HLPE REPORT 6

# Investing in smallholder agriculture for food security

A report by

The High Level Panel of Experts

on Food Security and Nutrition

June 2013

CFS Committee on World Food Security

HLPE High Level Panel of Experts

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*Referencing this report:*

HLPE. 2013. Investing in smallholder agriculture for food security. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

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# FOREWORD

**Investing in smallholder agriculture: a new deal for food security and nutrition**

The High Level Panel of Experts on Food Security and Nutrition (HLPE), which I have the privilege to chair, is the science-policy interface of the Committee on World Food Security (CFS). It was established in 2010 to provide the CFS with credible scientific and knowledge-based advice to underpin policy formulation. The HLPE aims to organize a collective, evidence-based, response of science and technology, directly from the knowledge holders to policy-makers on a demand-driven basis.

The HLPE works at the request of CFS to provide policy-oriented analysis and recommendations to ensure that policy decisions are based on sound scientific evidence. Since its establishment in 2010, the HLPE has presented the following four reports for the consideration of CFS at its annual sessions in Rome in October: in 2011 “Price volatility and food security” and “Land tenure and international investments in agriculture”; in 2012 “Food security and climate change” and “Social protection for food security”. In 2013, our following two reports will nourish the CFS debate: “Investing in smallholder agriculture for food security” and “Biofuels and food security”.

All six reports were prepared at the specific request of CFS and were therefore demand-driven. The tenure of the present Steering Committee comes to an end in October 2013. The CFS Bureau is currently finalizing the composition of the next Steering Committee, which will start functioning in October 2013. The CFS had chosen the following two topics for discussion in its October 2014 session: “The role of sustainable fisheries and aquaculture for food security and nutrition” and “Food losses and waste in the context of sustainable food systems”. We have taken the preliminary steps essential for the incoming Steering Committee to complete the reports on time for the October 2014 meeting.

It is a tribute to CFS that it does not shy away from difficult, controversial and challenging topics. The HLPE is aware that there is wide variability on our planet with reference to socio-political, socio-economic and agro-ecological conditions. Hence, we avoid generalizations and present policy options, the bottom line always being sustainable food and nutrition security.

The reports of the HLPE have to serve as an evidence-based starting point for policy analysis among stakeholders holding different points of view. They have to set the stage by making comprehensive assessments, encompassing all approaches and streams of narratives, even if they strongly differ. They have to make it easier for each and everyone in the policy debate to understand the various points of view and arrive at a consensus.

I would like here to underline one very specific feature of our work, which makes it both scientifically challenging and intellectually rewarding. Stakeholders in CFS, such as governments, research institutions, farmers’ representatives, civil society organizations and the private sector are asking for knowledge and scientific advice. And at the same time, most of them are also knowledge holders. This is why we integrate two public consultations in the elaboration process of our reports, at early stages of their preparation. They serve both to better understand what the concerns are and to gather additional knowledge and evidence.

In October 2011, the CFS requested the HLPE to undertake: “a comparative study of constraints to smallholder investment in agriculture in different contexts with policy options for addressing these constraints, taking into consideration the work done on this topic by IFAD, and by FAO in the context of COAG, and the work of other key partners. This should include a comparative assessment of strategies for linking smallholders to food value chains in national and regional markets and what can be learned from different experiences, as well as an assessment of the impacts on smallholders of public-private as well as farmer cooperative-private and private-private partnerships” (CFS 37, Final report, October 2011).

Investment for agriculture and especially for smallholders is acknowledged to be an absolute necessity, especially as the majority of the hungry people in the world are, paradoxically, small farmers. The topic first requires us to understand what we are talking about – what is smallholder agriculture – and to reflect upon the very future of small-scale agriculture. We are often confronted with very contrasting visions based on national situations and trajectories. The majority of investments in agriculture are realized by farmers themselves. Therefore, the main issue is to better understand what smallholders need to be able to invest.

This report contains the analysis and recommendations of the HLPE as approved by its Steering Committee at its meeting held in Beijing, 13–15 May 2013. It is now being presented to the CFS.

The HLPE operates with very specific rules, agreed by the CFS, which ensure the scientific legitimacy and credibility of the process, as well as its transparency and openness to all forms of knowledge.[1] I wish to pay my tribute to the very large number of experts who have helped us to prepare, under tremendous time pressure, this report. Let me first thank the Vice-Chair Madam Maryam Rahmanian and all my colleagues in the Steering Committee for the hard work done in the guidance and oversight of the studies until their approval by the Steering Committee in May 2013. They have given their time and knowledge free for this work. As per our rules of procedures given by the CFS, the Project Teams are working “under the Steering Committee’s oversight”. My special thanks go to Alain de Janvry, who convened the Steering Committee’s oversight for this report. My gratitude goes to the Project Team Leader Pierre-Marie Bosc (France), and to the Project Team members Julio Berdegué (Mexico/Chile), Mamadou Goïta (Mali), Jan Douwe van der Ploeg (Netherlands), Kae Sekine (Japan) and Linxiu Zhang (China). Our gratitude also goes to the external scientific peer reviewers and to the large number of experts who commented both on the terms of reference and the first draft of the report. They constitute the global college of invisible experts who support the HLPE.

Let me also express my gratitude to the donors who have funded this exercise. The HLPE is financed through extra-budgetary resources and we are impressed with the spontaneous support that the mission and rationale of the HLPE has generated.

It is our hope that this report, requested by the CFS, will come timely for three important reasons. First, it should help to nourish policy debate at the next meeting of the CFS in October 2013. Second, we hope it will be relevant to the ongoing work of the CFS on principles for responsible agricultural investment. Finally, as we are heading towards 2014,

[1] The procedure is described in more detail in Appendix 4.

we believe it can make an important contribution to the preparation of the International Year on Family Farming 2014.

The HLPE Steering Committee, appointed by the CFS, is being renewed in 2013. I give my best wishes to my successor, as well as to the new Steering Committee. I wish also to express my admiration and gratitude to the Coordinator of the HLPE, Vincent Gitz, for his untiring efforts, exceptional commitments and vision. This report, as well as our other reports, owes much to his dedication and hard work.

Finally, I wish to record my sincere appreciation to the Chairman and Members of CFS and to the CFS Bureau and CFS Advisory Group for their encouragement during these first years of operation of the HLPE.

To sum up, the report calls for a **new deal for smallholders**. Smallholders constitute the majority of farm families in the world and their contributions to household, national and global food security are monumental. 2014 has been declared by the UN as the International Year of Family Farming. I should emphasize that a smallholding offers great opportunities for sustainable intensification. To reveal the potential of smallholdings, we must enable small farmers to overcome constraints to investments. I hope this report will be helpful for every nation to extend to smallholders a new deal comprising the following five components:

- conservation and enhancement of soil health
- sustainable management of all water sources and launching a “more crop and income per drop of water” movement
- extending appropriate technologies and inputs
- providing the needed credit and insurance
- ensuring assured and remunerative marketing opportunities.

All these programmes should be engendered, in order to ensure that the support systems that women farmers need, such as crèches and day-care centres, as well as access to credit, insurance, technology and market, are provided.

