for better productivity (Harper 2009). Corporate agencies also stand to gain from small producer linkages when it is not only 'profits' but also 'people' and 'planet' aspects of business that become the bottom line, as part of the 'triple bottom line'. Private agencies can leverage the smallholder linkage by way of political and social legitimacy and even more efficient operations, as small producers are lower cost than other farmers (given their family labour intensity and various types of support provided to them by state and development agencies) or corporate farms or market-based exchanges, and are easier to manage.

Fresh fruits and vegetables (FFVs) are part of the fresh produce consumption story that expanded in the 1970s in the Western world in opposition to canned or frozen F&Vs. They are increasingly available year round in consuming markets owing to advances in the 'cool chain' and global sourcing. In the UK, government and supermarkets run a campaign called 'Five a Day' to increase consumption of FFVs. Further, they are often a 'luxury crop' destined for upmarket consumers who emphasize quality, not bulk. They make the diet more healthy and interesting (Collins 2000). But the quality standards for selling into high-value markets require post-harvest arrangements that make participation difficult for smallholders, who dominate the farm sector in developing countries like India, despite being lower-cost producers.

In this context, this paper examines the functioning and dynamics of various, supermarket-driven global production networks (GPNs) in a high-value export crop (grapes), to understand the significance of standards in farms and packhouses in India. The main thrust of the paper is to explore patterns of governance; smallholder presence; upgrading or lack of it and its determinants; and the changing nature of farmer and labour linkages. It assesses whether and how economic upgrading could lead to social upgrading for small farmers and various types of workers in value

chains/networks. It analyses (small) farmer linkages in these networks to understand upgrading processes and outcomes. It also examines the nature of labour linkages in these global food networks in terms of labour conditions at work – that is, in packhouses and farms – and the gender dimensions of labour use, with the help of case studies of various types of labour: on-farm, harvest and packhouse. It relies on primary case studies carried out during 2011 and 2012. The case studies looked at exporting firms, supermarkets, packhouse operators and facilitators, supplying farmers and workers on farms and packhouses. It also uses earlier evidence produced by the author under the Economic and Social Research Council (ESRC)–Indian Council of Social Science Research (ICSSR) research fellowship carried out on UK supermarkets in 2010. The paper is organized as follows: the next section provides an analytical framework and details of the context and methodology. The paper then explores and assesses the GPNs, including the farmer and worker interface, with a case study of grapes for export. This is followed by an exploration of upgrading aspects. The conclusion looks at the implications of GPNs in countries like India from the small farmers' and workers' perspective, and raises some policy and practice issues.

Analytical framework

The GPN framework differs from the global value chain (GVC) framework in that it incorporates 'all kinds of network configuration' and 'all relevant sets of actors and relationships', including labour (Selwyn 2012: 206). This is important in understanding the processes of upgrading and downgrading of products, processes and functions for various stakeholders, especially smaller firms and producers. GVC analysis draws attention to the role of value creation, value differentiation and value capture in a coordinated process of production, distribution and retail, while a parallel literature around GPNs places more emphasis on the institutional or social context of interconnected commercial operations. GPN analysis examines not only the interaction between lead firms and suppliers, but also the whole range of actors that contribute to influencing and shaping global production, such as national governments, multilateral organizations, international trade unions and non-governmental organizations (NGOs). A GPN approach also emphasizes the social and institutional embeddedness of production, and power relations between actors, which vary, as sourcing is spread across multiple developing countries (Barrientos et al. 2011).

The GPN framework enables understanding of the interrelations and networking among various actors involved in the production, distribution and marketing of a product, even though they may be geographically dispersed over long distances. It facilitates an analysis of power relations within the network by showing which actors make strategic decisions and which actors have to respond to them (Selwyn 2007). Until recently, labour aspects of a value chain were often excluded from the analysis, which ended with primary producers, that is, farmers. There are only a few studies in the African and the Latin American contexts that try to understand labour issues in such networks (Barrientos and Kritzinger 2004; Collins 2000; Dolan and Sutherland 2002). GVC/GPN analysis has found it difficult to incorporate analysis of class relations more generally (Barrientos et al. 2011; Selwyn 2012).

Governance, which is central to GVC/GPN analysis, can be defined as non-market coordination of economic activities. It refers to key actors in the chain determining the inter-firm division of labour and shaping the capacities of participants to upgrade their activities (Gereffi 2001). This can include defining the products, processes and standards for suppliers (Gibbon 2001a). Chains differ significantly with respect to how strongly governance is exercised, how concentrated it is in the hands of a single firm and how many lead firms exercise governance over chain members (Gereffi et al. 2001). Governance can be public, private or collective in terms of actors; facilitative,

regulatory or distributive in terms of impact; and local, national, regional or global in terms of its domain (Mayers and Pickles 2010).

Governance matters because market access does not automatically follow the dismantling of trade barriers where GPNs that developing country producers feed into are controlled by a limited number of buyers. Governance is required when suppliers lack technical competence or market knowledge (Eapen et al. 2003) and because of the need for product differentiation. Developing country producers often find it difficult to meet developed country market standards arising from increased concern with labour, environmental and product safety standards, either because of legal obligations or consumer, government or NGO pressures (Dolan and Humphrey 2000). Further, poor governance resulting from a disembedding of the economy from its social context has led to the emergence of what is called 'regovernance' (Mayers and Pickles 2010). Governance exercised by GPN drivers has consequences, not only for inclusion and exclusion of firms in such networks, but also for the opportunities they have for economic and social upgrading.

Economic upgrading refers to capabilities within a chain for accessing better markets, and/or, in more developmental terms, the development of weaker players or 'moving up the value chain either by shifting to more rewarding functional positions or by making products that have more value added invested in them and that can provide better returns to producers' (Gibbon and Ponte 2005: 87-88). Economic upgrading can also be defined as the ability of producers 'to make better products, to make products more efficiently, or to move into more skilled activities' (Pietrobelli and Rabellotti 2006: 1). It can be measured at country, sector, GPN or firm level. There are many types of upgrading: product, process, functional and inter-sectoral or inter-chain upgrading or entire GPN shift. But, there are problems with an upgrading approach, such as difficulty of differentiating product upgrading from functional upgrading. For example, organics or 'process' upgrading may be more than environmental compliance by suppliers, leading to better products, but not necessarily of value to producers. Producer benefits can also come from channels other than upgrading, such as fair trade or place of origin. On the other hand, there is also the danger of 'downgrading', which may be irreversible, as seen in the form of the 'Aldi effect' in the European Union (EU) (Ponte and Ewert 2009). There have been several documented cases of economic and social downgrading at the country level in different sectors in global markets (Bernhardt and Milberg 2011).

Each type of economic upgrading embodies a capital dimension and a labour dimension. The capital dimension refers to the use of new machinery or advanced technology. The labour dimension refers to skills development or to increased dexterity and productivity on the part of workers. In this formulation, labour is considered primarily as a productive factor determining the quantity and type of employment. Social upgrading, by contrast, is the process of improvement in the rights and entitlements of workers as social actors, which enhances the quality of their employment (Barrientos et al. 2011). It refers to improvement in wages, safe and healthy work conditions, social protection mechanisms and freedom of association and no discrimination, besides absence of forced and child labour, which is similar to the International Labour Organization (ILO) Decent Work concept. Economic upgrading is important for social upgrading, as it allows firms to earn economic rents by creating entry barriers and, in the absence of such secure rents from entry barriers, firms may resort to cost cutting at the expense of labour, owing to competitive pressures. Social upgrading can be subdivided into two components: measurable standards and enabling rights. Measurable standards are those aspects of worker wellbeing that are more easily observable and quantifiable, including type of employment (regular or irregular), wage level, social protection and working hours. They can also include data on sex and unionization, such as the percentage of female supervisors or union members in the workforce.

However, measurable standards are often the outcome of complex bargaining processes, framed by the enabling rights of workers. The latter (enabling rights) are less easily quantified, such as freedom of association, the right to collective bargaining, non-discrimination, voice and empowerment. Lack of access to enabling rights undermines the ability of workers – or specific groups of workers, such as women or migrants – to negotiate improvements in their working conditions that can enhance their wellbeing (Barrientos et al. 2011).

