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Critical Success Factors for Smallholder Inclusion in High Value-Adding Supply Chains by Food & Agribusiness Multinational Enterprises

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Abstract

Food and Agribusiness Multinational Enterprises (F&A MNEs) increasingly wish to source from smallholders to secure and stabilize the supply of agricultural commodities in high value-adding supply chains, while contributing positively to smallholder livelihood. In the literature we found that many F&A MNEs have been involved in supporting smallholder farming systems in developing countries for a long time. However, these projects have principally been driven by Corporate Social Responsibility (CSR) strategies. Moreover, despite many pilots to include smallholders in high value-adding supply chains, scaling or scaling up successful pilots has so far proven elusive. The aim of the present article is to identify the critical success factors (CSFs) that can help F&A MNEs to design and implement sourcing strategies for sustainable smallholder supply from a business perspective, and to scale up successful pilot projects from a business perspective.

Keywords: sustainable sourcing, smallholder inclusion, upgrading, supplier development, partnership, CSR, agribusiness.

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Introduction

An increasing number of Food and Agribusiness Multinational Enterprises (F&A MNEs), such as Mondelez, Nestlé and Unilever, recognize the economic potential of smallholder inclusion in Africa, Asia and Latin America and have announced extensive investment plans to source more from smallholders. Smallholder inclusion is defined as a sourcing strategy in which smallholders produce commodities for high value-adding supply chains with a business perspective. A high value-adding food supply chain is defined as a network of food-related businesses through which products move from production to consumption, while gaining incremental value in the marketplace (Stevenson and Pirog 2013).

F&A MNEs increasingly want to include smallholders in high value-adding supply chains to secure (long-term) supply of agricultural commodities, such as cocoa, coffee, vegetables, fruits, nuts, spices and cotton (World Economic Forum 2011 and 2012). The aim is to maintain their competitive advantage in a growing global food market, while contributing positively to smallholder livelihood and rural economic growth.

There are three major arguments why F&A MNEs are increasingly investing in smallholder inclusion in an era that is characterized by increasing and changing (dietary shift) food demands, on the one hand, and decreasing amounts of freely available and suitable new lands, on the other. First, according to several long-term global food security studies, the major part of the additional food needed to feed the world in 2050 should come from higher yields (Bruinsma 2009; Ittersum 2011; Tilman et al. 2011). Smallholders in developing and emerging economies have a large potential to produce much more food because they currently show on average low yields per hectare.

Second, F&A MNEs invest in high value-adding smallholder supply chains because these investments could provide simultaneously opportunities to access local markets and to advance local economic growth (Proctor and Digal 2008; Kapstein and Kim 2011). It is expected that local food consumer markets of emerging and developing economies will expand by about three billion middle-class consumers in the coming twenty years (Kharas 2010).

Finally, firms/business are increasingly called upon to play a positive role in solving global pressing problems such as combatting climate change, food insecurity and poverty, and thus to contribute to a more sustainable development as recommended in the 'Sustainable Development Goals 2015-2030' of the UN (2015). This applies most notably to F&A MNEs, because of their influence and activities in global food supply chains both at home and in host countries (Sjauw-Koen-Fa 2010). Therefore, investing in smallholder inclusion to secure a (long-term) sustainable supply of commodities provides them with an opportunity to express responsiveness and responsibility to social issues from a business perspective.

However, smallholder agriculture in developing and emerging economies faces several productivity and transactional barriers in its efforts to access high value-adding food markets, e.g., supermarkets, and regional and global markets. These include dispersed production, low productivity, variable quality, high transaction costs, poor market institutions and poor governance, and an inaccessible rural financial system (London et al. 2010; Wiggins et al. 2010;

IFAD 2012; Hazell et al. 2010; Sjauw-Koen-Fa 2012). Therefore, smallholder agriculture in developing countries must be upgraded to achieve its full potential.

Upgrading strategies demand increasing smallholder farmers' capabilities and creating new business relationships among all strategic partners within the supply chain. To achieve this, F&A MNE-smallholder farmer relationship must shift from short-term transactional (characteristic of conventional sourcing strategies) into long-term cooperative relationships (supplier development strategy), because upgrading of smallholder farming systems (the supply base) is a long-term process (Hahn et al. 1990; Spekman 1988; Humphrey 2004).

Hahn et al. (1990) introduced the concept of a supplier development for upgrading suppliers in developing economies to produce goods such as apparels, automobile and electronic parts for MNEs situated in developed countries. They defined this concept as a long-term cooperative effort between a buying firm and its suppliers to upgrade the suppliers' technical, quality, delivery, and cost capabilities. The ultimate goal of supplier development programs is to form a mutually beneficial relationship that will help the partners ('buyer and seller') of the supply chain to compete in the market place (Hahn et.al. 1990; Watts and Hahn 1992). We adapted this concept for sustainable smallholder supply.

In addition to upgrading of smallholder farming systems, long-term public and private capital investments are required to improve the infrastructure (access to water, roads, improving transport systems and creating storage facilities) of smallholder farmers to lower transaction costs and reduce post-harvest losses (Schmidhuber et al. 2009; Hallam 2011; Hebebrand 2011). The need of public and private investments to help improving smallholder farming systems in developing economies complies with the concept of smallholder supplier development.

Several F&A MNEs are already including smallholders in high value-adding supply chains and targeting the so-called 'base of the economic pyramid' (Jenkins and Ishikawa 2010; Gold et al. 2013; Hahn and Gold 2013). According to the World Business Council for Sustainable Development (2013), to scale or scaling-up (successful) pilot projects has proven elusive so far, because seen from a business perspective, the investments in scaling up might not automatically comply with corporate return on investments strategy. Even if a successful pilot project shows good potential for sustainable smallholder supply, the conditions on a large scale may differ significantly from the pilot project situation.

For example, on a larger scale the geographical and agricultural conditions might be less suitable, producers organizations prove to be weak, the physical or institutional infrastructure is not developed enough for the scaled situation, existing organizations rely on public subsidies, or the supply chain has become too long and disorganized (Shepherd 2007; Wegener 2012).