M.S. Swaminathan

Chair, Steering Committee of the HLPE, 24 June 2013

# SUMMARY AND RECOMMENDATIONS

In October 2011, the Committee on World Food Security (CFS) requested the High Level Panel of Experts (HLPE) to prepare "*a comparative study of constraints to smallholder investment in agriculture in different contexts with policy options for addressing these constraints, taking into consideration the work done on this topic by IFAD, and by FAO in the context of COAG, and the work of other key partners. This should include a comparative assessment of strategies for linking smallholders to food value chains in national and regional markets and what can be learned from different experiences, as well as an assessment of the impacts on smallholders of public-private as well as farmer cooperative-private and private-private partnerships*" (CFS, 2011 – Final report of the 37th session).

Addressing this request requires defining smallholder agriculture, understanding what it covers, the scope and purpose of investments, and framing the question in a broader perspective on smallholder agriculture, including its contribution to food security and its future trajectories, taking into account diverse regional and national situations.

Of the 1.4 billion extremely poor people in the world (living on less than USD1.25/day), 70 percent are estimated to live in rural areas and most of them depend partly (or completely) on agriculture. For this reason, the urgent and undeniable need to reduce poverty puts smallholder agriculture at centre stage.

## Main observations

**1. What is smallholder agriculture?**

1. There are a number of different definitions of "smallholder agriculture"[2] and each definition carries implications for the measurement of the number of smallholders. Definitions also guide our understanding of the investment needs of smallholders. A discussion on definitions is therefore neither trivial nor academic, but has real implications for policies and impacts on livelihoods.

2. Smallholder agriculture is practised by families (including one or more households) using only or mostly family labour and deriving from that work a large but variable share of their income, in kind or in cash. Agriculture includes crop raising, animal husbandry, forestry and artisanal fisheries. The holdings are run by family groups, a large proportion of which are headed by women, and women play important roles in production, processing and marketing activities.

3. The definition of "smallholder agriculture" cannot be rigid or "one size fits all": there are many variations in each specific context at the regional, national and local levels, and also over time as economies transform. Classifications of smallholder agriculture based only on farm size can be misleading. A smallholding is "small" because resources are scarce, especially land, and using it to generate a level of income that helps fulfil basic needs and achieve a sustainable livelihood consequently require a high level of total factor productivity, requiring in turn a significant level of investment.

[2] This report deals mainly with crop and livestock systems from a smallholder perspective. Some of the analysis and recommendations can also apply to other systems. Specific issues related to fisheries and aquaculture will be dealt with in the upcoming report of the HLPE on the role of sustainable fisheries and aquaculture for food security and nutrition (forthcoming, 2014).

4. Smallholder agriculture is also defined in relation to, and in contrast with, two opposites – larger commercial holdings with hired labour on the one hand, and landless workers on the other.

5. Off-farm activities play an important role in providing smallholders with additional income and as a way of diversifying risk, thus improving their resilience to the shocks that impact on agriculture. Off-farm activities are a common feature of rural economies, both in developed and developing countries, and offer opportunities for investments in support of smallholders.

6. The family is at the same time a social unit of production and consumption and the source of labour for agriculture. The productive and the domestic sides of smallholder farmers are closely linked. These linkages explain some of the constraints faced by smallholders regarding investments, as shocks and risks can spread between the production side and the family side; they also explain the resilience of rural societies because of reciprocal ties relying on kinship and social proximity.

7. Today, smallholder farmers detached from any type of market exchange are no longer significant in social or economic terms, but smallholders producing only or mainly for subsistence are not uncommon – in all regions. These farms rely on their own production for food consumption, as a complement to low monetary incomes. These smallholders are part of the market economy through their provision of labour, and their food security depends on their production, which does not necessarily enter the market.

8. At the collective level, smallholders' families are part of social networks within which mutual assistance and reciprocity translate into collective investments (mainly through work exchanges) and into solidarity systems. They also participate – when political freedom allows it – in rural producers' organizations and local development associations in order to improve service provisions, including market access and market power, access to productive assets and to have a voice in public policy debates.

9. To appraise the magnitude and diversity of smallholder agriculture and to inform sound policy-making, more accurate and extensive data are needed: not only on land size, but also on assets' composition (resulting from past investments), production and sources of income. Such data are currently not available at the global level, and at the national level for some countries only. The FAO's World Census of Agriculture (WCA) frames and organizes the way censuses have to be implemented in all countries. However, there are three difficulties that need to be overcome: (i) not all the countries have the means, the interest and the capacities to carry them out: the last completed WCA round covered 114 countries; (ii) data are not always homogeneous and comparable; they can vary according to the specific focus of each country; and (iii) they are not linked to production statistics, making it difficult to make the link to national and global production according to the type of holding.

**2. Why invest in smallholder agriculture?**

10. Smallholder agriculture is the foundation of food security in many countries and an important part of the socio/economic/ecological landscape in all countries. With urbanization, integration and globalization of markets, the sector is undergoing great transformations that are of vital national interest, that are often against the interests of smallholders, and that are neither inevitable nor a matter of chance, but of social choice. Depending on regional, national and subnational contexts, these transformations can lead to various patterns, which all entail a certain proportion of smallholders and larger farms, with impacts on the diversification of the rural economies.

11. The structural transformation that occurred in the Western countries and in some of the Asian and Latin American countries has been grounded on intensive use of resources, and on the capacity of these economies to create jobs in other sectors, or on the possibility of massive domestic or international migrations. The situation is quite different today owing to regionally contrasted demographic and economic patterns with implications for job creation in non-agricultural sectors to absorb new entrants into the labour market.

12. Smallholders contribute to world food security and nutrition while performing other related roles in their territories. Historical evidence shows that smallholder agriculture, adequately supported by policy and public investments, has the capacity to contribute effectively to food security, food sovereignty, and substantially and significantly to economic growth, the generation of employment, poverty reduction, the emancipation of neglected and marginalized groups, and the reduction of spatial and socio-economic inequalities. Within an enabling political and institutional environment, it can contribute to sustainable management of biodiversity and other natural resources while preserving cultural heritage.

13. The contribution that smallholder agriculture makes to world food security and nutrition is both direct, in as far as it links production and consumption for many rural households, and indirect because (a) it is provisioning domestic markets with the main food products, (b) it does so in a potentially resilient way, and (c) because in many countries smallholder agriculture functions as an important social safety net.

14. The potential efficiency of smallholder farming relative to larger farms has been widely documented, focusing on the capacity of smallholders to achieve high production levels per unit of land through the use of family labour in diversified production systems.

15. Predicted challenges in feeding humanity point to the need to pay greater attention to the sustainable use of natural resources and to limit damage to the environment. At a global scale, attention must be given to the increasing scarcity of fossil fuels, water, soil fertility and biomass. Many examples of efficient and sustainable smallholder farming exist (from China and Viet Nam, to Costa Rica and Guatemala) that demonstrate that it can be an economically, socially and environmentally effective way of organizing agricultural production.

16. Despite the limitations of defining smallholders by the size of their holdings, comparable data compiled for 81 countries offer a telling picture: in this dataset covering two-third of the world population and 38 percent of the agricultural area, 73 percent of the total number of holdings dispose of less than 1 ha of land and 85 percent dispose of less than 2 ha. The majority of holdings below 2 ha are found in Asia. In Africa, 80 percent of the holdings are below 2 ha. In developing countries, the total number of smallholdings tends to reach 500 million units. According to the WCA, China has close to 200 million smallholdings; they cover only 10 percent of the agricultural land that is globally available, and they produce 20 percent of all food in the world. This is an important indication of the productivity that can be achieved in smallholder agriculture relative to larger farms.