Research indicates that economic upgrading does not automatically translate into social upgrading for farmers or workers through better wages and working conditions. Economic upgrading may be combined with social upgrading or downgrading. And, it is possible for social upgrading to occur in the absence of economic upgrading, as well as for a country/sector/firm to experience simultaneous 'downgrading' in economic and social terms (Milberg and Winkler 2011). The links between economic and social upgrading/downgrading are often complex, with different workers experiencing different outcomes on the same production site (Barrientos et al. 2011). It is also recognized that, though economic and social upgrading can be complementary, they can also be substitutes, depending on the local economy context, such as other employment opportunities and socially embedded discrimination against some workers and labour regulation. It is also important to examine local actors and factors like state regulation, class relations (including caste in countries like India), labour unions and bargaining power in these production networks to understand labour processes and outcomes (Goto 2011; Selwyn 2012). Economic and social upgrading (or downgrading) of firms and workers is also influenced by stakeholder positioning within the GPN, the type of work performed and the status of workers within a given category of work (Barrientos et al. 2011). Economic upgrading is often a necessary, but not a sufficient, condition for social upgrading; local factors may make social downgrading a real threat for some workers, whereby economic upgrading could happen at the expense of social upgrading (Goto 2011). In horticulture, at the national level, based on market share and unit value realization over the 1990s and 2000s, economic upgrading was found to be widespread, with the exception of only a few countries that experienced economic downgrading, but social upgrading was less common (Bernhardt and Milberg 2011). Domestic and regional networks may offer greater upgrading opportunities.

Context

Since the early 1990s, horticulture in India, like livestock and fisheries, has been growing faster (4-6 percent) than the crop sector (<3 percent), contributing 32 percent of the growth in the gross domestic product (GDP) from agriculture. Horticulture is being promoted as the sunrise sector for livelihoods for rural people, with 85 percent of land operators being marginal or small (operating less than 5 acres each) (Datta and Sharma 2010). Fruit as well as vegetable production grew at 6-7 percent per annum during 2000/01 to 2010/11 and the area under F&V cultivation at 4-6 percent per annum. The F&V share of agricultural GDP went up from 14 percent in the mid-1980s to 17 percent in 2007/08 and was growing at 3.5 percent during the 2000s. F&V accounted for 7.3 percent of India's agricultural export in 2009/10 (Sharma and Jain 2011). The National Horticulture Mission (NHM) allocated large funds for this set of crops, accounting for a third of the Ministry of Agriculture (MoA) budget; many agencies support production and value added activities in this sector. Domestic fresh food supermarkets are present around the country, and foreign direct investment (FDI) in retail, including food, has recently been permitted (late 2012).

In Maharashtra (an important production and export state), F&V contributed 22.7 percent of agricultural GDP in 2005/06, which was higher than the national average of 18.2 percent; it grew at

7.5 percent during the 2000s (Sharma and Jain 2011). It has the largest proportion (20 percent) of F&V processing units located in the state (Shroff et al. 2011).

The commercial production of grapes started in India only after seedless varieties were introduced in Maharashtra during the 1960s. Maharashtra accounts for 70 percent of India's total grape acreage, and 63 percent of production.[1] Varieties grown include Thompson Seedless, Sonaka, Sharad Seedless and Tas-e-Ganesh, and harvesting lasts from early February to early April. Within Maharastra, the grape crop comprises 12 percent of the total fruit acreage, with 42,500 acres. Sangali, Solapur, Pune and Ahmednagar are the other locations, with more than 2,500 acres each under grape. Nashik district, located in the north-west part of Maharashtra state, has 10 percent of its area under F&V, as against only 4 percent at the state level. Vegetables are the main cash crops, with onion alone accounting for 5 percent of gross cropped area (GCA). Fruit represents 6 percent of GCA, with that under grapes more than 2 percent and pomegranate another 1.3 percent. The average size of holding in Nashik is the same as the average for the state (1.67 ha). A total of 39 percent of its main workers are farmers and 21 percent agricultural labourers. Of farmers in Nashik, 73 percent are small or marginal and operate 40 percent of land (ibid.). There are more than 10,000 grape growers in Nasik district, of whom only about 1,000 produce to export quality. In India, there are large individual export growers, and organized (through cooperatives and PMOs) smaller grower exporters. In Nasik, there are not many small farmers in grape cultivation, as grapes are costly and risky to grow. As a procurement manager working with a company for nine years and earlier with a grape growers association for one year remarked, 'It is a rich farmers' crop'. On the other hand, in Sangli, it is mostly small farmers who are into grape cultivation, given small holdings and family labour crop care, and the exportable quality crop proportion is higher (70-80 percent) in this area. Nashik district accounts for 78 percent of grape acreage and 80 percent of production of grapes in the state. It also contributes 55 percent of India's and 75 percent of Maharashtra's grape exports (NCAP n.d.). The region has a fairly well-established marketing infrastructure. More recently, agricultural marketing reforms have been carried out, under which the state has issued 83 licenses for direct purchase from farmers and 12 private wholesale market licenses (during 2007/08 to 2010/11) (NABARD 2011).

Methodology

The paper is based on case studies carried out in Maharashtra after preliminary GPN mapping of the region, wherein major players, export crops and sites of production and trade were identified and mapped. This mapping helped identify major actors in the GPN and their linkages, interdependence, roles and responsibilities. The mapping involved interviews with state-level government officials, various exporters, managers of the exporting companies and facilitators of the operations, like packers and transporters, across various horticultural crops, like potato, onions and grapes. Finally, given the prevalence of the networks, only the grape crop was found to be suitable as a GPN, with global linkages and undercurrents of markets in terms of standards, compliance issues and farm-level linkages and practices. The GPN analysis relies on interviews and primary survey data obtained from grape farmers, farm workers, harvesting workers and packhouse workers handling these crops after harvest in the grape belt of Maharashtra. Table 1 provides details of the number of respondents interviewed in each category. Only permanent migrant workers staying on farms came from outside the district, from Bid and other districts of Konkan and Vidharbh (rainfed) regions of Maharashtra and the neighbouring Dangs (tribal) district of Gujarat. Interviews were also conducted with exporting company managers and chief

[1] www.apeda.gov.in

executives, their production and procurement managers, and service providers like packhouse and harvesting management agencies.

Table 1: Number of farmers and workers interviewed in grape production networks

Farmers	**Non-harvest workers**		**Harvest workers**		**Packhouse workers**		**All**		**Total**
	Men	Women	Men	Women[#]	Men	Women	Men	Women	
25	12	8	22	-	11	14	45	22	67

Note: [#] No women work in grape harvesting, as this work is done only by male workers.

Dynamics of grape production and exports in India

The procurement practices of supermarkets, exporters and large processors have a huge impact on farmers and present them with an important challenge. Through their coordinating institutions and mechanisms, such as contracts, private standards, sourcing networks and distribution centres, they are reformulating the rules of the game for farmers and first-stage processors (Reardon and Berdegue 2002). Although supermarket buyers do not own any farms or factories, their standards of quality and supply can extend right up to farms and farm workers, with implications for their families.

Supermarkets are interested in FFVs because they: help attract customers and enhance the quality of a store; provide opportunities for value addition through 'prepacks' for 'time-poor, cash-rich' customers; offer high margins (approximately 30-40 percent); and provide better quality standards than small shops (Stichele et al. 2006).

The key features of European supermarket buying for fruit and vegetables are:

1. Pre-programming (approximately six to nine months in advance for fruit) – providing an indication of requirements;
2. No contracts, but relations built on trust and 'gentleman's agreements'; the bulk of FFVs bought on a consignment basis, with no fixed price, no minimum price guarantees;
3. Trade coordinated by supermarket 'category managers' or 'preferred suppliers', who use designated import/export agents;
4. Payments with cif (customs, insurance & freight) included once produce has reached the supermarket distribution centre, with payments 30-45 days later;
5. Standards including GlobalGAP (Global Good Agricultural Practices); Hazard Analysis and Critical Control Points (HACCP); supermarkets' own standards, such as Tesco Nurture or Mark and Spencer's Field to Fork; and, for the UK, the Ethical Trade Initiative (ETI) code of labour practice or equivalent (Barrientos and Visser 2012).

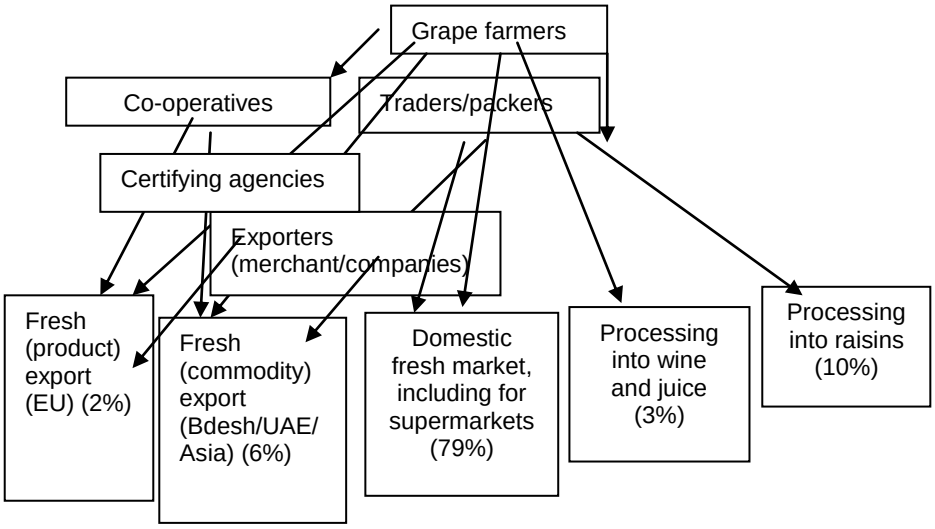
The major reasons for supermarkets going to India for FFV sourcing include: lower cost; diversification of sourcing risk; ethnic appeal for Indians abroad; and the rise of primary marketing organizations (PMOs) as suppliers and facilitators. This move has a potential role in reducing wastages in the horticultural sector, generating additional employment and increasing farm incomes in India. In this context, it is increasingly important to understand the implications for farmer and worker upgrading/downgrading and working conditions resulting from participation in these GPNs in horticulture via exports.