There could be also (corporate) finance challenges to address investments and the sequence in which to address them in smallholder supplier development, such as whether to make a local or centralized investment, aiming to provide an integrated solution often in partnership with other stakeholders (London et al. 2010; Hahn and Gold 2013; Dahan et al. 2010).

Moreover, there are also organizational challenges within the MNEs that might hamper the complex process of smallholder supplier development and lead the smallholder supply chain effectively into the scaled-up phase (Olsen and Boxenbaum 2009; Reficco and Rueda 2012). All these obstacles may make the move from pilot project to scale-up situation too costly and risky for private investors.

The *key question* arises: How can F&A MNEs best include smallholders in their sourcing strategy and contribute to both the MNE's business objectives and the improvement of smallholder livelihood on a large scale?

The aim of the present article is to define the critical success factors (CSFs) that can help F&A MNEs in designing and implementing sourcing strategies for sustainable smallholder supply from a business perspective.

We define CSFs for smallholder inclusion in high value-adding supply chains as the limited number of areas of activities where 'things must go right' to allow this inclusion to flourish (adapted from Rockart, 1979). These are areas/activities in which good performance is necessary to ensure that smallholder inclusion, i.e. smallholder supplier development, will become a viable and sustainable business to secure and stabilize the supply of agricultural commodities, while improving smallholders' livelihoods.

In the next section, we explain the methodological approach, followed by an analysis of arguments for smallholder inclusion in high value adding supply chains. Then the external CSFs for smallholder inclusion in high value-adding supply chains by F&A MNEs are identified. Finally, the findings of the previous two sections are integrated in a sustainable smallholder sourcing model and related CSFs and business drivers for smallholder inclusion are discussed. In this model we have combined the sourcing and CSR perspective.

Methodological Approach

To find the key activities in which good performance is necessary to achieve the goals of smallholder inclusion, we first specified the arguments and related critical questions that arise about smallholder inclusion by F&A MNEs from a business perspective. Then we explored the literature per activity in order to find the related CSFs and drivers for sustainable smallholder supply by F&A MNEs.

For our research we used the five key words in the subject: '**Sourcing Strategies for Sustainable Smallholder Supply**, a business perspective' to select publications in the literature. We combined the five key words and used also synonyms and closely related concepts. For example: **sourcing strategies** (procurement, purchasing), **sustainable** (CSR, certification, food standards, ethical codes), **smallholders** (upgrading, BOP, inclusive business, producers organization), **supply chain** (management, global value, governance, partnership, integration).

To collect the relevant literature, we used Google, Scopus and Web of Science, and we also explored the websites of several F&A MNEs (i.e. Unilever, Nestlé, Cargill, Mondelez, MARS, ECOM and ADM).

We first explored the elements, drivers and barriers and CSFs, and the consistency of the sourcing strategies of multinational enterprises operating in global markets. We found key articles in the global supply and value chain, international business management and business and society literature. We also searched in the literature for case studies and best practices of smallholder inclusion in high value adding supply chains by F&A MNEs to learn about their approach, structure, the process and the CSFs from a business perspective.

The result was a large number of publications about linking smallholders to regional and global food markets (Reardon et al. 2009; Genier et al. 2009; BOP Innovation Center 2012; London et al. 2010; Jenkins and Ishikawa 2010, 21; IFAMR 2014; Seas of Change 2012 (www.seasofchange.net); Gold et al. 2013; Graf et al. 2015; Blok et al. 2013).

Many of the cases were CSR driven, or were dependent on temporary (financial) support from donor countries, public bodies, private foundations or NGOs (on project approach). These cases were excluded from our study, because they did miss the business approach or there was no F&A MNE involvement.

In the literature we also found a number of papers in which F&A MNEs are described as sourcing certified commodities produced by smallholders in developing and emerging economies such as cocoa, coffee, timber, cotton, bananas and fish (Giovannuci and Ponte (2005); Blackman and Rivera 2010; Rueda and Lambin 2013; Fayet and Vermeulen 2012), or participating in Roundtables such as in palm oil, soybean and organic cotton to promote the growth and use of sustainable certified agricultural commodities (Geibler 2013). Certification schemes have been qualified as a 'Tripartite Standards Regime (TRS) and shared between all supply chain actors (Hatanaka et al. 2012; Loconto and Busch 2010). The (new) established third party certification bodies to audit/inspect the required sustainable standards and codes to be met by producers/smallholders have become a (new) interface between F&A MNEs and all other actors of the supply chain (Afrane et al. 2013). We excluded therefore certification and roundtables cases from our research, because they have not established closer business ties with smallholders needed for smallholder supplier development. Moreover, the current widely applied sourcing strategies based on food standards and ethical codes and certification schemes are first and foremost CSR driven, i.e. designed to get a social license to operate (Howard-Greenville 2003; Gunningham et al. 2004).

For our study we searched for case studies in which F&A MNEs are involved in smallholder supplier developments from a business perspective that go beyond the pilot project phase. We found in the literature review few case studies on smallholder inclusion by F&A MNEs using a value chain approach (Hasibuan-Sedyono 2010; Sjauw-Koen-Fa 2014; Bruni and Schiff 2014; Perez-Alleman and Sandilands 2008; Graf et al. 2015).

Arguments for Smallholder Inclusion in High Value-Adding Supply Chains

From various long-term global food security studies (Bruinsma 2009; Ittersum 2011; Tilman et al. 2011; McKinsey Global Institute 2011), it can be concluded that large-scale and high-tech agriculture, particularly in developed regions (North America and the EU) alone, will not be sufficient to produce the additional food that is required to meet the world food demand in 2050.