17. Even in developed countries, smallholders have changed but have not disappeared. Though they have been neglected by policies often favouring larger farmers, they remain numerically important depending on the prevailing national context, often combining farming with other activities in the rural non-farm economy.

**3. Who invests in smallholder agriculture?**

18. Most investments in smallholder agriculture are realized by smallholders themselves. This occurs through different modalities but mostly through labour investments to enlarge and improve the resource base, and to a lesser extent through personal savings and remittances from family members that are used for the acquisition of new, additional resources. However, these investments are limited since domestic needs receive priority when food, health or education expenditures are at risk.

19. Public investments in and for agriculture have fallen considerably since the 1980s. It is now widely recognized that agriculture has been neglected at both the national and international levels. Many agricultural banks (mostly linked to, and supported by, the state) have disappeared, and extension services, applied research and investment in infrastructure projects have declined since the mid-1980s.

20. Meanwhile, larger enterprises mostly oriented at agro-exports have been favoured, while the smallholder sector, mainly (although far from exclusively) producing for the domestic market, has been neglected. Major corporations and other private sector companies were expected to provide the appropriate market services as well as the technical knowledge to help producers upgrade their standards in order to meet market requirements. This has occurred in some places, but not in most, and often not in ways that have benefited smallholders. When related to the total number of smallholders, only a minority has actually been able to participate in such schemes.

21. There is growing interest in making more effective use of public–private partnerships (PPPs) in order to better mobilize and orient private investments towards collective goals. This generic term covers various types of partnerships between public and private actors, used initially for large investments projects, research and technology, and now increasingly putting emphasis on agriculture. Many governments are in the process of designing legal frameworks for PPPs, including in the agriculture sector. One difficulty here is how to make them work for smallholders and how to involve them in their design.

**4. What are the constraints to investing in smallholder agriculture?**

22. When confronted with the need to invest, smallholders face a diversity of often interrelated constraints: poverty, high levels of risk (personal, natural and technical, and economic and financial), declining size of land holdings, lack of incentives in their economic and institutional environments, difficulties in accessing appropriate markets, and the weak voice of smallholders' organizations in policy debates.

23. The diversity of such constraints to investment can be organized along three dimensions related to (i) assets, (ii) markets and (iii) institutions. These dimensions not only present a basis for understanding the variety of constraints to investments, they also hold clues to overcoming them.

    a) The first dimension addresses natural and productive assets, including physical, financial, social and human assets. Investment decisions need to address the totality of the asset base of the smallholding. Among the assets, the natural resource endowment of the holding is a key factor, and it is important to note that, even when limited in size, it can be improved through investments. Limited access to land and other natural assets (especially water) is one of the most binding constraints on smallholder farming investment, especially for women. Highly skewed distribution in the access to land and water critically hinders the productive potential of smallholder farmers.

b) The second dimension addresses markets and market agents. Unfavourable conditions such as price volatility, lack of access to appropriate markets, including to financial markets, lack of collective bargaining power and high transaction costs discourage investments or even make them impossible.

c) The third dimension addresses institutions and policy design. Good policy design is essential, as well as innovative and enabling institutional environments. Smallholder organizations and collective action are crucial, yet there are many impediments to their effective participation, including, in some cases, a lack of recognition of their basic rights.

**5. What strategies have been shown to work in overcoming these constraints and enhancing investment in smallholder agriculture?**

24. To realize the full potential of smallholder agriculture, there is a need to reduce or eliminate the constraints that limit its investment capacity. The first objective is to support investments by smallholders themselves, but their capacity to do so depends on other related investments in collective action, private initiatives and in public goods.

25. To be more effective, policies need to be integrated in the sense that each policy should support (rather than hinder) the other. For example, investments in appropriate research and extension will not necessarily lead to improvements unless investments are also made in accessing and creating new appropriate markets. Similarly, investments in infrastructure work better if they support the models of production and markets that are appropriate to smallholders and, further, these investments would not reach their aim unless investments are also made in securing tenure rights.

26. Governance for agriculture and rural development needs to be designed to support the multifunctional roles of smallholder farming in development. Traditional ministries of agriculture are typically insufficient in fulfilling this function. Experience shows that the efficiency of specific sectoral or ministerial policies is mutually enhanced by their coordination. This often calls for specific national level governance and coordination mechanisms between different ministries, public administration and concerned stakeholders.

27. Smallholder agriculture in particular and agriculture as a whole are often left to undergo great transformations that are sometimes positive but sometimes adverse for smallholders and their food security. These transformations are not inevitable but are the result of explicit or implicit political choices, very often of vital national relevance. Within such political choices, depending on national specificities, it is paramount to recognize and support the important socio/economic/ecological functions of smallholder farming. Appropriate choices and policies result from transparently determined political processes that involve smallholder organizations.

28. Coordinated actions to enhance smallholder investments and capacities to invest can be described along three lines of actions: improving assets, improving markets and improving institutions for smallholders. These actions are not limited to agriculture, but may concern off-farm activities.

    a) *Increasing smallholders' access to natural and productive assets.* Increased access to land, tenure security and the right to use common property resources are essential to the livelihoods of many smallholder communities. With secure access to resources (and adequate incentives and institutional settings that allow increasing the productivity of smallholder family labour), the smallholder family may realize a level of income that enables further investments. This implies that investing in smallholder agriculture to improve efficiency and outcomes for smallholders can be done even without increasing holding size.

b) *Improving smallholders' access to markets.* Smallholder agriculture needs to be better linked to markets by reducing transaction costs, with better infrastructure and key public investment. An additional issue is how to invest and with which stakeholders to increase and keep more value-added at the holding and territorial level. In order to create favourable conditions, it might be necessary to develop new markets (such as "short circuits" that reduce the distance between consumers and producers, and public procurement schemes) and to regulate existing markets differently. In particular, the efficiency of the domestic market can be improved, benefiting both producers and consumers through adequate strategies combining public and private investments.

The advantages and disadvantages of contract farming for smallholders have been a subject of controversy. Contract farming cannot be a miracle solution to problems smallholders are facing, or applicable to all smallholders in the world. However, given its potential, this report suggests investigating the economic and institutional conditions for making contract farming an inclusive, fair and transparent process for smallholders. This includes monitoring accountability mechanisms on impacts on their food security at the household level and beyond, and on the distribution of value-added among stakeholders. Improving access to innovative credit schemes, collective investments in physical and social capital, and in collective assets to improve market access, are important to enhance the competitiveness of smallholder farming.

c) *Making institutions work for smallholders.* The state has a key role to play in regulating market relations. It is therefore important to invest in re-establishing (whenever needed) the authority and capacity of the state through rebuilding and strengthening the ability of the public sector to act efficiently in support of smallholder development, including achieving accountability of the resources allocated. The state and local authorities also have a key responsibility in recognizing and enforcing the rights of smallholders, for instance to access land and water, and above all to ensure security of tenure and access to common property resources.

Most agricultural development programmes have been designed to increase productivity through technology-driven intensification, yet, while productivity is important, other related objectives must also be considered, especially increasing resilience. Research and extension systems are crucial to enhanced investment in smallholder farming by designing and promoting appropriate systems and practices adapted to the needs of smallholders, such as agro-ecological approaches and other sustainable intensification practices aiming at a more efficient use of inputs and decreasing the drudgery of agricultural labour.