Although grapes are supposed to be a simple, unprocessed fresh produce, the supermarket linkage and customer demand shape their production and distribution in powerful ways. This has implications for producers of grapes, especially smallholders, as quality required in post-harvest arrangements makes it difficult for smallholders to directly deal with such high-value markets, despite being lower cost (Collins 2000).

India is a small producer of grapes, with a world share of less than 2 percent.[2] India produced more than 1.2 million tonnes of grapes from 0.11 million ha in 2010/11, of which 8 percent was exported. Grapes account for 2.7 percent of production and 1.4 percent of total fruit area in India. Although the area under grapes has expanded at a rate of 9 percent per annum over the 2000s, production and yields have remained stagnant over the past two decades. Of this production, 87 percent was used as table grade, 10 percent dried, 2 percent for juice and 1 percent for wine (Figure 1). Grapes are one of India's important fruit exports, with a 9.1 percent share in all fruit and nut export (Sharma and Jain 2011). By the late 1990s (1997/98), the export market for fresh grapes (which had previously been Gulf countries) shifted significantly to the EU, accounting for 60 percent, with the Gulf making up only 15 percent (Rath 2003). Four countries (Netherlands, Bangladesh, the United Arab Emirates [UAE] and the UK) accounted for 75 percent of the volume of Indian exports and 67 percent of the value in 2010/11. The Netherlands and the UK took a 25 percent share in quantity and 41 percent in value, whereas Bangladesh and the UAE took a 50 percent share in quantity and a 26 percent share in value exported.[3]

In 2008, there were 125 exporters of grapes from India, who dispatched 3,200 containers. Most of the exports (50 percent) were from merchants, followed by growers or their groups and the corporate agencies. Export market buyers tend to have formal contracts with growers, given the quantity and quality commitment in these markets. The major grape exporters to the EU markets include Bharati Field Fresh, which has collaboration with Rothschild, Mahagrapes (the grape cooperatives' company), Eurofresh, Fresh Trop, MSSL, Tata Khet se and Namdhari Fresh, which all procure from the same grape-growing belt in Maharashtra. There are also some grower exporters who receive export orders through commission agents. The value chain mapping in grapes revealed the following trade channels and use of the product (Figure 1).

Figure 1: Grape trade and utilization pattern in India



Source: Field survey and www.apeda.gov.in

[2] www.apeda.gov.in
[3] www.apeda.gov.in

Quality standards in grapes

EurepGAP (the European retailers' working group on Good Agricultural Practices) was set up in 1999, to cover codes regarding consumer food safety, hygiene, labour conditions, animal welfare and environmental management on farmland. In 2007, it was renamed GlobalGAP. Starting with FFVs, it now covers aquaculture and livestock and by 2008 September, it embraced 80 countries, 92,000 certified growers and 100 independent accredited certification bodies across the globe; 14 countries had already aligned their GAP with GlobalGAP (Amekawa 2009).

Although these standards make smallholders unlikely candidates to work with, processors and exporters have continued to work with them, as they are lower cost and help spread the risk of crop failure and default. GloablGAP certification requires on-farm facilities like toilets, washing rooms, pesticide stores, spraying equipment and waste pesticide disposal facilities, which smallholders cannot afford, owing to lack of access to loans for such investments.

The GlobalGAP system provides for four options on certification: individual certification, group certification, benchmarked scheme certification for individual producers and GlobalGAP benchmarked scheme certification for producer groups. Generally, developing country producers use either the first or the second channel for certification. However, under group certification, producers must be members of a PMO. A PMO is supposed to take legal responsibility for the whole operation of a scheme whereby each individual producer is subject to signing a legally binding contract agreeing to meet all the required specifications of the GlobalGAP protocol. Importantly, detected non-compliance of one member in the group may result in de-certification of the entire group. Primary marketing institutions (PMIs) take title to the goods, and the facilitating marketing institutions (PMOs) do not take title to the goods they deal in (Amekawa 2009). In India, some exporting companies organize small growers (including large ones by Indian standards) under GlobalGAP group certification acting as PMOs for quality exports, which are certified by a third party. The farmers pay the certification charges and the contract agreement specifies rules for participation and reasons for disqualification from the scheme. Maximum residue limits (MRL) certification is not part of GlobalGAP, but is demanded by individual buyers, who each have their own MRL standard. Normally, contracts are for 18 months, and moving out of the contract leads to no refund of membership fees.

In the export product market, each farmer has a traceability code and each punnet and carton has a grower name and location and packhouse details and batch number. The GlobalGAP record register for each farmer maintains all crop-related information, like plot number, variety grown, area in acres, year of plantation, method of farming, spacing, number of wines, source of irrigation, type of soil, farm map, input use and water management and stock and inventory record for traceability. Around 75 sprays are carried out between October and January under GlobalGAP (smallholder group certified), Tesco Nature's Choice and BRC standards. Some exporters provide mobile-based food safety alerts regarding chemical residues. GlobalGAP certification costs Rs. 4,000 per farmer annually under the case study exporter system, owing to government subsidy for exports, but farmers have to invest in infrastructure at the farm level, which is at the level of Rs. 25,000-30,000 per acre per year. The certification cost does not differ by size of holding.

Before harvest, quality is tested in labs, which costs Rs. 12,800 per sample. If a sample fails, the farmer has to bear the cost. Rejected produce could be sold to countries such as the UAE and Bangladesh, which do not demand GlobalGAP certification, and the Indian domestic market. Details from the lab reports for MRL show that grapes were tested for 171 chemicals, as per Agricultural and Processed Food Exports Development Authority (APEDA) norms for EU markets

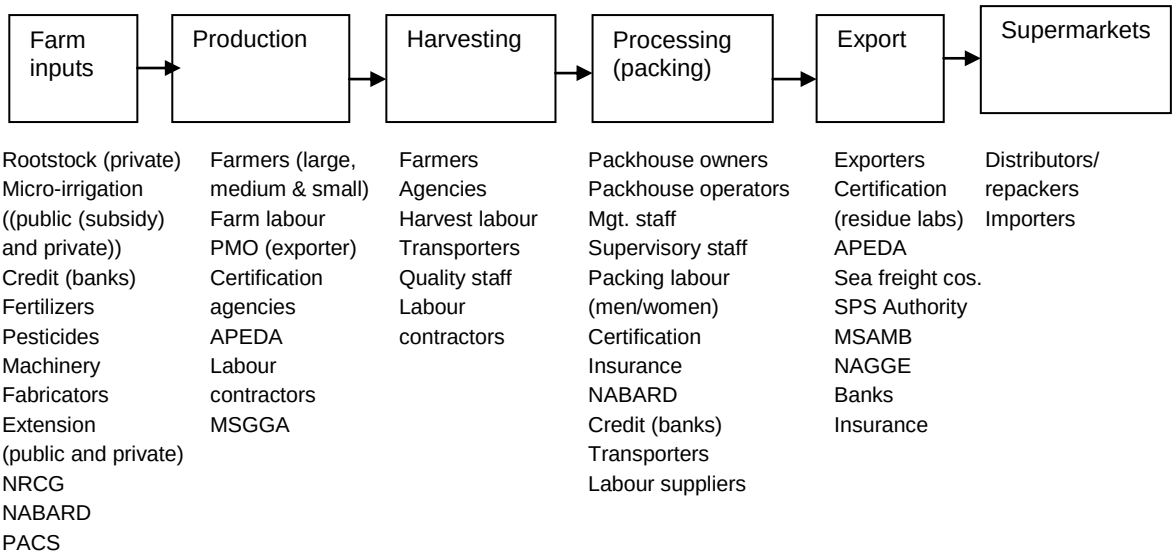
in 2011/12, up from 98 in 2010 (primary survey). If some isomers/metabolites are added, the number goes up to 224 (primary survey). APEDA provides reimbursement of 50 percent (up to a maximum of Rs. 5,000 per sample) of the cost of testing samples of grapes for residues of these chemicals monitored under GrapeNet. This subsidy was withdrawn in 2010 and restored in 2012 at the request of the Grape Exporters' Association of India (GEAI). However, the subsidy is only for shipments routed through the GrapeNet system.[4]

Research on farms and packhouses linked to an exporter for this case study indicated that produce quality is checked at farm harvest level, packhouse level and final dispatch level. Around 50 percent of the farms were also compliant for German supermarkets such as Metro, Aldi and NettoPass. The farms and packhouses were also compliant with the UK ETI code and legal minimum wages. The farms are monitored by 17 quality and procurement staff of the exporter, with 10 in Nasik, five in Sangali and two in Latur. The leased packhouses are GlobalGAP certified, which is the responsibility of the owner as part of the lease agreement. There are 36 different packing formats in terms of labels, weight and pack type. There is a flexibility of three to four days in the harvesting schedule of a matured crop, and harvested fruits can be coldstored for up to three months in a packhouse, which has the capacity to coldstore four to five containers. The processes at the export packhouse include: receipt of raw material at packhouse; weighing and acceptance of produce; trimming, sorting and grading; weighing, packing and coding; pre-cooling; sulphur dioxide padding; palletization; storage (cold stores); container loading; and transportation.[5] In contrast, produce destined for the domestic market is packed in crates and weighed on the farm after grading immediately post-harvest, by local women workers, and dispatched to market in trucks by noon.