A key constraint in meeting this demand is that the optimum theoretical crop yield ceilings of many food crops have nearly been reached (Fischer et al. 2009; Lobell et al. 2009). However, the crop yield ceilings of many food crops in developing regions have not been reached yet. As such, their average yield per hectare is at least two times lower compared to crops in developed countries, and best yields within developing regions have been also significant lower than the average (e.g. Frischer et al. 2009; Ittersum 2011; World Bank 2008). In Western Europe and North America the average annual yield of cereals is 6.5 tonnes per hectare, while in developing economies it is 2.9 tonnes per hectare. In the least developed economies, the average annual yield is even as low as 1.8 tonnes per hectare (average 2009-2011, computed from FAOSTAT). These averages show that small-scale agriculture in developing and emerging economies can be improved substantially to help meet the growing global demand for food. The critical arguments for unlocking the food potential of small-scale farming systems in developing and emerging economies seen from a macro level can be summarized as follows:

- Small-scale agriculture is the dominant agricultural system in developing regions on which local communities strongly depend for their food supply and income.
- Improving food production by smallholders in developing regions will reduce the demand for new arable land and additional clean water, which both will become scarcer in the future.
- The development of small-scale agriculture in developing regions can be a ‘win-win’ proposition. F&A MNEs want to secure the supply of agricultural commodities, while improving the livelihood of millions of smallholder farmers at the ‘Bottom of the Pyramid’ (Prahalad and Hart 2002; Karnani 2006).

These arguments on a micro level provide pros for a business case for smallholder inclusion in order to secure sustainable (long-term) supply by F&A MNEs, which is the focus of the present article. Although F&A MNEs have a dominant influence in global food supply chains both at home and in host countries, their capacity to provide smallholders with access to regional and global markets for business must be not overestimated—they can’t do it alone. There are about 500 million smallholders in the world, of which 200 million are commercially oriented and 300 million are subsistent farms (Christen and Anderson 2013).

Fortunately, there are numerous initiatives by others, such as public and private foundations (including SMEs), donor related entities and NGOs, to link smallholders in developing and emerging economies to local and export markets on a short-term project base driven by CSR motives. However, we face the problem of continuity of smallholder farms. The challenge of linking smallholders to markets is to ensure that they become self-propelling businesses, which can survive in an open market place without external development support.

Critical Success Factors Regarding Smallholder Inclusion in High Value-Adding Supply Chains

F&A MNEs like Unilever, Nestlé and Mondelez recognize the strategic business and market opportunities of small-scale agriculture in developing and emerging economies (see arguments in previous sections) and have announced investment plans to develop sustainable smallholder

supply in the coming period. Seen from a business perspective, F&A MNEs need a viable business case.

To explore CSFs of smallholder inclusion in the literature we have transformed the *key question* for smallholder inclusion (see Introduction) into six critical sub questions:

- i. Which smallholder segments are suitable for inclusion from a business perspective?
- ii. How can smallholder productivity, product quality and delivery reliably be improved to meet the demands of high value-adding supply chains in a sustainable and competitive way?
- iii. Which governance structures offer the best upgrading prospects for smallholders inclusion?
- iv. How can vertical coordination in the smallholder supply chains be strengthened to effectively and efficiently upgrade interventions?
- v. How can accessible and affordable rural financial systems be created to ease smallholder demand for investment, working capital and savings effectively?
- vi. What are the commitments, attributes and procurement organizations needed to invest in and to govern smallholder supply chains to secure (long term) sustainable smallholder supply effectively?

Critical subquestions *i* to *v* are related to external challenges that occur outside (in the market place) of the F&A MNE, while subquestion *vi* is related to internal organizational challenges.

External CSFs

- i. *Which smallholder segments are most suitable for smallholder inclusion in high value-adding supply chains for building a business case?*

Several criteria can be used to segment smallholders. The most obvious way to differentiate among small farms is by the size of the landholding in hectare or by the amount of livestock. The World Bank (2008) has defined a small-scale farm as a farm holding that owns or rents less than two hectares of agricultural land. According to this definition, 85 percent of the world's farms are smallholders of which most live in Africa and Asia (FAO 2010, Sjauw-Koen-Fa 2012)). Farm size is, however, highly region-specific and differs per crop and agro-ecological zone, while several factors influence a farm's output and economic viability, such as agronomical conditions, farming systems and access to farm input and credit.

Because of the disadvantages of a segmentation of smallholders based on land size, Torero (2011) differentiated smallholders using a market and institutional orientation as criteria. He divided smallholders into subsistence farmers that are marginalized even in their local economies (Rural world 3) and farmers oriented towards local, provincial, national (Rural world 2), and international markets (Rural world 1). It was noted that these strata are not static but are dynamic due to institutional and infrastructural interventions.

GIZ (2011) uses the degree of commercialization as criterion for finance and segments smallholders in subsistence-oriented farmers and market-oriented farmers for a (bank) financing approach. IFC and GPFI (2011) in contrast to GIZ uses net income generated by farming in that

country or region as a criterion and segmented smallholders into semi-commercial smallholders (< 2 hectares) and commercial smallholders size (2-20 hectares).

In their study on segmentation of smallholder households Christen and Anderson (2013) used a more comprehensive set of criteria. They used the total household income for a financing approach to divide smallholders into low and middle income countries. However, the authors stressed that these segments are not fixed but rather categories based on common traits that can begin to illuminate the financial mechanism of the smallholder business case. Based on the types of crops grown on the farm, the way smallholders are engaged with markets and the way those markets are organized, Christen and Anderson (2013) have estimated that there are globally 300 million non-commercial smallholders (Rural world 3), 165 million commercial smallholders in *loose* value chains (Rural world 2), and 35 million commercial smallholders in *tight* value chains (Rural world 1).

Non-commercial or subsistence smallholders farm not as a vocation or strategic business choice, but to contribute to their own sustenance and survival. According to Christen and Anderson (2013) contract farming is by definition unfeasible and credit from agricultural suppliers is uncommon.

Therefore we excluded non-commercial of subsistent smallholders from linking smallholder to high value-adding supply chains, because the pros for a viable business case are weak. However, according to the rural world classification of the farm sector, subsistence farmers can be linked best to local markets by improving institutional, infrastructural and market interventions.

Commercial smallholders in *loose* value chains are usually focused on staple crops and these may also include some high value crops such as coffee, cocoa, oilseeds, and corn. They sell their surplus usually on local markets and have limited access to inputs, financial services and information. They rely on unimproved seeds and traditional production methods and the land size is one to two hectares.