29. Investing in public goods is essential for poverty reduction in the rural population as well as to reduce regional disparities. This includes specific attention to agriculture, through research and extension, for example, but also basic public goods for the rural population such as roads and communications, electricity, irrigation, education, health, water and sanitation. The family labour force is smallholders' first and foremost asset. Undernutrition, lack of safe and accessible drinking water, diseases, lack of education, highly unequal gender relations, etc., all degrade the quality and quantity of the family labour force. Consequently, safeguarding basic needs is absolutely essential. Providing better services for smallholders would enable them to better invest – not only in farming, but also in non-farm activities that could provide a source of monetary incomes and remittances to invest in agriculture.

30. Strengthening the collective voice of smallholders at various levels remains high on the agenda to improve investment capacities; the organizations themselves have to consider investments to serve their members within a market-led economy. They will need public support to be more effective in servicing their members and voicing their interests.

31. To be effective, policies that address poverty and malnutrition and hunger must be based on respect for the right to food. The right to food differs from food security in providing entitlements to individuals – and placing legal obligations on states – to access adequate food and the resources that are necessary for the sustainable enjoyment of food security. Achieving the right to food for smallholders requires improved investments in their capacity to produce and earn incomes.

# Recommendations

Smallholder farmers are the main investors in their own farming as they seek to increase productivity, improve their well-being, including food security and nutrition, and reduce environmental degradation. However, governments and donors have a fundamental role to play in providing the policies and public goods necessary to make smallholder farmers' investments possible. In what follows, we make recommendations to governments, donors and the CFS for policies and public investments in support of smallholder farmers' own investments. The recommendations are also offered as input to the ongoing CFS consultations on the principles for responsible agricultural investments.

## 1. Developing a national strategy and mobilizing political will

a. **National Smallholder Investment Strategies**: Governments should design and implement medium- and long-term strategies, with the accompanying set of policies and budgets, to increase the capacity of the smallholder sector to fulfil its multifunctional roles in national development. These roles include contributing to growth, maintaining employment, reducing poverty, enhancing the sustainable management of natural resources and achieving food security. These National Smallholder Investment Strategies should be solidly grounded in participatory processes involving first and foremost the smallholder organizations and all concerned stakeholders.

b. **Citizenship and rights**: When it is not already the case, governments should recognize in law the individual and collective rights of smallholders**,** including their right to organize democratically, to have voice in policy debates and to defend their interests, with gender- and age-balanced representation. Securing such rights is important not only intrinsically for them but also in contributing to building the political will necessary to implement the proposed National Smallholder Investment Strategies.

c. **Achieving the right to food for smallholder farmers**: This population is more exposed to malnutrition and hunger. It derives its access to food through self-provisioning, the exchange of products and market purchases based on monetary income. Attention thus needs to be given not only to increasing purchasing power, but also to accessing productive assets and increasing the productivity of land and labour in smallholder farming through appropriate training, technology and support services to achieve food and nutrition security with a rights-based approach.

## 2. Gaining access to natural assets

Governments must guarantee tenure security for smallholder farmers over land and natural resources, by implementing the *Voluntary guidelines on responsible governance of tenure of land, fisheries, and forests*. They must also take relevant measures to improve cooperation and governance in the management of common property resources, including open-range pastoral resources, biodiversity, water, forestry and fisheries. Women's rights to land and natural resources use must be developed and strengthened. Governments should improve access to land by various means including land reform processes, making use of the lessons learned from other countries' experiences.

3. **Providing a favourable investment climate**

   a. **Access to public goods**: To support their investment efforts, smallholder farmers need adequate access to public goods on both the production and consumption sides of the household, with benefits reinforcing each other. On the production side, public investments are needed, for example, in water management facilities and soil conservation. On the consumption side, public investments are needed in health services, education, water and sanitation, and social protection. By increasing the productivity of labour, these consumption goods reinforce the production side of the smallholder operations. Gender-specific support services are needed to recognize the differential roles of household members in production, consumption and the reproduction of the family unit over time. Achieving level playing fields for smallholder farmers in accessing public goods and services is the responsibility of governments and is essential to securing their well-being and competitiveness.

   b. **Access to markets:** Governments should give priority to linking smallholder farmers to domestic, national and regional markets, as well as to new markets that create direct links between producers and consumers, and to schemes that rely on smallholders for the procurement of food for school and institutional feeding programmes. Developing these market linkages also requires investment in small- and medium-size food processors, and small-scale traders at the retail and wholesale levels. Market failures and price volatility are major disincentives for smallholder investment. Government intervention is important to reduce transaction costs on markets and to stabilize prices and smallholders' incomes. Regarding contracting opportunities in value chains, governments should strive to establish the necessary regulatory instruments to bridge the significant gap in economic and political power that exists between smallholders and their organizations on the one side, and the other contracting organizations on the other side.

   c. **Access to financial services:** There is an urgent need to improve smallholder access to financial services adapted to their needs. This includes facilitating monetary transactions (such as mobile-phone based money transfers), safe savings deposits (with incentives to save), low-priced credit (such as through joint-liability group lending), and insurance (such as index-based weather insurance). Novel solutions are needed that reduce financial risks, lower transaction costs and facilitate long-term investments, for instance in technological innovations and soil fertility improvements in sub-Saharan Africa. Liquidity constraints must be relaxed not only on working capital expenditures (fertilizers, seeds), but also on medium- and long-term investments, supported by fair subsidy mechanisms.

4. **Improving productivity through research and extension.**

   There is an urgent need to upgrade and finance national research and extension systems targeted specifically to the needs of smallholders, with supporting financial mechanisms. The main objective would be to increase productivity and resilience through diversification of the production system with a high concern for the self-provision of diverse foods with a high nutritional value. Combining increased productivity and resilience will require a high level of investment in research to develop productive land-use systems with minimal ecological risk such that biodiversity may be used productively and conserved. Agricultural research and extension should support the *in-situ* and *ex-situ* conservation of agricultural biodiversity in the context of climate change. Agro-ecological approaches and production ecological principles may be instrumental. Smallholder farmers need appropriate seeds as well as machinery for field operation, food processing and other value-adding transformations. International collaboration and the sharing of experiences in technology development for smallholder farmers in different regions of the world should be promoted with a strong engagement, if not leadership, of smallholder organizations.

5. **Investing beyond the farm: rural non-farm economy and territorial development**

   a. **Diversification of sources of income.** When confronted with the need to escape poverty and malnutrition, smallholder households often need access to complementary sources of income in the rural non-farm economy. Successful rural non-farm employment in turn consolidates the farm economy, providing it with liquidity and risk-reduction that support on-farm investments. For this, investment must be made in support of the rural non-farm economy and the decentralization of economic activity towards rural areas. Investment must correspondingly be made in the qualifications of young people so that they can find employment either in modernized agriculture or in other related activities and labour markets. Territorial development can offer an effective platform to coordinate public and private investments in agriculture and in the regional non-farm economy.

   b. **Governance for agriculture and rural development.** Extensive market failures for agriculture and smallholders, and the need to coordinate public and private investments and programmes in a territorial perspective, require appropriate governance. Governance for agriculture and territorial development requires going beyond the traditional ministries of agriculture. Different solutions must to be tailored to national political and institutional contexts. Early lessons from implementation of the Comprehensive African Agricultural Development Programme (CAADP) and the Global Agriculture and Food Security Programme (GAFSP) offer an opportunity to reflect on best practices across countries and regions for investments in support of smallholder farmers.

   c. **Up-to-date information on the smallholder sector.** In order to better inform National Smallholder Investments Strategies, international agencies and especially FAO, in cooperation with national governments, need to better document the evolution of smallholder agriculture and its contributions to various outcomes. These outcomes include measurement of non-market food production and of the diversity of diets. The World Census of Agriculture [WCA] and other data collection efforts should be harmonized to strengthen the evidence-base for investment decisions. International funding should support countries in implementing censuses and related surveys.