The quality parameters in export grapes include: bunch and berry size; colour; weight; shape; firmness; sugar content; acidity; absence of bruises or blemishes; no off flavour, odour or taste; absence of pesticide/chemical residue; stem colour; no split or damaged berry; no pest or chill damage; correct MRL; packing quality; and average check weight (Bhosale 2001; Collins 2000; Roy and Thorat, 2008). Attaining quality production requires activities including removing old growth from vines (pruning), tilling, fertilizing, trimming non-productive branches, monitoring blemishes and diseases, and applying pesticides bi-weekly, selecting the best bunches on each branch and culling the rest, trimming the bunches to export size, harvesting, grading and packing. In export-related production, thinning and dipping are done differently and more carefully, and these two determine the produce quality and amount of labour. Ensuring complex quality levels are met requires skilled labour. Work has to be performed precisely and on time and in the right season and at the right stage of the vineyards (Rath 2003). The grape GPN in India is shown in Figure 2 below:

[4] www.apeda.gov.in
[5] www.apeda.gov.in

Figure 2: Export grape production network in India



Note: MSAMB = Maharashtra State Agricultural Marketing Board; NRCG = National Research Centre for Grapes; NABARD = National Bank for Agriculture and Rural Development; SPS = Sanitary and Phytosanitary; NAGGE = National Association of Grape Growers and Exporters; PACS = Primary Agricultural Cooperative Societies.
Source: Field survey.

Labour arrangements in grape farms

The major activities in grape cultivation include: pruning in April, shoot removal, another pruning in October, Dormex application, pinching, thinning, girdling, dipping and harvesting. The crop needs protection from rainfall in the flower season and from too much heat or sunshine in the fruiting stage, which can lead to change of colour of the berry to what is seen as poor quality. During critical grape season tasks, the availability of skilled or unskilled labour becomes crucial. There are groups of labour, including from the neighbouring state of Gujarat, who carry out this work on a contract or job work basis, and they are provided with basic facilities, like accommodation, water, electricity and free medicines by the farmers to attract them. These groups of workers keep moving on from one farm or place to another, depending on availability of work (Bhosale 2001). Here, we examine further the labour arrangements of farms and packhouses linked to an exporter in our case study.

All harvesting management of registered farms or farmers in the case of exports is done by the buying party (exporter or PMO)'s service provider. The entire crop in a given farm is harvested in four to five days. The harvest labour is mostly male, with workers from neighbouring villages arranged through a labour leader, who receives Rs. 50 more per day than other workers for grape harvesting. The work hours are 4 am to 12 noon and the packhouses are run from 10 am to 7 pm (primary survey). It is reported that six workers are required for work on an acre of grapes for export for 20 days, spread over the season (September to April). A worker doing full-time grape work gets 160 days of employment in a year (Rath 2003). Farm owners also supervise harvesting and packhouse grading to check wastage and rejection. This type of contract harvest labour system has been prevalent in sugarcane crop in the region for decades now: both cooperative and private sugar mills use this system for harvesting and delivery of cane to the mills. Breman describes at great length the recruitment and exploitation of migrant labour from Maharashtra in sugarcane harvesting in South Gujarat under the cooperative. Workers were exploited by the

mukadam (broker) and by the sugar factory. There was also credit bondage (interlocking), because of which *koytas* (migrant sugarcane harvest workers) had to work with *mukadams* (Breman 1978; 1990).

Most of the individual activities (non-harvest) on the farm are done by contract labour in a group on piece rate basis for the farmer. For example, covering the berries with paper costs Rs. 5,000 per acre. It requires one person to harvest and grade 100kg grapes on the farm. Contract labour (which is 20 percent of the total) and migrant labour live on the farms during the season, which lasts from September to May. They come from dryland regions in and around the district and are paid in advance up to 50 percent of the contract value by the farmers one year before the grape crop season commences, to avoid non-availability of labour during the peak season. Contract labour works from morning to evening to finish the given task fast, whereas day-wage work is for fewer designated hours. Farmers try to retain the same labour groups over the years, although the cost has increased fourfold in the past 10 years. Most packhouse and harvest workers do other casual labour in the non-grape season (primary survey).

Workers work in *tolis*, or groups that are locality based. The *toli* leaders organize work for the group, monitor their work and wages, agree work schedules with farmers and collect wages and distribute them to workers. Unlike other labour organizers or contractors, they do not receive payments for these tasks, although their role gives them social and political respect and status. The leader of the *toli* visits the farm before the onset of the grape season and fixes the wage and other terms and conditions with the grower.

Packhouses operate from early February to mid-April. One packhouse operator-cum-facilitator for export in the study (in Nasik) had 200 harvesting and packing workers and 10 supervisors. Apart from supervisors, packhouse workers are largely female and number 80. The service provider who runs the packhouse manages harvesting and packing for the exporter and hires those workers who would have worked in other packhouses, especially from non-EU supplying packhouses. The produce from the packhouse goes in the name of the packhouse owner. There are seven supervisors in the packhouse, but none in the harvesting teams.

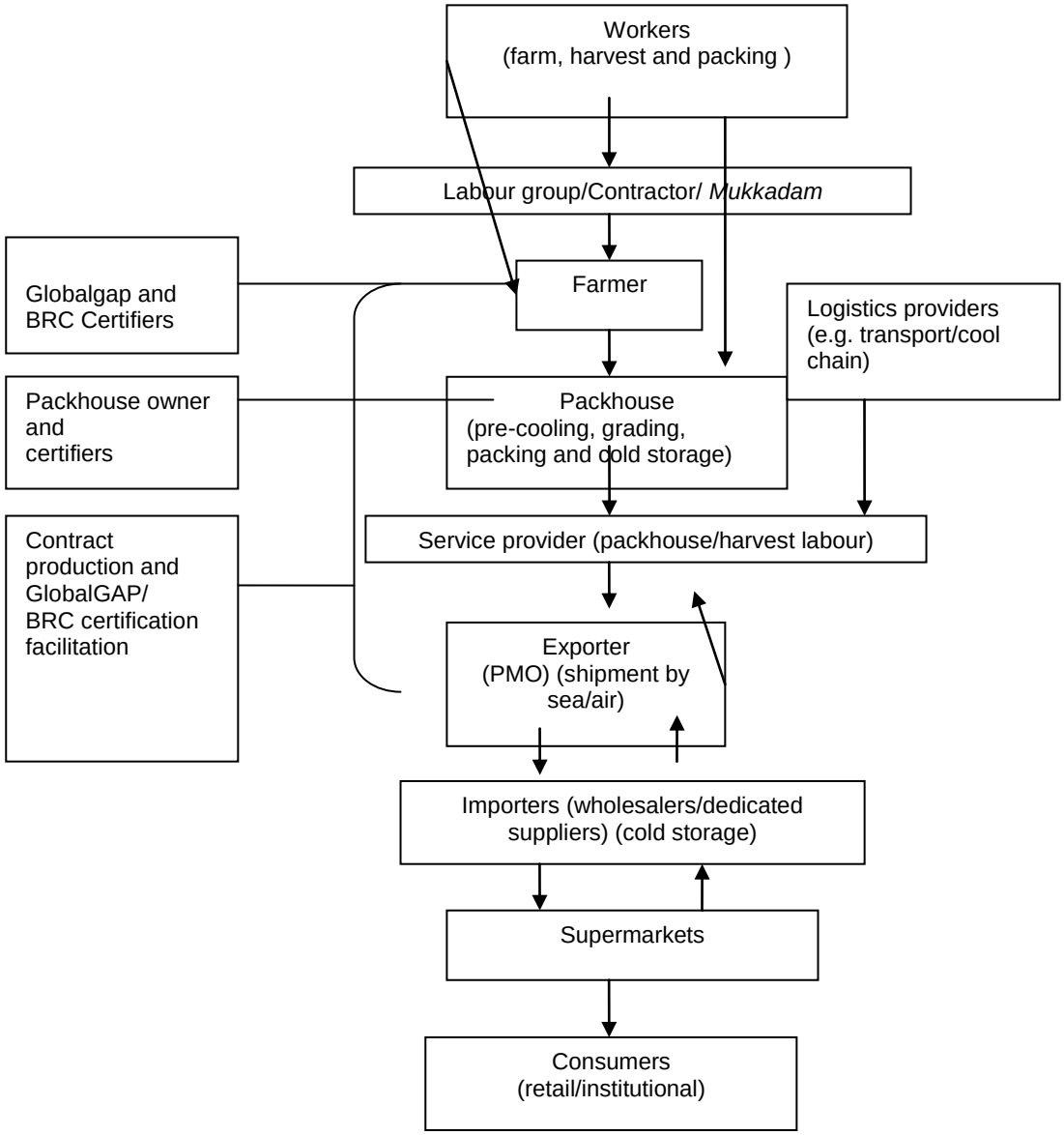
Labour organizers or contractors are used to supply required labour on a pre-agreed piece-rate basis to service providers, who also often arrange the labour themselves. The recruited labour is mainly local and for the season, and includes those from within a radius of 25 km; 60 percent is regular and the rest floating labour. On-the-job training is provided by the ‘lead labour’ and inspectors in plucking and bunch identification, which are somewhat specialized activities. Supervision of labour is done by the contractor. A work day can be up to 10 hours and non-performing workers are laid off. There is no monitoring of labour conditions or wages under any of the export standards followed by the PMO (exporter). One service provider firm which also acts as labour recruiters/suppliers was shelved, owing to labour regulation violations. The service provider agreed that companies like his violated labour laws, despite the fact that this could cause trouble if they were caught.