Commercial smallholders in *tight* value chains grow cash crops that are sold usually in regional or export markets. Reliable surplus of staple crops could also be sold through local markets. This category of smallholders have access to buyer-provided bundles of improved seeds, inputs, information and finance, and have the capacity to generate reliable high-quality output on a contract farming basis. This category of smallholder farms own according to the classification of Christen and Andersen (2013) at least two hectares.

However, Christen and Anderson (2013) stress that the segments are not meant to be fixed, iron-clad divisions, but rather categories based on common traits that can begin to illuminate the financial mechanisms that might best fit the given financial goals and cash flows. Farm sizes also differ geographically and per crop. For example, an average cocoa smallholder farm in Indonesia is 1 hectare while in Ghana it is 2.0 hectares. Coffee smallholders in Nicaragua have on average 3.5 hectares, compared to 5 hectares in Colombia. Cotton farmers in India have on average 1.4 hectares while paddy farmers in Java have an average of 0.3 hectares.

We conclude that from the perspective of F&A MNEs, the business case for smallholder inclusion should be primarily focused on commercial smallholders in *tight* value chains developed by Christen and Anderson (2013). This category of smallholders is best equipped to adapt upgrading interventions and to have experience with contract farming. However, commercial farmers in *loose* value chains may also be suitable for high value-adding supply chains if they take a business-like approach to producing a reliable surplus that can be sold through local markets/traders. CSF for a viable business case of smallholder inclusion in high value-adding supply chain is that the selected smallholders are commercial/market oriented and can adapt upgrading interventions to meet a F&A MNE's supply needs in a competitive global market environment.

ii. How can smallholder productivity, product quality and delivery reliability be improved to meet the demands of high value-adding supply chains in a sustainable and competitive way?

According to the literature on competitiveness, the most viable response to this type of challenge is to upgrade (Humphrey 2004; Porter 1990). Upgrading can be defined as 'a move of firms to higher value added activities or interventions in production to improve technology, knowledge and skills, and to increase the benefits or profits deriving from participation in regional or global production networks' (Gereffi et al. 2005, 13). This assumes a regional or global value chain approach driven by a lead firm for example an F&A MNE. A value chain framework offers four types of economic upgrading (Humphrey and Schmitz 2002):

- Process upgrading: more efficiently transforming inputs into outputs by reorganizing the production system or by introducing superior technology.
- Product upgrading: moving into more sophisticated product lines, which can be defined in terms of increased added value per unit.
- Functional upgrading: acquiring new functions in the chain, such as design or marketing, or abandoning existing low added-value functions in favour of higher added-value activities.
- Chain or inter-sectoral upgrading: where firms move into new but often related sectors.

Upgrading patterns differ by both industry and country based on the input-output structure of the value chain and the institutional context of each country. The typologies of upgrading were originally studied in SMEs industrial sectors (e.g., apparel, garment, IT hardware, and footwear) in developing and emerging economies. These SMEs were led by large firms from Western countries. This phenomenon is studied in the supply chain literature as 'supplier development' (Hahn et al. 1990; Watts and Hahn 1995; Krause and Ellram 1997).

Supplier development is important from a purchasing perspective for developing effective and reliable sources of supply and from a corporate perspective for advancing competitive strategic objectives by linking suppliers' capabilities with internal requirements. However, the 'industrial' upgrading approach can also be applied to agriculture (Humphrey 2004). This will be discussed below.

In the literature several upgrading interventions for small-scale agriculture in developing and emerging economies from a business perspective have been identified (e.g. Eaton and Shepherd

2001, 11; London et al. 2010, 588). We have grouped these upgrading interventions into the first three upgrading types of Humphrey and Schmitz (2002) in the following ways:

- Process upgrading: improvement of physical infrastructure, provision of extension services and post-harvest facilities, access to finance, skill transfer and the strengthening of producer organizations.
- Product upgrading: provision of inputs such as fertilizers and seeds, and introduction of advanced farm technologies and certification.
- Functional upgrading: enhancement of farmers/smallholders to become crop specialists (specialization) or collaborate in joint efforts to process and market their products (vertical integration).
- Chain or inter-sectoral upgrading: e.g. introduction of a *new* crop including related activities (post-harvest and marketing).

In the literature the common denominator of upgrading types in global supply chains is that activities at any point in the chain are defined by the four key questions for vertical chain coordination: What is to be produced?, How it is produced?, How much is to be produced? and When and how is the flow of the product along the chain to be handled? (Humphrey and Schmitz 2002). A 5th question regarding smallholder inclusion can be added: How do smallholders benefit from upgrading interventions provided by F&A MNEs?

A critical point for upgrading smallholder farming systems is that F&A MNEs are used to sourcing from global agricultural commodity traders and large local exporters rather than purchasing directly from smallholders, because transaction costs, caused by dispersed production, small volumes and poor infrastructure, are high. Moreover, product quality is variable and delivery is uncertain. In a close relationship between supply chain partners, partners are willing to invest resources and time, share risks and rewards and maintain the relationship over a longer period of time because pay-offs may occur over a long time (Landros and Monczka 1989; Krause and Ellram 1997). Therefore, F&A MNEs have to closely collaborate on a long-term basis with their suppliers/intermediaries of the smallholder supply chain to upgrade smallholder farming systems.

It is emphasized in the literature that in order to succeed in market initiatives with the BOP, partnership is required that involves joint efforts between the F&A MNE, suppliers and non-private sector stakeholders and local government (Hahn and Gold 2013; Dahan et al. 2010; Rivera-Santos et al. 2012; London and Hart 2004; Perez-Aleman and Sandilands 2008; Dentoni et al. 2012; Bitzer 2012). This approach provides also a good opportunity to consider and to include local knowledge, networks, values and social consequences of smallholder supplier development in order to gain local legitimacy (Reimann et al. 2012; Gifford and Kestler 2008; Perez-Aleman 2012).

The aim of the partnership is to bring together public and private resources and capabilities of the partners needed for smallholder supplier development. In this way F&A MNEs can take into account smallholder supply development issues needed for upgrading. Moreover, they can deal also with a wider set of performance objectives such as securing and stabilizing their own supply of commodities while positively contributing to smallholder livelihood. The mission of the

partnership is identifying, building and maintaining partnerships, including non-business actors, for upgrading and developing viable sustainable smallholder supply by F&A MNEs. The factors associated with partnership success are described by Mohr and Spekman (1994). These are attributes of the partnership (commitment, coordination, interdependence and trust), communication behaviour (quality, information sharing and participation), and conflict resolution techniques (joint problem solving).