## Recommendations to the CFS

1. Given the critical role for smallholder farmers to attain food security through the combination of self-provision, exchange of products and market transactions, and the fact that a large portion of them are suffering from food insecurity, the CFS could promote awareness on the specific instruments, programmes and policies needed to realize the right to food for smallholders by creating a specific platform for the sharing of lessons learned and best practices among countries.

2. To support the National Smallholder Investment Strategies, CFS could request IFAD, the World Bank, bilateral funding agencies and regional development banks to finance pilots of the design, implementation and monitoring of such strategies in a small number of countries. These efforts should build on the findings of the present report. The results of these experiences should be fed back to the CFS as a means of assessing and improving the design of multisectoral policies on this complex issue.

3. Contract farming and public–private partnerships (PPPs) may offer opportunities to improve smallholders' food security. To maximize benefits, improve fairness and the food security impacts of these arrangements, there is a need for implementable and monitorable frameworks agreed by all countries and crafted with the involvement of smallholders themselves. The CFS could take up the challenge of leading inclusive processes to develop (i) guidelines on contract farming and (ii) guidelines on PPPs that relate to investment in smallholder farming.

# INTRODUCTION

Agriculture has suffered and continues to suffer from long-term underinvestment at both the macro and micro levels (World Bank, 2007). The report on *The State of Food and Agriculture* (FAO, 2012a) confirms the low levels of capital in the hands of smallholders in low- and middle-income countries and its depreciation in sub-Saharan Africa during the period 1980–2007. At the same time, a vast majority of the hungry people in the world are, paradoxically, small farmers (FAO, 2012a). Therefore, the issue of investments in agriculture, and especially in smallholder agriculture, and related policies and institutions to support smallholder agriculture (FAO, 2010a), is at the top of the agenda of the international community. It is of critical importance today, as agriculture is undergoing massive changes in a period when both public and private investors are trying to secure their access to land and water (HLPE, 2011a), and confidence in the ability of the market to ensure food security has been undermined by the food price rises in 2008 (HLPE, 2011b).

In line with these developments, the CFS requested the HLPE to conduct: "*a comparative study of constraints to smallholder investment in agriculture in different contexts with policy options for addressing these constraints, taking into consideration the work done on this topic by IFAD, and by FAO in the context of COAG, and the work of other key partners. This should include a comparative assessment of strategies for linking smallholders to food value chains in national and regional markets and what can be learned from different experiences, as well as an assessment of the impacts on smallholders of public-private as well as farmer cooperative-private and private-private partnerships*" (CFS 37, Final Report, October 2011[3]).

The present report contributes to the lively debate on investments in agriculture by focusing on the crucial role of smallholder agriculture for food security and by tackling the complexity of smallholder production systems, as well as the constraints they face, in the broader perspective of the structural transformations of agriculture worldwide.

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Addressing the CFS request first implies defining the scope and purpose of investment in smallholder agriculture. To achieve this, a common understanding of smallholder agriculture is required, framed within the overall context of its role in achieving food and nutrition security: *"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*" (World Food Summit, 1996).[4]

The contribution of smallholder agriculture to food security has to be examined in relation to the four dimensions of food security: food production (availability), providing livelihoods and income (access), as a way to diversify diets (utilization) and as a buffer to price volatility, market related and other shocks (stability).

Smallholders are too often in a permanent state of food insecurity (including issues of quality of diet and nutrition), through insufficient self-provision of food and lack of access to purchased food because of limited income and deficient markets. Self-provision of food plays an important role of safety net for the household, and as an insurance against economic uncertainty. Smallholder food insecurity is sometimes aggravated within the family because of unfair repartition of food among members linked to cultural norms and practices.

The majority of smallholders live in poverty**,** which in turn acts as a constraint on economic development by reducing the size of the internal market owing to limited demand.

In other words, it is important to take into account the various ways by which smallholders contribute to food security and how investments could improve these contributions. This implies considering the role of smallholders as providers of food not only for themselves and their rural communities but also

[3] http://www.fao.org/fileadmin/templates/cfs/Docs1011/CFS37/documents/CFS_37_Final_Report_FINAL.pdf

[4] This definition is based on four dimensions – availability, access, utilization and stability – used to frame the core issue of this report. Food availability: the availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports. Food access: access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Utilization: utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. Stability: to be food secure, a population, household or individual must have access to adequate food at all times. See: http://www.fao.org/docrep/003/w3613e/w3613e00.HTM

globally, taking into account the growing urban population and growing demand for more livestock products. It also implies keeping in mind that the majority of the hungry and malnourished are smallholders and, in general, rural populations engaged in agriculture.

The debate on investments in agriculture and in smallholder agriculture can turn quite complex owing to the diversity of situations and of stakeholders' viewpoints on smallholder agriculture and its future. It takes place in a complex, continuous space, inscribed between two polar visions of smallholder agriculture and of smallholders' future.

According to one narrative, smallholders will never be "competitive"; they are among the poorest populations and the main policy focus should be the provision of social safety nets and of education to help the youth migrate and find employment outside agriculture. Smallholders, believed to be poor and struggling for a decent future, are envisioned to disappear, progressively replaced by modern, larger farms, strongly engaged in global markets, characterized by increasing land concentration and with strong links to agro-industries. According to this vision, only a minority of the current smallholders would remain in agriculture, as "entrepreneurs", and the majority would need to leave agriculture and rural areas, as occurred during the industrial revolution in Europe. They would further develop models of production with increased reliance on inputs and capital, in substitution of labour.

According to the other narrative, smallholders should stay on the land and transform themselves: they would become "modern peasants", productive, efficient and resilient. They would provide the cities with healthy foods, be stewards of natural resources, rely less on fossil energy and agro-chemicals than large commercial farms, and preserve biodiversity in their diversified production system. They would rely on off-farm incomes where needed, but avoid low qualification work and life in urban slums, or the hardships of migration: there would be sufficient incentives for them to stay in agriculture and in rural areas. They would form the basis of a labour- and knowledge-intensive model of agriculture, with the production and processing of high-quality goods, including in particular for local/regional markets, in a vibrant and dense rural economy, where farms would not inevitably increase in size.

Reality is in fact much more complex than any simplified narrative, as the evolution and transformation of agriculture (and of smallholder agriculture), confronted with diverse structural trends, can follow very diverse pathways. Among these pathways can be found the example of several developing countries such as Brazil, Viet Nam or China, where agriculture and the smallholder sector have undergone rapid changes in recent years, confronted with very competitive markets and where smallholders co-exist with other forms of agriculture, including large-scale corporate farming. Smallholder development is, in this case, driven and shaped by market forces as much as by pro-active public policies; and, in some of these countries, by the action of powerful civil society organizations (CSOs), including producers' organizations.