Systems of wage payment may differ by task: the same task may be paid on a time-rate basis in one region and a piece-rate basis in another in the same country, as in India. Payment systems may even differ within the same village. For example, in grapes, some tasks are area contract-based and others daily wage-based (primary survey). This could result from differences in ownership of resources, such as landholding, or differences in method of production, market conditions, skill requirements, social organization, state intervention in labour regulation and

monitoring, and the balance of power between farmers/employers and workers. Daily or hourly wages are more common when labour quality is more important, when casual labour is required to perform different tasks, or when people are hired for an extended period. Permanent labour is beneficial when employers want to invest in training and to ensure labour availability at short notice, besides building trust through patronage. Workers prefer task-based payments to a group of workers, as it gives them freedom to involve family members and is perceived to be more autonomous, as they can avoid the eye of the employer/supervisor. However, this requires the labour group leader to correctly estimate the time and effort required to complete the task, so that workers in the group are not underpaid (Ortiz 2002). Activity-wise, piece rate (fixed area basis) prevails in grape production work in the region.

Figure 3 shows the production and trade network in grapes in India, with the primary roles being those of PMOs and service providers.

Figure 3: Export grape production network in India



Source: Created by author based on field study of value chain.

Grape GPN case study exporter (PMO)

The case study Indian exporter in this research exports fresh fruits, which it estimates account for US$10 million in business. The exporter supplies to a South Africa-based exporter that also has offices in India, for its UK market as a vendor. The supplies are on a fixed volume, not a fixed price, basis. The South African company/exporter is a category manager for major supermarkets in the UK and has moved into India to extend its sourcing period. The South African exporter supplies a total of 15,000 containers of grapes to the European market every year, to which the Indian exporter contributes 3 percent. The Indian exporter has a 9 percent share in the export of grapes from India. The exporter as PMO has 374 registered GlobalGAP-certified farmers, with written contracts, under a contract farming arrangement. The process of contacting the farmers starts in August. The exporter manages the entire grape business with 35 staff. It has three regional managers for three locations covering 200 farmers in Nasik, 150 farmers in Sangali and 24 farmers in Latur. The company employs a few former managerial staff of Mahagrapes (a producers' company). It tried working with non-Mahagrape cooperatives, but did not succeed. Mahagrapes' share in the export of grapes has remained at around 5 percent since 1995; in 2011, this meant 120 containers. The exporter has three local organizers (service providers) for harvesting and delivery of grapes to the packhouses and for their packing and despatch.

The exporter's service providers have hired in 13 GlobalGAP-certified packhouses for grapes in different production areas in Sangli, Nasik and Latur in Maharashtra, who both pack the grapes and manage their harvesting on the registered farmers' farms. Four packhouses are hired in from one farmer, who was previously an exporter of grapes. Even some of the grape cooperatives affiliated with Mahagrapes (a company of the producer cooperatives and an important exporter of grapes) in Sangali have started leasing out packhouses to different exporters/service providers as some of the farmers have moved away to private grape export companies. Even the exporter has three packhouses in Sangali out of the five leased from cooperatives, and 14 of the 16 cooperatives have packhouses in the case of Mahagrapes. The exporter does not own any infrastructure of its own. It imports all the materials, like packing cardboard, cartons from the US and packing materials and tapes from Italy, as these are cheaper and of better quality. It does not invest any money in the business. Even punnets are bought on six-month credit in bulk from foreign suppliers.

The PMO (exporter) aggregates demand for the season and meets it with registered farmer produce. It provides a minimum price guarantee to the farmers, but does not buy the produce, unlike other competitors; it only charges a commission from the farmers for facilitating the sale of their produce, besides deducting all the costs incurred on behalf of the farmers. Only minimum prices are offered at harvest, as prices in Western markets are not pre-agreed but are consignment based, whereby the price for each lot could be different. Even Tesco, which receives the exporter's grapes through the South African exporter, does not agree on the purchase price in advance. Another study also reports this phenomenon being prevalent, with importers in 2001 paying only an advance of £3-4 per kilo once the consignment reached the destination, and the remaining amount based on the prevailing market price. The prices fluctuate and the producer and other intermediaries have to go by faith in the importer to obtain the sales proceeds (Bhosale 2001). The exporter charges Rs. 10,000 as a deposit for certification and for MRL testing at the time of registration of farmers which is not returned if they are unable to produce at least 2 tons of export quality grapes per acre, or do not comply with GlobalGAP/Tesco's Nature's Choice (now 'Nurture') standards.

The produce should have achieved the following qualities before harvesting:

- The minimum weight of each and every bunch of grapes should not be less than 150 grams.
- The diameter of the grape berries should not be less than 16 mm.
- The sugar content should be minimum 16 percent.
- The grapes should be spotless.

The exporter pays the basic (minimum) price for the packed produce. It paid Rs. 40 as an advance price and Rs. 60 as the final price to the farmers in 2010/11. The basic payable amount (minimum advance price) is credited to the member farmer within 15 working days only after receipt of the delivery at its Mumbai office. Deductions are made from the basic payable amount for expenses and fees to cover: GlobalGAP/Tesco Nature's Choice certification and obtaining the necessary markings, documents and reports; testing pesticide residue levels (other than the subsidy); soil; and water. The full amount arising from exporting the grapes is paid to the member farmer within 90 working days from the day of harvesting the produce. The following are deducted from the amount before final payment to the member farmer.

- The amount already paid before the packing of produce at the basic (minimum) price of Rs. 25 per kg;
- Expenses for transportation, refrigeration, cold storage packing etc., sea freight and container rent;
- Local taxes, foreign taxes and commission;
- Commission of 12.5 percent payable to the exporter (PMO) on the export price realized;
- Expenses incurred for Agmark, excise and phyto-sanitary certification;
- Any direct or indirect expenses incurred for the export of grapes.

The accepted produce is only about 30-35 percent of the total and the farmer takes back the rest of the produce for selling elsewhere. The farmer minimum price offered by the PMO (exporter) in 2005 was Rs. 25 per kg, rising to Rs. 35-45 per kg in 2010 across the harvesting season. The exporter does not bear any risk for the farmers, who bear all risk and benefits. The exporter acts only as a service provider. Grapes from India sold at Rs. 210 per kg on 10 April 2010 as a discount offer of two packs of 500 gm for £3 in a UK supermarket, which sold more from Chile and South Africa than from India. The grape season lasts four weeks for sales and it takes four weeks for account settling. The farmers are paid the rest of the produce price after eight weeks.

In 2010, the exporter exported 125 containers of 12 tonnes each. This increased to 330 containers in 2011 and 500 in 2012. As a registered exporter, it also gets the benefit of the Duty Entitlement Passbook Scheme (DEPS, available since 1997) and Vishesh Krishi Upaj Yojana (Special Agriculture Produce Scheme, VKUY, available since 2004) from APEDA, a government agency for the promotion of agro exports.