Once the partnership is established, a development program must ensure that the supplier (trader or producers organization) can facilitate upgrading of the smallholder farming system and is willing to develop a close, long-term working relationship with the F&A MNEs (Monczka et al. 1998).

One CSF of the partnership for smallholder supplier development is that there is an open two-way inter-organizational communication between the partners of the farmers upgrading program (Hahn et al. 1990).

iii. Which governance structure offers smallholders the best upgrading prospects?

Governance can be defined as non-market coordination (Gereffi et al. 2001). It includes issues related to capacities, information, power and decision-making. To include smallholders in high value-adding supply chains, governance functions are important since they indicate the possible leverage points to meet F&A MNE business goals.

Gereffi et al. (2005) distinguished five types of governance forms in global value chains:

1. Market chains: there are no tight relationships or asset-specific investments. Switching partners is quick, easy and not costly (typically spot markets).
2. Modular value chains: turn-key suppliers make products to the specification of the customer. The ability to codify specifications of the products is high.
3. Relational value chains: buyers and suppliers engage in complex interactions. Product specifications cannot be codified, transactions are complex, and supplier capabilities are high.
4. Captive value chains: smaller supplying firms are locked in by the lead firm. The ability to codify and the complexity of product specifications are both high, but supplier capabilities are low.
5. Hierarchy chains: classical vertical integration. Subsidiaries and affiliates are subject to a lot of managerial control from headquarters. Product specifications cannot be codified, products are complex, and highly competent suppliers cannot be found.

Gereffi et al. (2005) also postulate a framework to determine the emerging coordination or governance structure in a global value chain. This framework is based on the interplay between three independent variables or dimensions:

- The complexity of information and knowledge required to sustain a particular transaction.
- The extent to which this information and knowledge can be codified.
- The capabilities of the supply base in relation to the requirements of the transaction.

Table 1. shows the results of the combination of these three variables in a specific governance form.

Table 1. The Five Governance Types Based on Gereffi et al. (2005)

	Complexity of transactions	Ability to codify knowledge	Supplier capabilities in reaching requirements
Market value chains	low	high	high
Modular value chains	high	high	high
Relational value chains	high	low	high
Captive value chains	high	high	low
Hierarchical value chains	high	low	low

Source. Adapted from Omta and Hoenen 2012

The question arises which of the five governance types of Gereffi et al. (2005) can be used to include a smallholder in high value-adding supply chains. The answer to this question depends on how the characteristics of the market linkages of smallholders in developing and emerging economies match the three dimensions of governance structures.

Rijsgaard et al. (2010) specified the following characteristics of smallholder supply:

- i. Sales of small volumes (high marketing cost per unit).
- ii. High uncertainty of price, which is negotiated at each stage.
- iii. Sales to many and different buyers (moral hazard problems, poor opportunities for acquiring reliable market information from buyers, poor opportunities for accessing finance and other support from buyers).
- iv. Poorly specified quality and standards and a lack of quality control (moral hazard problems, no/low rewards for quality).
- v. Lack of traceability, which is a requirement for certification of food safety and sustainability.

Given these characteristics of smallholder supply, the three value chain governance dimensions of Gereffi et al. (2005) can be qualified as follows:

- Complexity of information and knowledge transfer is high due to characteristics i, ii, iii and v.
- Codification of information and knowledge is high and it significantly increases with certification to meet sustainable and food safety private standards due to characteristics iv and v.
- Capabilities of supply base to adapt the requirements of the transaction are low due to characteristics i, ii and iii.

It can be concluded that the characteristics of smallholder supply chains do not comply with that of the 'Market' (the complexity of information exchanged is low, transactions are relatively simple, governance mechanism is price rather than a powerful lead firm), and 'Hierarchy' (product specification cannot be codified, products are complex, governance is characterized by vertical integration and managerial control within a lead firm) governance types. This means that

the governance of sustainable smallholder supply in high value-adding chains, in which upgrading is the central issue for smallholder supply development, encompasses the ‘Modular’, ‘Relational’ and ‘Captive’ governance types. Of these three governance types, the ‘Captive’ governance type provides the best opportunities to coordinate the smallholder supplier development programs, because the complexity of transactions as well as the ability to codify transactions are high, while the capabilities in the supply base are low. Therefore chains of smallholders-intermediary and other key partners have to be locked in by lead firm.

The CSF for the captive governance type of smallholder supply chains is that the ‘buyer-seller’ relationship shifts from an adversarial or transactional to a cooperative one (Spekman 1988; Watts et al. 1995; Krause and Ellram 1997). Transactional ‘buyer-seller’ relationships are driven by bargaining power and short-term contracts to achieve quick-wins at low cost by the buyer, while a cooperative one is based on partnership-like and long-term contracts to achieve mutual interest such as a smallholder inclusion relationship.

iv. How to strengthen vertical coordination in the smallholder supply chains to effectively and efficiently upgrade support?

A smallholder farm usually lacks the capacity to improve and influence the markets upon which its business depends. The challenge is then how to unify the hundreds or thousands of individual smallholders for effective upgrading interventions by F&A MNEs. The possible mechanism for this is horizontal integration (Riisgaard et al. 2010), i.e. producers’ organisations (POs) of smallholders, particularly co-operatives. A PO is defined as a membership-based collective organisation or a federation of organisations with elected leaders accountable to their constituents (World Bank 2008). They are often seen as effective structures to link small farmers to commercial markets and to integrate them into regional and global value chains (Onumah et al. 2007; Koladay et al. 2007; Getnet and Anullo 2012; Chambo 2009; Bijman and Wollni 2008; Münkner 2012). Moreover, they can also strengthen producers’ bargaining power.