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Investments are, by definition, geared towards the future. The questions of how, where and how much to invest, depend on the visions held by a range of concerned stakeholders (farmers, corporations, public sector representatives, etc.) for their own farm, family, business or nation. In turn, the future is oriented and conditioned by investments.

Transition and evolution pathways for agriculture form both the context for investments and, conversely, are greatly determined by the direction and nature of investments. The evolution of agriculture is, therefore, the result of implicit or explicit policy and institutional choices. Chief among these are often the legal frameworks (including land tenure regimes, regimes for cooperatives, taxation and insurance regimes, social protection frameworks, etc.). Another debated issue relates to the priority that investments give to specific technologies/models of production. A further issue regards the role of markets (including those for land, inputs and products) and what can be done to improve their fairness and functioning for smallholders. The vast majority of smallholders are struggling to cope with unequal access to domestic markets, or with unfair conditions to the access of productive assets characterized by huge market failures. Some markets may even be missing, such as, for instance, markets for seeds and fertilizers or credit markets adapted to smallholder conditions.

One key question of public policy relevance includes the scale of public investments, and its targeting to specific services related to agriculture (from education to extension services, research, farm activities, etc.). Obviously, this is greatly dependent on the capacity to invest for an economy and for the state at the national level: farmers, including smallholders, are supported much more in rich countries than in poor countries.

Finally, the question of the transformation of agriculture cannot be detached from the question of the

evolution of the economy as a whole. When a country generates capacities to invest at the national level, a key question becomes the balance between sectors. Given the importance of farm populations in many countries, the existence – or not – of employment opportunities in other sectors of the economy will shape the future of agriculture. Investments in these sectors will be important but, at the same time, agriculture strongly needs investments. The repartition of public investment between agriculture and other sectors is therefore part of the debate.

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While smallholders are the main investors in their own agriculture, they face many constraints to investment that are specific to their situation. First, self-provision of food remains a key component of the food security strategies of the most vulnerable: it is both an asset and a constraint to generation of income and capacity to invest. Second, their risk-prone environment is a double threat to investments, first by reducing the expected output generated from agriculture, and thus limiting the smallholder's own capacity to invest, and second by the need to sell some of their existing assets to cover urgent needs when there is a shock. On the productive side, technical risks owing to plant pests, animal diseases, climate variability, rainfall irregularity and floods combine with market price volatility to reduce the expected output from agriculture.

All farmers have to invest (in seeds, fertilizers and labour for current production); however, for smallholders, limited income and assets constrain both direct investments and access to credit. Natural and production hazards may lead to increased indebtedness. Family labour is often diverted towards more remunerative off-farm activities. In commercial farms, the family budget tends to become distinct from the farm/enterprise budget, whereas in smallholder farms the family side and the productive and economic sides are closely interrelated: domestic or family risks such as illness, or life-related events such as marriage, may lead to a reduction in productive assets in order to cope with such needs.

Smallholders are keen to invest in agriculture to improve their performance if minimum conditions are met. First is the capacity to access diversified assets without reducing family consumption below a critical level. Second is a secure environment that provides expectations of improvement in the technical and economic performances of the farm. Third is to enjoy improved standard of living conditions regarding access to public or private services and to consider that living in the countryside from agriculture or from a more diversified livelihood is a viable option.

This minimum set of conditions implies that investments by smallholders will require more general investments by public and private stakeholders. Private stakeholders have an interest in investing in rural areas, even in the remote and less endowed ones, where their market shares can be increased, starting from sometimes low levels (e.g. Chamberlin and Jayne, 2013). Public investment is needed to guarantee access to basic services and offer a more decent living to rural citizens.

For governments, it may be wise to invest in rural areas in order to keep them peaceful. Peace, order and security are public goods that are basic conditions for any investor. Why would smallholders behave differently from other investors' rationale regarding safety conditions?

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Analysing the constraints to smallholder investment is a particularly challenging task. It requires a global, worldwide knowledge of realities that are determined at the household level and framed in local and national situations. A first difficulty is to define the very notion of "smallholder": while some characteristics can be established that are common to all smallholders (and are useful to define them as such), others, and even basic ones such as size of holding, or of the herd, or the value of the gross product, differ widely from one country to another, or from the point of view adopted: agronomic, economic or social, etc.

It was important to build a common understanding for this report and base it on a definition of smallholder agriculture that builds upon existing reviews and other theoretical and empirical works trying to "define" smallholder agriculture, also in relation to key issues (such as market access, contract farming, structural transformations, etc.).[5]

A second difficulty is the gaps in available data on smallholders (their production, income, etc.) at a worldwide level, in spite of considerable progress under the World Census of Agriculture (WCA)

[5] Such as Chamberlin *et al*. (2013), Chayanov (1924), Mendras (1976), Deere and Doss (2006), Ellis (1993), Laurent *et al*. (1998), Otsuka (2008), Conway (1997), Arias *et al*. (2012), Jessop *et al*. (2012), Prowse (2012), Losch *et al*. (2012) and Barrett *et al*. (2012), Polanyi (1944), etc.

programme. Tables and graphics produced in the present report[6] use data collected by national institutions for the last round of the WCA, which represents some 84 percent of the population of the world. To describe examples we used diverse sources: articles in peer reviewed journals, national data bases, published and accessible field studies (some of which have not necessarily been peer reviewed).

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The issues addressed in this report concern both developed and developing countries: despite profound differences, they can face similar problems with respect to investment in smallholder agriculture. The report demonstrates that using a food security lens contributes to a useful understanding of the policies needed to support smallholder agriculture. Finally, it proposes policy recommendations on overcoming the main barriers to investments, both by smallholders themselves and by other investors, to achieve food security and nutrition. Particular attention is given to the respective roles of public and private stakeholders in providing (or not) adequate incentives and in shaping an enabling environment for investments.

The report is organized in four sections:

**The first section** defines smallholder agriculture and its investment constraints. It provides an overview of the smallholder sector in different regions of the world. A typology of constraint patterns is presented, based on three dimensions: assets, markets and other institutions.[7]

**The second section** delineates the importance of smallholder agriculture for food security and sustainable development. Reasons to invest in smallholder agriculture are to be considered in the broader perspective of structural transformations of agriculture and the economy, which frame, open or limit policy options.

**The third section** presents the different types of investments that are needed at the smallholder level, but also other types and levels of investments – collective, private and public – needed for smallholders to secure and strengthen their own investment strategies.

**Section four** introduces the way ahead for smallholder agriculture, with options to enable the various actors to facilitate investments in smallholder agriculture for food security, including institutions, policies and related instruments.

[6] All calculations and estimations based on FAO data are under the responsibility of the authors.

[7] Markets are considered as “institutions” in the academic literature, but we find it important here to make a clear distinction between market institutions and institutions (which include policies) considered as the “rules of the game” of the economy (Commons, 1934). The market economy is a powerful engine for growth since competition stimulates productivity gains, but markets need institutions to regulate the behaviour of agents.