The farmer interface is low key, in that it does not provide any extension other than taking the help of NRCG in Pune. NRCG-based information on weather and crop status is SMSed to grape farmers through mobile phones and other means at the packhouse level in local areas. The company's motto is: 'partnership with famers in their own business'. This is relevant in a context where, individually, farmers cannot afford to deal with export markets, owing to high cost and delayed payments.

Service providers

The packhouse operator (service provider to the case study exporter) has had 15 years' experience in the business, is a grape grower with 10 acres of GlobalGAP-certified crops, and has worked for the company since 2007. Another service provider, with five leased packhouses, has been managing the company's business for the past two years. The owner of the packhouse is a tractor dealer and got into grape export with one packhouse in the past and built others for the company. The service provider also manages labour from harvesting to containerization. The packhouse and harvest labour are mutually exclusive. The harvesting of grapes starts at 7 am and ends at 9:30 am. Harvest labourers are picked up from their place of residence and dropped back. The supervision of farms at the time of harvest is done by field officers of the exporter, with each one supervising five to six plots every day. The service provider is paid Rs. 6 per kg for all the operations, from harvesting to container loading. The exporter also gives targets to the service provider to carry out all activities on time. Usually, it is a target of 12-13 tonnes of packing per day.

Another service provider to the case study exporter running harvesting and packing services is a Standard 12 pass entrepreneur who has no agricultural land, but has had a cloth shop in the local area for nine years. Grape harvesting and packing is a part-time business for him, as it is only a two-to-three-month operation. He has been working for an exporter since 2004 and was earlier a packer in a grower-export packhouse. Before that, he used to pack at the farmer field level, from where grapes were exported to Dubai. He received Rs. 100 a day and worked for three years. He was upgraded to supervisor in the farmer-exporter packhouse, where he worked for five years. After that, he became an agent in the grape business for exporters and worked in that capacity for three years.

He packs for only one exporter and his work involves surveying grape farms, scheduling harvesting, grading and packing of the fruit, besides pre-cooling, cold storage and containerization in the seasonally leased packhouse. The packhouse has more than 100 workers, mostly women, working for him for the past three to four years. The labour is contracted and approached through a *toli* leader via mobile. The *toli* leader (*mukkadam*) heads a team of up to 15 workers and also works in the packhouse or harvesting team. He does not receive commission for this service.

Farmers

Grape growers in Maharashtra differ in their production and market profile. There are large growers with average holdings of 25 acres who are also independent exporters. Then there are farmers with five to 25 acres, with part of the land under grapes, who mainly export through PMOs or sell directly to exporters. Finally, there are very small growers with two to five acres, who mostly sell in the domestic market. Some of the above three categories of growers are belong to grape growers' cooperatives, some of which sell through Mahagrapes (Mookerjee 2006). In general, in Nashik grape-growing areas, 15-20 percent of farmers are smallholders, 43-49 percent are medium sized and the rest are large landholders. Around 50 percent of farmers have grape cultivation as their main occupation. The average land size of medium farmers is 11.8 acres for Mahagrapes and 9.6 for others. The average grape acreage of a farmer supplying Mahagrapes is 5.5 acres. Mahagrape growers have somewhat better credit and market access than independent growers, much longer experience in grape farming, better literacy and education, the same acreage under grapes and larger total landholdings than independent growers (Roy and Thorat 2008).

The case study PMO exporter's grape growers are medium landholders (average of 11.12 acres or 4.4 ha), with landholdings ranging from 4.5 to 33.5 acres, educated (with average schooling of nine years and only 8 percent illiterate) and with an average age of 41. They are highly experienced in

grape production (average of 30 years), with 6.4 years in export, ranging from five to 13 years. They are much larger landholders than the average farmer in the state (4.1 acres) (Shroff et al. 2011). The average area under crop is 7.36 acres and the large part (4.76 acres) is for the export grapes (66 percent of the cropped area) (Table 2). The area ranges from 3.5 acres to 19 acres and it is entirely drip irrigated. A total of 60 percent of farmers have pickup trucks and 80 percent have diesel engines, with 90 percent of the area being under high-value crops, including vegetable and sugarcane.

Table 2: Brief profile of grape growers in the study region

Average landholding and range (acres)	Grape crop area and % in total	High value crop area (%)	Grape export experience	Grape crop experience	Cropping intensity	Hired labour use (% of growers)
11.12 (4.5-33.5)	7.32 (66)	90	6.4	30	113	100

Source: Primary survey.

Farmers reported weather fluctuation, labour shortage and power shortage as major problems in grape cultivation, and one-quarter had subscribed to the RML (Reuters Market Light) mobile-based service on weather information and market prices at the rate of Rs. 1,000 per month. They work with the exporter because this enables higher prices, secured payments and good extension (primary survey). Some farmers have multiple grape plots in the same or different locations.

Grape workers

Labourers are made up of migrant contract labour or task-based contract labour from local areas. Harvesting workers are younger (28 years) than non-harvest workers (men 31 years and women 29 years). Only two-thirds are married, as against 75-83 percent of non-harvest workers. Average schooling years are higher for harvest workers (6.1 years) compared with just 5.5 years for men and 4.87 for women in the case of non-harvest workers. Harvest workers have been in farm work for nine years on average and for four years in harvest work alone, with 45 percent doing harvest work for four to six years. This is higher than for non-harvesting workers, at 10 and 13 years for men and women in farm work and 10 and eight years for men and women, respectively, in grape work. Non-harvest workers are employed under different arrangements, such as task contracts, annual contracts and permanent labour, and include some migrants. In contrast, harvesting workers are all local and work for daily wages for the service provider. Both kinds of labour (local and migrant) in the case of non-harvesting labour have group leaders, who bargain wages for the *toli* on their behalf before the start of the season. Another study (Rath 2003) found similar worker profiles.

Packhouse workers are, on average, similar to farm workers in age (women 33 years and men 26 years) and are mostly married (80 percent women and 70 percent men). They are somewhat better schooled, with an average of eight years of schooling for men and five years for women, although 40 percent of women workers are illiterate. Generally, women work on farms for an average of 14 years and in packhouses for as many as six years, with most doing four to nine years each. This is longer than men, who work on farms for an average of six years and packhouses for three years each, with the majority doing less than three years. Women and men do packhouse work for better wages, extra income for the family and transport reasons, as well as because of the better quality

of work available (including better wages, fixed working hours, safe work environment and proximity to home).

Another recent study reports that, in Sangli district too, women are in general primary literate, the majority are in the 26-35 year age group, 57 percent are from marginalized castes and communities and 39 percent are below the poverty line (BPL). The majority (63 percent) do not receive non-wage benefits, such as free grapes, or meals, but most (67 percent) receive transport. Wages for 75 percent are up to Rs. 110 per day, with which most are unsatisfied. Half (52 percent) work in grapes for eight months a year, others for six or seven months and only 6 percent for more than eight months (Gurav and Salunkhe 2011).

Our study shows that packhouse work makes up 50 percent of their annual work days, with men working more days (275-290) than women (255-270). Women packhouse workers receive Rs. 120/day in cash. The service provider deducts Rs. 50/day for PF, Rs. 30/day for transport and Rs.15/day for apron cleaning charges from gross wage of Rs. 215 per day. The men workers at the packhouse are paid Rs. 150 per day and no PF is deducted. Apron charges are not deducted for men as workers clean aprons themselves. Also, men workers arrange their own transportation to the packhouse.

On the other hand, harvesting labour is paid Rs. 160 per day, of which Rs. 30 is for transport. Harvesting workers are paid higher wages for fewer work hours (five to six hours starting at 5 a.m.). Harvest work (85 days) makes 30 percent of workers' total annual work (280). Harvesting workers are directly employed by the service provider. On average, one worker has to harvest about 30 crates a day. Even if there is less produce to harvest on a given day, workers are still paid in full. They are picked up from the villages by a hired vehicle of the service provider and are sent to villages for harvesting by the harvesting supervisor. Harvesting workers are given a unique number to trace whether the harvesting has been done properly. Harvest labourers work only five hours, compared with eight hours for packhouse workers. All harvesting is done by male labourers.

The women workers on the farm, other than harvest workers, receive Rs. 110 per day, of which Rs. 80 is the wage and the rest is for transportation and other deductions. This is slightly higher than Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) wage of Rs. 100 per day. (MGNREGS is a scheme created by an Act of Parliament, which entitles each rural household to obtain 100 days of work for a member for 100 days.) In packhouses men do the heavy work such as weighing and crate lifting. Workers travel to the packhouse by a shared taxi or by bike.