A PO is based on the principle that acting collectively improves the position of its members, such as smallholders, and creates growth opportunities in farm productivity and income. A PO can fit together activities, such as upgrading, of sellers (farmers) and buyers (traders and processors) to more effectively meet market requirements than smallholders can individually. There are several areas in which POs can play a role in strengthening the coordination in smallholder supply chains in order to reduce transaction costs and market risks, enabling collective action, and redressing missing markets by applying (innovative) market institutions, such as market intelligent systems, grades and standards, forward contracts, contract discipline and warehouse receipt systems (e.g. Torero 2011; Onumah et al. 2007).

Therefore, the CSF for strengthening vertical coordination of sustainable smallholder supply chains is the emergence and/or empowerment of effective POs, i.e. horizontal integration of smallholders, to upgrade smallholder farming systems.

v. How can an accessible and affordable rural financing system be created to ease smallholder demands for investment, working capital and savings effectively?

Access to affordable financial services is essential in order for smallholders to meet investment and working capital requirements, and other financial services such as insurance to cover risk and savings, to unlock their potential (London et al. 2010; Hazell et al. 2007; Wiggins et al. 2010; IFAD 2012; Sjauw-Koen-Fa 2012).

Smallholders have to invest in new farm assets, technology and equipment to meet the requirements of high value-adding supply chains and to expand their farming business. In developing regions, however, smallholders lack collateral, credit history and access to finance/credit. Moreover, low levels of economic activity and population density result in dispersed demand for financial services, and weaknesses in the implementation of regulations. These, in turn, lead to high transaction costs, risks and information asymmetries that make rural farm financing less attractive for commercial banking (World Bank 2007; IFC 2010; Chalmers et al. 2006; Sjauw-Koen-Fa 2012 32-40). It should be noted that upcoming mobile banking can contribute to lower transactional cost of and provide access to rural financing (Asongu 2013; Maimbo et al. 2010).

Beside investment and working capital smallholders in developing and emerging economies need also savings and insurance services in order to respond to unexpected or irregular expenses and revenues, whether related to farming, festivities, sickness or burials. Smallholders in developing regions are after all risk averse, in view of their limited (financial) capabilities to absorb shocks.

Alternative sources of affordable financing for smallholders range from microfinance institutions (MFIs) to savings and credit groups (SACCOs), and more formalised savings and credit co-operatives (World Bank 2007). In some cases, traders and processors provide financing to smallholders such as pre-payment for contract farming (e.g. IFC 2010; Chalmers et al. 2006). Commercial smallholders have, however, even more difficulties when seeking medium-term and long-term financing. To ease this finance gap Doran et al. (2009), IFC (2010) and GIZ (2011) propose a revitalising of rural agricultural financing, with an emphasis on what the private sector, e.g. F&A MNEs and banks (in cooperation with public financial institutions for development), can contribute to mobilising smallholders.

Commercial banks and investment funds are used to serving the top of the farm production pyramid in developing and emerging economies. This pyramid consists of large farm enterprises and plantations.

Although F&A MNEs are not financial institutions, they can play a role in lowering financial risks for smallholders by providing prepayment before planting, by offering buying commitments of the produced crops or animal products, and by providing a price guarantee to smallholders, and financial access to producer organizations (e.g. Sjauw-Koen-Fa 2014; Vorley and Thorpe 2014).

However, lowering financial risks will increase creditworthiness of smallholders. This will attract (rural) financial institutions to provide finance to smallholders and design of a value chain finance approach for smallholders (Miller and Jones 2010; Sjauw-Koen-Fa 2012 36-38).

CSF regarding smallholder financing demands is the creation or presence of an accessible and affordable rural financing system to ease smallholder demand for investment and working capital including insurance and savings.

CSFs Within F&A MNEs

Many F&A MNEs have been supporting smallholders in developing and emerging economies in the past decades. These F&A MNEs have mostly used Corporate Social Responsibility (CSR) strategies to express corporate philanthropy or to get a social licence-to-produce. However, smallholder inclusion in high value-adding supply chains needs a special business-driven sustainable smallholder sourcing model in which sourcing and CSR perspectives are combined. This section elaborates on the transition of F&A MNEs from a CSR strategy to a sourcing strategy and the internal organizational challenges that dedicated Procurement and Operation departments face when they engage in these transitions.

From CSR Strategy to Smallholder Sourcing Strategy

The reason why firms should care about smallholders in developing and emerging economies is rooted in the debate on the role of business in society. This debate focuses on the corporate social responsibility (CSR) of firms. The dominant trends in CSR thinking evolved from ethics and the social obligation of business in the 1950s and 1960s to a stakeholder approach and strategic management in the 1990s (Lee 2008; Guinipero et al. 2012); Carroll and Shabana 2010) defined social responsibility of firms in the following way: “The social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time”.

Gradually, the motivation for CSR evolved from corporate philanthropy to CSR as a business opportunity (Prahalad and Hart 2002; Karnani 2006; Porter and Kramer 2005; Carroll and Shabana 2010; Singh et al. 2014). Smallholder inclusion in high value-adding supply chains by F&A MNEs has followed a similar path. It has evolved from a CSR-driven smallholder support strategy to acquire a social licence-to-operate into a business-driven smallholder sourcing strategy that secures supply and creates access to local markets (Perrot 2013).

However, firms have different responses to social responsibility and social issues such as smallholder inclusion. This refers to a firm’s corporate commitment and capacity, such as mechanisms, procedures, arrangements, behavioral patterns, sustainability codes and standards to anticipate on social issues (Gold et al. 2012; Tilburg van et al. 2012). Social responsiveness of firms can range from ‘doing nothing’ to ‘doing much’ regarding CSR (Carroll 1979; Maignan et al. 2002; Tilburg van et al. 2012). In the supply chain literature, the involvement and commitment of the top management has been emphasized, because they understand best the needs of supply chain management as they have the most knowledge of the firm’s strategic imperatives to remain competitive in the market place (Hahn et al. 1990; Monczka et al. 1998). We concluded that to include smallholders in high value-adding supply chains, F&A MNEs best need a proactive CSR strategy combined with a clear smallholder sourcing strategy.

CSF is that the top-management is involved and committed, because sustainable smallholder supplier development programs are a long-term investment which is subjected to market risks.