# 1 SMALLHOLDER AGRICULTURE AND INVESTMENTS

There is, throughout the world (both in developed and in developing countries), a growing concern for smallholder agriculture. This is strongly related to the rediscovery of its various roles (see chapter 2). At the international level, establishment by the UN of 2014 as the International Year of Family Farming is also a recognition that smallholder agriculture deserves specific attention.

There are many different ways to define smallholder agriculture. This diversity reflects different historical trajectories (see section 2), contrasting contexts, highly diverse ecosystems and variations in urban–rural relationships. It also reflects the different roles smallholders have played – and continue to play – in societies at the local, national and international levels.

For the purpose of this report, we consider the definition of agriculture in its broad sense, including not only crop and livestock production, but also forestry, fisheries and aquaculture production when related to diversified agricultural production systems.[8] We also consider gathering activities (e.g. fishing and hunting) as being part of the livelihoods of smallholders, often providing a significant share of their income.

## 1.1 What is smallholder agriculture?

### 1.1.1 Key features of smallholder agriculture

Smallholders are the largest investors in smallholder agriculture. Their system of production is both complex and dynamic. In order to design policies that effectively support their own investments (including investments by other actors such as the public and private sectors) it is necessary to have a picture of some of the key features of smallholder agriculture that relate to investments. The diversity of possible income flows in an agricultural holding and of possible sources of investment are summarised in Figure 1.

Labour is a key feature of smallholder agriculture. We consider a smallholding to be an agricultural holding[9] run by a family using mostly (or only) their own labour and deriving from that work a large but variable share of its income, in kind or in cash. The family relies on its agricultural activities for at least part of the food consumed – be it through self-provision, non-monetary exchanges or market exchanges. The family members also engage in activities other than farming, locally or through migration. The holding relies on family labour with limited reliance on temporary hired labour, but may be engaged in labour exchanges within the neighbourhood or a wider kinship framework. Reciprocal relationships are important here for product or productive factor exchanges.

Another important dimension is the resource base. This resource base comprises different assets or capital (human, natural, social, physical and financial) and is considered to be “small”: it is, often, barely able to sustain an acceptable livelihood. Smallholders typically strive to further develop their resource base to improve and enlarge agricultural production in order to go beyond precariousness.

A smallholding is “small” because resources are scarce, especially land, and using it to generate a level of income that helps fulfil basic needs and achieve a sustainable livelihood consequently require a high level of total factor productivity, requiring in turn a significant level of investment.

Despite these challenges, smallholders are not by definition poor, and smallholder agriculture is not equivalent to “poverty”. A smallholding can be highly profitable for a family if relevant investments

[8] This report deals mainly with crop and livestock systems from a smallholder perspective though some of the analysis and recommendations may be applicable to other production systems. Specific issues related to fisheries and aquaculture will be dealt with in an upcoming report of the HLPE on the role of sustainable fisheries and aquaculture for food security and nutrition (forthcoming, 2014)

[9] “An agricultural holding is an economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form, or size. Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency. The holding's land may consist of one or more parcels, located in one or more separate areas or in one or more territorial or administrative divisions, providing the parcels share the same production means utilized by the holding, such as labour, farm buildings, machinery or draught animals.” (FAO, 1995).

have been made to develop higher value crops, to process raw products or to provide services to other farmers.

Finally, smallholders are principally family farmers and this has important implications for the organization of their production system. First, there is a close integration between productive assets and the patrimony of the family. This may induce decapitalization in the event of urgent, unpredictable and costly expenditures (for health, or for social obligations such as funerals). It may also allow some of the patrimony to be sold in order to increase income. This integration is a safety net but at the same time it can undermine investments. The high level of risks and the modest means available imply that unpredictable expenditures can trigger an impoverishment spiral. Second, when products are sold, there is pressure to first feed the family and repay loans or debts. Thus the marketable surplus is reduced, cash incomes remain low and, consequently, investments through cash expenditures become difficult. This is linked to a third organizational feature of smallholder production: smallholders often make investments through family labour. This implies that the quality of life in terms of health and access to basic services is of primary importance for productivity, as well as education and training to improve family members' skills, both agricultural and non-farm.