Migrant labour generally comes from Ahwa Taluka in Dang district (a tribal-dominated area) in Gujarat state. Some labourers have land and grow crops in their place of origin, where they stay during the rainy season. At other times, they migrate elsewhere to find employment. Generally, farmers provide transport to non-harvesting local workers, and housing facilities to migrant labourers on the farm. Local labourers worked from 10 a.m. to 6 p.m., while migrants work from 8 a.m. to 6 p.m., with some flexibility in working hours. They take either a contract for the entire season or activity-linked contracts. The contract rate for an entire season ranges from Rs. 17,000/acre (from October pruning until harvesting) to Rs. 29,000/acre (April pruning until harvesting). Besides this, farmers also give 100 kg of foodgrains per acre to workers. Non-harvest labourers carry out all the operations from April pruning to last thinning, including pruning, auxiliary bud removal, sub-caning, pinching, removing failed shoots, dipping, thinning, girdling and paper wrapping.

Worker involvement and livelihoods and gendering of tasks

Major health problems related to grape farm work include neck and back ache (reported by one-third of workers) and pesticide intoxication (reported by 25 percent of workers) besides general difficulties involved in working under the hot sun in summer and in the rain during the monsoon. However, they continue to work, as grapes offer more work compared with other crops and wages are higher, as well as payment being timely and the work being available close to home. Harvesting workers also reported problems of neck and back ache, pesticide intoxication and having to get up early (odd hours of work for harvesting). In another study on women grape workers in the Narayangaon area (Rath 2003), workers reported problems of lower back pain, neck pain, headache, eye burn, skin-related problems, giddiness/fainting and breathing trouble owing to grape work (more than non-grape workers), and women had more problems of lower back ache, neck pain and headaches compared with non-grape women workers as well as men grape workers. Neck ache was specifically related to grape work alone. Morbidity was the highest in women in grape work followed by men in grape work, women in non-grape work and men in non-grape work.

Of our workers surveyed, male workers had somewhat higher access to radio, TV and mobile phones, although women did have more TV and mobile access than radio. A total of 50 percent of workers had mobile phones and 62-75 percent had TV. Mobiles were mostly used for finding work, contacting the group leader, checking wage rates, calling the employer during work and contacting co-workers on the same farm and family members on other farms. Around 45 percent of harvest workers had a radio, 72 percent had a TV and 68 percent had a mobile phone, which were mostly used to find employment, investigate the wage rate and keep in contact with the employer, group leader and other workers on the same farm and family members on other farms. Of packhouse workers, 70-80 percent had a TV, 73 percent of men and 36 percent of women had a mobile phone and 27 percent of men and 43 percent of women had a radio. Workers used mobiles to find employment, investigate wage rates and call employers and group supervisors.

Many studies identify feminization and flexibilization of work involving gendering of tasks and wages at the base of GPNs in farms and packhouses. This results from pressures of price competition, which lead to: squeezing of profits of exporters; just-in-time production aimed at reducing inventories; demand for new products; and category management at the supermarket level. This has meant low wage jobs being given to women with few benefits or protection through codes of conduct (Dolan 2004). For example, in Chile, transnational corporations and capitalist fruit farmers relied on seasonal labour to reduce their production costs, despite an increase in exports and prices. This led to a shift from permanent to temporary work, especially for women workers in grape export production (Korovkin 1992). Similar trends took place in South African horticulture export production (Kritzinger et al. 2004). In Indian export cashew processing networks, labour standards and working conditions were reported to be deteriorating as employment became more seasonal and informal, particularly for women, who accounted for more than 90 percent of workers (Eapen et al. 2003; Jeyaranjan and Swaminathan 2006). However, gender studies of labour in export-oriented production and trade networks at the farm and packhouse level are rare in India.

In Indian grapes, we found a clear gender division of labour. Men mostly do grafting, pruning and girdling, as well as irrigation and application of chemical inputs and land preparation; women workers do dipping, thinning, berry thinning and pinching work; both are involved in grading on farm. In packhouses, men mostly do punnet label sticking, punnet packing and weighing, pouch packing, moving filled and empty crates and box and pallet making, besides loading and unloading produce. Women are involved in grading, labelling of punnets, pouch packing and cleaning of

crates. Another study (Rath 2003) also reports gendering of tasks in grape work: it found great involvement of women labourers in tasks like bunch cleaning and grading and packing, with harvesting and containerization of grapes being done primarily by men. There is gendering of specific tasks: men never do weeding and women never do girdling. Also, women do fewer tasks than men on average (45 percent of men and 26 percent of women do six to seven tasks) (ibid).

Upgrading

Upgrading can happen across the chain for all actors involved or for some of them. There can even be cases of downgrading for some actors. This section examines the extent and nature of upgrading for various stakeholders in the grape value chain, and the factors responsible.

Packhouse level

It is estimated that in 1992 there were only three packhouses and two service providers in Nashik, which increased to more than 40 packhouses and 25 service providers by 2012. Most of the expansion took place because of export market opportunities. The facilitators started with packing five containers in 2004, which increased to 15 containers in 2007 and an anticipated 40 containers in 2012. In 2005/06, it had only 30 harvesting workers; this increased to 60 in 2012.The wages of workers have also grown, from Rs. 40 in 1992 to Rs. 100 in 2000 and Rs. 250 in 2010 in nominal terms. Ever since GlobalGAP standards became mandatory, the packhouses have better hygiene, and provide uniforms, first aid boxes, and toilets and washroom for workers. During the same period, in the case of second service provider, the total number of packhouse labour workers increased from 60 to 190 (two-thirds of whom were women).

Farmers

Farmer upgrading has happened to the extent that the proportion of exportable production in total has increased (up to 25-40 percent of the total from 20-25 percent in the 1990s), owing to better extension by the exporter and research and development by NRCG. In some areas, like Sangli, in 2010 about 25 percent of production was accepted; in others, like Nasik and Latur, it was still 20 percent. In 2009, the case study exporter accepted 25 percent of total production of registered farmers in the Nasik area and 40 percent in the Sangli area. Farmers could see their produce being exported in their name, which was not the case earlier. The grape yield per unit area has not improved over the years, although export opportunities have encouraged investment in farms and packhouses. Further, post-harvest losses are lower now, as harvesting is done by the exporter's representative with more professional labour teams. In 2011, farmers working with exporters received a minimum of Rs. 48 and a final price of Rs. 68 per kg for exportable produce. Farmers also realized higher prices when produce was destined for the UK as against other European markets. In the case of one of the best farmers growing 16 acres, the rejection rate was only 6 percent (sold for raisin making at Rs. 8). Grape acreage is growing at the rate of a few hundred acres every year in the region. Although no new farmers have entered grape cultivation, farmers are engaging in export markets for the first time (accounting for 30 percent of all farmers). They mainly come from new areas of Sangli and Latur. This is a case of product or market upgrading for these farmers.

In relation to process upgrading, quality has improved, owing to better extension, GlobalGAP standards and greater use of machines, which reduce input use and costs. MRL awareness has been raised and residue levels have come down, owing to extension of better practices. Traceability of produce has also helped put pressure on farmers to reduce residue levels. However, the cost of production has increased, because better crop care is required. Functional

upgrading has not happened among case study farmers, as it is costly and risky for farmers to move up the chain. However, there have been cases of many grower-exporters and Mahagrapes-affiliated grape cooperatives setting up packhouses in the past, which are being leased out now to facilitators and exporters.

There is one case of downgrading: a grower-exporter who had a packhouse and a 40-acre grape crop is now a packer for another exporter. This grower-exporter also used to procure from another 70-80 farmers and had moved from 40 percent exportable to 60 percent exportable quality produce. One of the grape cooperative societies associated with Mahagrapes had also suffered a decline in its membership, from 30 a few years ago to just seven in 2011. Every year an estimated 10-20 percent of farmers go out of the export business as a result of quality and price issues (Mahagrapes). According to the exporter, many grape-exporting companies went out of the grape export business in 2011, as they took too much risk by buying from farmers but were not able to sell easily, unlike in the case study exporter's business model. Exporters also suffered 60 percent farmer default, owing to higher market prices. In volume terms, this meant almost 40 percent of the produce did not come in. This is similar to findings in the UK horticulture sector, where growers could not take the pressures from buyers (supermarkets) and many such producers went out of business owing to declining margins (Rogaly 2008a).

In fact, a crisis in 2010 led to industry-level concentration of exports, with a reduction from 167 exporters of Indian grapes to just 67 in 2011. This resulted from quality and MRL problems in produce, owing to changes in European standards not being conveyed to exporters by APEDA. Mahagrapes estimates that 60 percent of exporters went out of business in 2011. However, since exports of fresh grapes have been growing in quantity and value terms over the past decade, it is more a case of market concentration, where individual grower-exporters are giving way to more corporate entities exporting farmer produce as fewer players.