Internal Organizational Challenges for Smallholder Inclusion

The internal organizational challenge to guide and to govern supplier development programs in global value chains was highlighted in the purchasing and supply chain literature (Watts and Hahn 1995; Trent and Monczka 1994 and 2002; Krause and Ellram 1997). The problem is that supplier development programs demand a procurement organization with a long-term approach and resources. This is in contrast to conventional procurement organizations that are short-term profit-driven on a transactional basing.

The challenge is how to integrate Procurement and CSR (regarding strategy, organization and capabilities) in order to govern long-term smallholder supplier development programs.

Three categories of internal organizational challenges regarding the implementation of ventures in developing and emerging economies have been identified (Olsen and Boxenbaum 2009; Reficco and Rueda 2012). These internal organizational challenges have been adapted for smallholder inclusion in high value-adding supply chains:

- Process-related challenges: To unfold coalitions for smallholder inclusion both horizontally and vertically. Horizontally: by linking functional areas within and across departments such as CSR and Procurement and Operation departments within F&A MNEs. Vertically: by linking corporate management level (headquarters) with the management at country level.
- Structural and incentives-related challenges: To allocate and refine resources and capabilities for smallholder supplier development, to tune evaluation and performance criteria, and mandate an incentive structure between departments within an F&A MNE that are involved in sustainable smallholder supplier development.
- Cognitive challenge: to harmonize conflicting mind-sets between key actors/middle management/departments involved in smallholder inclusion.
- One of the most critical points is the refining of the traditional role and capabilities of CSR and Procurement within F&A MNEs. CSR focuses on supporting smallholder farming systems, while Procurement is concerned with supplying raw materials from multiple suppliers and spot markets at low cost on a transactional base. Therefore, sourcing from smallholders means a shift from corporate philanthropy (competence of CSR) to sustainable sourcing strategy (competence of Procurement).

In the supply chain literature, the use of cross-functional sourcing teams led by Procurement dedicated to strategic purposes organized around supply has been identified as an effective internal firm structure (Trent and Monczka 1994 and 2002; Mohamed et al. 2009; Driedonks et al. 2014). Cross-functional sourcing teams consist of personnel from at least three areas of a firm. The aim of these teams is to combine different internal organizational capabilities, networks and resources to develop smallholder supply from a strategic business perspective. Cross-functional teams can effectively and efficiently interact with supplier counterparts (cf.

Hahn et al. 1990; Trent and Monczka 1994 and 2002; Krause and Ellram 1997; Driedonks et al. 2014).

CSF regarding internal organizational challenges is the use of cross-functional teams led by Procurement and Operation and including CSR to integrate an organization's values, processes and routines, and to effectively interact with supplier counterparts.

Discussion and Conclusions

F&A MNEs increasingly wish to source from smallholders to secure and stabilize supply in high value-adding supply chains while contributing positively to smallholder livelihood. The key question we try to answer in this article is: How?

We first adapted the concept of upgrading from Humphrey and Schmitz (2002) to improve smallholder farming systems in their effort in accessing regional and global value chains. Second, we adapted the concept of supplier development program from Hahn et al. (1990) to create a supplier development program for smallholder inclusion led by the F&A MNE. The ultimate goal of this concept is to form a mutually long-term beneficial relationship that will help the partners (both F&A MNE and smallholders) of the smallholder supply chain to compete in the market place. Third, we adapted the captive governance type from Gereffi et al. (2005) based on a cooperative relationship between buyers and suppliers to govern smallholder inclusion, because the complexity of transactions as well as the ability to codify transactions are high, while the capabilities in the supply base are low.

In the present literature study, we found that many F&A MNEs have been involved in supporting smallholder farming systems in developing economies to express corporate philanthropy or to get a social license to operate. They are purchasing sustainable certified commodities produced by smallholders from suppliers to comply with consumer concerns regarding environmental and social issues. We have excluded this category of smallholder (out-)sourcing strategies from our study, because they don't fit into the concept of supplier development program. This requires closer business ties with smallholders in order to build a viable sustainable smallholder supply base. This is the approach of our study.

In the literature we found also that despite many successful pilot projects aiming to include smallholders in high value-adding supply chains, scaling up of these pilots has been proven elusive so far. They might be too costly or risky to achieve corporate returns on invest strategies, or there are persistent organizational barriers that might hamper the complex process of smallholder supplier development in partnership.

The aim of the present article is to identify the critical success factors (CSFs) that can help F&A MNEs to design and implement sourcing strategies for sustainable smallholder supply and to scale up successful pilot projects. To achieve this goal, F&A MNEs have to collaborate in partnership with selected intermediaries (traders and POs) and other private (input suppliers) and public parties (NGOs, public bodies and government).

The result of our study of the sustainable smallholder sourcing model is presented in Figure 1 as the 3S-model. In this business-driven model the sourcing and CSR perspectives are combined.