The export market is not so attractive now, as domestic prices have firmed up over the years from Rs. 15 in 2005, when the export price was Rs. 45, to as much as Rs. 40 in 2010/11, when the export price was Rs. 60 per kg. In 2003, the grape price was Rs. 18 per kg in the local market, which increased to Rs. 30 per kg in 2012. On the other hand, export prices realized by exporters remained more or less the same (Rs. 52 per kg) from 2003 to 2010. The export price has no link with the domestic price. This shows that, for farmers, attending to domestic markets is easier, as there are no standards of any significance and, therefore, no costs of compliance. This could change in the future if global retailers expand within India and require standards such as GlobalGAP.

Farm workers

There is not much labour upgrading other than on-the-job training and moving workers into packhouses from farms. Some better-performing workers are upgraded to supervisory positions, and there is one supervisor per packhouse. There is no monitoring of labour conditions or wages under any of the export standards followed by the exporter or its facilitators. Non-harvest workers in many cases apply pesticides through the tractor-operated sprayers, which could represent a case of process upgrading. For 25 percent of both men and women workers, grapes are the safest crop to work with, as there are many processes, such as applying bio-fertilizers, bio-pesticides which are safer than the other chemicals and fertilizers used on other crops or non-export grape crop. These also create new work opportunities on the farms.

Workers also spoke of transport provision in the case of labour shortages, during extra work at the farm or if a farm is located far away from the workers' native area, as well as limited and fixed working hours, as examples of product upgrading. Permanent workers receive permanent shelter, food grains and other facilities, such as TVs, electricity and drinking water facilities, free of cost. Work days have increased by 35 percent over the past five years, but the gender wage gap has remained, with women workers' wages only 65-70 percent of those of men. Further, work opportunities in general have increased, work is more regular now and there are perceived to be better terms for women than there were five years ago.

Workers reported a wage increase of more than 50 percent over the past five years, higher work availability by 35 percent over this period, and more and regular work and a better bargaining position. This had happened because of competition for labour by a large number of packhouses and alternative opportunities for labour outside agriculture. Workers continued to work in this line because of work availability during the off-season in the farm sector, higher wages, the pick-up and drop-off facility, shorter work hours and good relations with the employer, besides the local nature of the available work. It is reported elsewhere that grape work has given year-round food security to workers, unlike previously; one- to two-thirds of household income for a majority of families comes from grape work. Workers have been able to negotiate a regular annual wage increase, pick-up and drop-off by farmers in jeeps and pickup trucks every day and regular rest periods during the work day (Rath 2003). Permanent male workers in some cases are asked to supervise and manage the hired labour, which is much easier than other activities on the farm. This could be a case of functional upgrading, although it is limited to a few workers.

Many harvest workers reported that all operations in grapes, except pesticide application, were safer; this is an example of process upgrading. They had also learnt how to harvest for export; training for this purpose was given by the harvesting supervisor, the group leader and sometimes by the field officer of the company. However, they also pointed out that they had to carry out harvesting very carefully, as the produce could be traced through the unique numbers issued to them by the service provider.

Thus, although issues remain with respect to working conditions for farm work and casualization of work through contractors, in general grape workers have seen upgrading in terms of more work availability, better wages, more regular employment and more respect from employers.

Packhouse workers

For packhouse workers, upgrading has happened in terms of better wages and transport provision by the service provider. As part of GlobalGAP certification, packhouses have toilet and washing facilities for workers, which can be considered a case of improved working conditions and worker upgrading. In terms of process upgrading, workers valued workplace facilities like the 45-minute lunch time, separate toilets for men and women and safe drinking water, as well as being able to work under a roof (unlike farm work, which takes place in the rain and under the sun in the fields). Men workers valued the respect shown by the employer. Men and women workers reported learning new functions at the packhouse, such as grape grading and packing, which is different from grading at field level for domestic markets. These learning opportunities are provided by packhouses as part of their GlobalGAP training. Workers also valued the pick-up and drop-off facilities provided by the service provider and the limited work hours, as well as full payment for overtime. Given higher exports of grapes from the area, new players have appeared and thus the availability of the work has increased for workers. Packhouse worker wages have gone up by 100 percent in the case of men and 70 percent in the case of women over the past five years. Some

men and women workers reported that they were given more responsible work as they had carried out grading and packing very carefully, which is some indication of functional upgrading.

In another service provider's pack house, the number of supervisors increased from two each, both male and female, to five of each. About 20 percent of workers were permanent in 2005/06, rising to 35 percent in the case of men, but still 20 percent in the case of women, as women generally move out after marriage.

Thus, packhouse workers seem to be the major gainers from grape exports in terms of better work place conditions, better wages and better treatment by the employer, although this has come about not because of workers' 'associational power', but more because of 'structural power', which is not demonstrated by workers, unlike in Brazil ((Selwyn 2007; 2012), but perhaps anticipated by employers, that is, packhouse operators. There is certainly upgrading for packhouse workers and even other grape farm workers when compared with sugarcane harvesting and processing work, as conditions in grapes are much better.

Conclusions

The above case studies of various stakeholders in F&V production networks show that the networks (especially of fresh grapes) have been well entrenched locally for decades and are sophisticated in terms of meeting quality requirement of importing markets. They have leveraged local systems of labour mobilization and management from existing networks of sugarcane production and management, that is, harvesting workers and *tolis*. Standards and consequent cost increases can also lead to concentration of production in fewer hands. However, in India, in grapes, there are still large numbers of exporters, farmers and facilitators and no evidence of concentration of production in a few hands.

Supermarket standards (process upgrading of producers) have led to upgrading for some workers (especially packhouse and to some extent harvesting workers), but also downgrading through the use of contractors to increase flexibilization to cope with cost pressures from supermarkets. Concentration in export markets post-crisis means downgrading for producers in GPNs, but this is being countered by the expansion of the domestic market and rising domestic prices for grapes, with fewer export risks/standards to deal with, implying that downgrading can have benefits. This might change in the future if domestic buyers require more standards.

The case studies also highlight the crucial role of service providers, which are the real drivers of local systems for export production, as they belong to the local area and leverage their networks for production and labour supply. The exporting companies engage only in a minimum interface with farmers, as required by the certification systems – that is, smallholder group certification and traceability requirements. It is common in the grape sector in India too to find a service provider working with multiple exporters or managing multiple leased packhouses or harvesting teams. There are also harvest team codes to trace back any quality problems and penalize the team.

For effective smallholder inclusion facilitated by PMOs under GlobalGAP, it is important to recognize that the risks of production and market are largely with growers, especially when the unique model of the exporter is considered, although it gives the farmer access to potential large surplus extraction as the agency takes only a commission. However, from a risk reduction and risk management perspective, this is not a good model for farmers, as export markets are highly risky. Examples of downgrading show that farmers on their own cannot manage export markets in general; even collectives find it tough, as seen in the case of Mahagrapes.

The above analysis also shows that, although there are plenty of standards being brought into food production and trade networks by global buyers and development agencies, they often do not percolate down to the farms and workers who really need them. They are either not implemented at all or implemented poorly. There are also local conditions that do not permit adequate implementation of such standards, as there are cost pressures on smallholder producers who employ workers on farms. The contract labour arrangement has also led to poor enforcement of labour and wage standards, as the buying agencies do not employ workers directly, and thus do not feel liable for ensuring labour wellbeing and work conditions. The buyers depend on agencies and formal procedures to enforce standards and do not conduct adequate monitoring, which has cost implications. Supermarket buyers are more concerned with quality, regular supply and managing the interface with producers.

In fact, labour processes also differ in terms of activities required in harvesting and packing, depending on whether produce is meant for export or for the domestic market. This is also observed in other grape contexts like Brazil, where grapes meant for export had 34 operations per harvest cycle, compared with just nine for the domestic market (Selwyn 2012). This leads to differences in labour processes and workers' structural power in the network, although in the Indian context harvest and packing workers are not able to translate this structural power to their advantage, as there is no collective worker organization.

The skilled labour required for grapes is provided by contractors, as it is traditionally locally available in and around the state, although facilitators/packhouse operators would not like to directly employ labour, for various reasons. In such situations, it is important to bring in workers' interest by way of wages being part of the compensation terms for farmers and other intermediaries. If workers are organized, this helps in generating better work conditions and wages, but NGOs are not involved in helping such groups in better bargaining or in cleaning the value chains in any significant way. The role of the state is not effective, given that, as of now, farm sector minimum wages are not enforced. MGNREGS has helped some worker communities in low-wage areas, but in high-value crop work, like grapes or vegetables, it does not seem to make a difference. Further, since there is a predominance of women workers in such networks, there is a need to bring in more gender-equitable work conditions, to make the lives of women workers safer and better as they help the network perform better. This can be part of the value chain driver's strategy, as well as that of workers' unions or NGOs in such situations.

While attempting upgrading in networks, upgrading of workers needs to be provided for, alongside that of growers, in order to make them better workers as well as entrepreneurs, who could take up part of the value addition activity as groups or associations. Value chains are not just about value creation and capture by the driver, but also about value sharing with others, especially weaker/smaller stakeholders in the chains, from a livelihoods perspective.

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