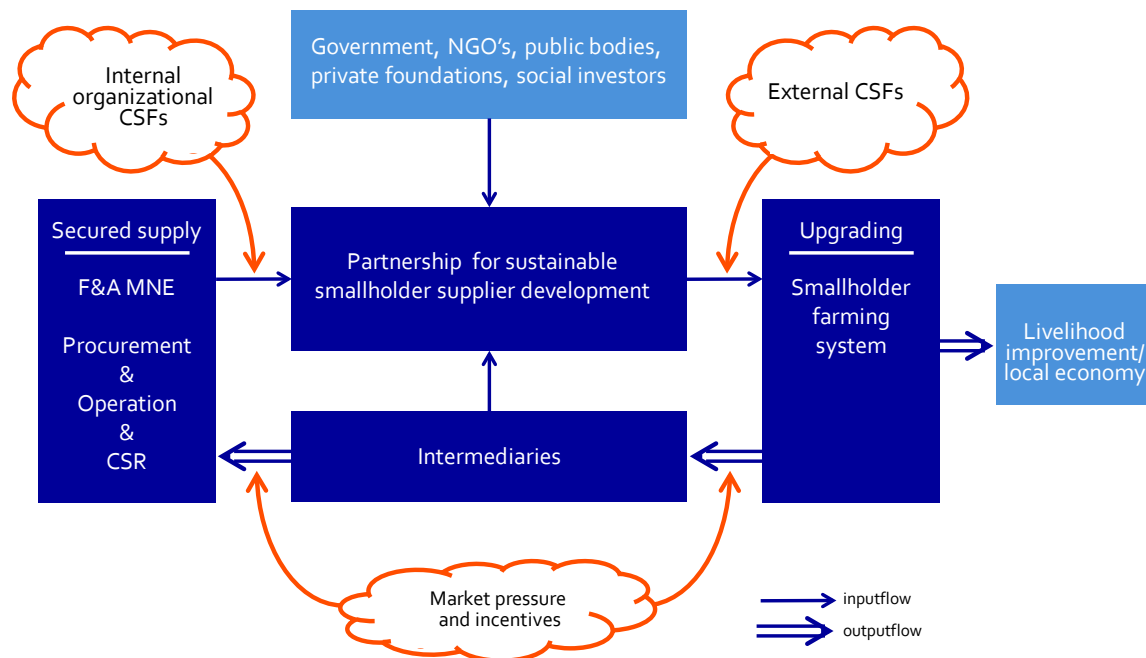


Figure 1. Sustainable Smallholder Sourcing Model (3S Model)

The sourcing process to secure smallholder sustainable supply while improving smallholder livelihood consists of two activities and corresponding structures: the buying process through the supply chain (the axis 'F&A MNE - Intermediaries – Smallholders'), and the upgrading process through the partnership consisting of the F&A MNE, intermediaries, and public and private stakeholders. Both supply chain activities are led by the F&A MNE.

The single arrows in the figure represent the input flow of upgrading support and services to smallholders, while the double arrows represent the output flow of products (and livelihood improvement) resulting from the upgraded smallholder farming system.

External CSFs and the internal organizational challenges of sustainable smallholder inclusion are located at the conjunctions of the elements 'Partnership – Smallholder farming system' and 'Partnership - F&A MNEs' respectively. Drivers of the output flow are open market pressure and incentives.

The CSFs found in the literature review are:

External CSFs (in the market place)

- i. *Selection of smallholders suitable for a viable business case to secure (long-term) sustainable supply:* Smallholders that can be included in high value-adding supply chains are commercially oriented and are willing and able to adapt to the upgrading interventions needed to meet F&A MNEs' supply needs.

- ii. *Building partnerships for upgrading:* To bring public and private resources and capabilities, business and CSR/philanthropy, and short and long-term interests together needed to upgrade smallholder farming systems. F&A MNEs have to collaborate with suppliers/intermediaries and government, public and private sectors in order to facilitate the upgrading of smallholder farming systems.
- iii. *Building a captive governance structure based on cooperative 'buyer-seller' relationship:* The governance of smallholder supplier development should be of a captive type because the ability to codify knowledge and the complexity of product specification are high, while the 'supplier' capabilities are low. The relationship between supply chain actors should be a cooperative 'buyer-seller' relationship aiming to improve 'supplier' capabilities instead of a short-term transactional relationship. This is a precondition for achieving long-run and shared benefits between 'buyer and seller'.
- iv. *Building effective producers organizations:* Building and/or empowerment of producer organizations to strengthen vertical coordination.

This is a precondition for overcoming the barriers of dispersed production and high transaction costs, and for enabling smallholders to respond to emerging opportunities in the global marketplace.

- v. *Providing access to farm finance:* Building an accessible and affordable rural financing system to ease smallholder investments and savings demands.

This is a precondition for easing the demand for investment and working capital and savings of smallholders effectively. F&A MNEs can play a crucial role in lowering the financial risks of smallholders, i.e. increasing smallholder creditworthiness for rural financial institutions by providing prepayments before planting, price and buying guaranties.

Internal Organizational CSFs (within F&A MNEs)

- i. *Presence of a proactive CSR strategy supported by a committed top management.* This is a precondition for long-term investment in smallholder supplier development programs in order to secure a (long-term) sustainable commodity supply. Therefore, F&A MNEs have to transform their CSR driven outsourcing strategy into a sustainable (direct) sourcing strategy in which sourcing and CSR perspectives are combined.
- ii. *Use of cross-functional sourcing teams led by Procurement including CSR.*

CSR competence traditionally supports smallholder farming systems (expressing corporate philanthropy and to get social license to operate), while competence of Procurement supports sourcing raw materials from multiple suppliers at low cost on a transactional short-term base. Sustainable sourcing from smallholders from a business perspective means a shift from corporate philanthropy (competence of CSR) to a sustainable sourcing strategy (competence of Procurement). The aim of cross-functional teams with F&A MNEs is to integrate organizational values, routines and resources, and

to interact effectively with supplier counterparts in order to refining of the role and capabilities of CSR and Procurement.

The importance of the elements of the 3S-model and the CSFs can be expected to differ, given the different characteristics of particular business cases, such as crop, geographical area, smallholder and supplier types and capabilities. Moreover, F&A MNEs (processors, wholesalers or retailers) can apply different sourcing and CSR strategies.

We believe that identifying and understanding these CSFs is crucial for successfully implementing and governing smallholder supply chains. In future research, the applicability of the 3S-model should be explored in different smallholder food supply chains and related CSFs and drivers in different geographical contexts by in-depth case studies, because our present paper is explorative and conceptual in nature. This may confirm, modify or specify the 3S-model and related CSFs and drivers. It may turn out that also other CSFs are important for smallholder inclusion in high value adding supply chains by F&A MNEs, too.

The foregoing analysis of sustainable smallholder sourcing strategies leaves unaddressed a number of questions that represent avenues for future research.

First, how to measure and to monitor smallholder livelihood improvement of sustainable smallholder sourcing models? Measuring and monitoring the impact is not only a matter of defining inclusive indicators, but also of how to make the indicators applicable at low cost and widely acceptable. Second, how to harmonize the sustainable sourcing strategies from a business perspective between headquarter and subsidiaries (active in different developing and emerging economies) of F&A MNEs? Sustainable smallholder supply takes place far from global companies' headquarters.

Our research work can help to gain a deeper understanding of the concept of sustainable smallholder supply from a business perspective.

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