**Figure 1 Flows of income and sources of investments in an agricultural smallholding**

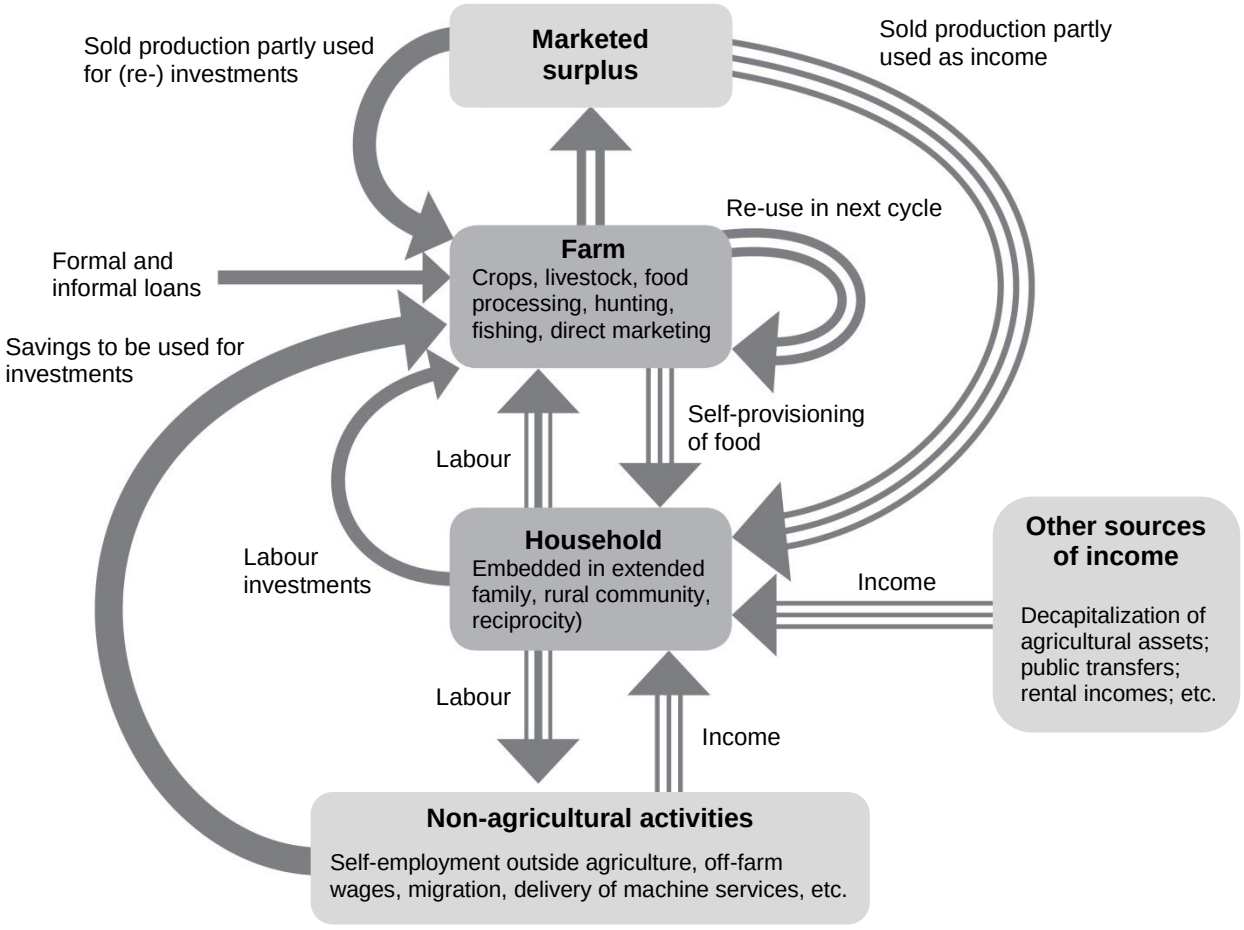



*Figure 1 shows the diversity of possible income flows, self-provisioning of food, and sources that may be used to invest (plain arrows). Investments might be labour investments (e.g. construction of terraces using available family labour; improving soil fertility through the collection and application of nutrients. They might also be based on loans (from banks and/or relatives), on savings obtained from working elsewhere, and/or on money earned through selling the marketed surplus. Total income (grouping monetary and non-monetary income flows together) may vary widely, and includes possible monetary incomes from off-farm employment, wages, public or private transfers, and through possible decapitalization of productive agricultural assets. Together, the different income flows and sources of investment show the complexity of smallholder agriculture and its dynamics.*

## 1.1.2 The challenges of defining smallholder agriculture

There is no universal definition of "small": "small" and "large" are relative and depend very much on the context. The first question that arises is the choice of criteria used to measure size. The most commonly used criterion is land. This is sometimes complemented by other productive assets, such as livestock, or by measures of the productivity of the land, such as irrigation. It could also be income or gross product from the farm, or a combination of these criteria (see infra for examples of national definitions).

To aggregate and compare data across different regions, land is the most easily comparable criterion. On the other hand, the appropriate size threshold must be adapted to regional and national situations. For example, the 1 ha and 2 ha thresholds are relevant in Asia, but in other contexts (such as in Latin America or EU) it might be appropriate to use a different, often higher, threshold. In China and India, most smallholders have far less than 2 ha of land, while a small Brazilian farm may measure up to 50 ha.

Moreover, relying only on the size threshold can be misleading because it does not account for investments in land (e.g. irrigation), tree crops, buildings, improvement in livestock, and equipment for food processing. These investments completely change the model of agriculture and the economic outlook regarding farming.

**Various examples of official definitions of "smallholders"**

In **Argentina** the definition combines various criteria covering agro-physical situation (by provinces), which also corresponds to different types of farming systems, reference to the type of labour used (family labour), and legal status (not being registered as a corporation). The criteria used to differentiate the holdings also take into account the level of assets: machinery, size of cattle herd, planted or irrigated areas.

In Argentina, Smallholders are those producers running a farm under the following criteria:

- the producer works directly on the farm;
- the producer does not employ non-family permanent labour;
- the producer may hire temporary non-family labour.
- The following conditions were established to avoid census registration of cases that were evidently non-family being incorrectly considered.
- The farm is not registered as a joint stock company or other type of commercial company.
- Upper limits of "capital level": farm size, cultivated size of the farm, and size of cattle herd, machinery assets, planted area with fruit trees and irrigated area. Upper limits vary in the different regions of the country: for farm size between 500 and 5000 ha, for cultivated size between 25 (in irrigated oases) and 500 ha. Upper limit for cattle is 500 units of livestock. (de Obtschako, Foti and Román, 2007).

**Mozambique**: Trimodal typology. Farms are classified as small, medium or large on the basis of cultivated area and livestock population. Small farms are farms with less than 10 ha of cultivated area without irrigated land, fruit trees or plantation, or farms with less than 5 ha with irrigated land, fruit trees or plantation, or less than 10 head of cattle, or less than 50 head of sheep/goats/pigs or less than 5 000 head of poultry (*Censo Agro-Pecuario 1999/2000, Instituto Nacional de Estadística. Mozambique*). In Mozambique, 99 percent of farm holdings have less than 10 ha, representing 70 percent of farmland.

**United Republic of Tanzania**: Bimodal typology. "Small scale farm/smallholder household: should have between 25 sq metres and 20 ha of land under production, and/or between 1 to 50 head of cattle, and/or between 5 and 100 head of goats/sheep/pigs, and/or between 50 and 1 000 chickens/ducks/turkeys/rabbits" (*National Bureau of Statistics, United Republic of Tanzania*).

**Côte d'Ivoire**: Bimodal typology (with large holdings divided in two categories: "modern" and "traditional"): Agricultural holdings are grouped as (i) large holdings of the modern sector, (ii) large holdings of the traditional sector (having a minimum specified area under a specific crop), and (iii) small holdings of the traditional sector (all holdings not matching criteria (i) and (ii) (RCI, 2004)).

**Sri Lanka**: Bimodal typology: smallholdings sector (peasant) are those holdings not falling into the category of estates. An estate or plantation sector is an agricultural holding of 20 acres (8.1 ha) or more in extent. If the different parcels add up to 20 acres, the holding is not considered an estate because the estate should have at least one parcel reaching 20 acres in extent. Similarly, a holding with 20 acres or more of purely paddy land is not considered an estate (*Small Holding Sector, Preliminary data Release, Department of Census and Statistics of Sri Lanka*). In other words, smallholdings are holdings that have no single parcel of more than 8.1 ha except if it is pure paddy land.

**India**: The Agricultural Census in India uses a typology of five size classes: "Marginal" below 1 ha; "Small" between 1 and 2 ha; "Semi-medium" between 2 and 4 ha; "Medium" between 4 and 10 ha; "Large" above 10 ha. If this approach were to be used in a bimodal typology of small/large, the threshold for small farms would be less than 10 ha. With a trimodal typology, it would be less than 4 ha. According to the 2005 Agricultural Census, 99.2 percent of "operational holdings" have less than 10 ha (marginal to medium-size holdings) and they manage 88.2 percent of the total farmed area. If a 4 ha threshold were to be used (marginal + small + semi-medium), 94.3 percent of holdings are small and they manage 65.2 percent of all farmed area.

In **France** is used the notion of "reference unit" which is defined as the size needed to ensure economic viability of the holding, taking into account all its agricultural activities. It is determined at local level, for each small agroecological area.

Some countries use a definition for "family farm".

In the **US** for instance, the Economic Research Service of the USDA considers as a family farm[10] any farm where the majority of the business is owned by the operator and individuals related to the operator by blood or marriage, including relatives who do not reside in the operator's household (Hoppe and Banker, 2010). At the same time USDA regulations for farm loan programs (e.g. those administered by the Farm Service Agency), define as a "family farm" a farm that:

- produces agricultural commodities for sale in such quantities so as to be recognized in the community as a farm and not a rural residence;
- produces enough income (including off-farm employment) to pay family and farm operating expenses, pay debts, and maintain the property;
- is managed by the operator;
- has a substantial amount of labour provided by the operator and the operator's family; and
- may use seasonal labour during peak periods and a reasonable amount of full-time hired labour.[11]

**In Brazil** family farming (*agricultura familiar*) is defined by law.[12] To be considered a family farm a holding has to meet simultaneously the following conditions:

- be smaller than 4 times the size of a "módulo fiscal", which is determined locally in each "município" (ranging from 5 to 110 ha),
- use mainly family labour,
- the household drives predominantly its income from the economic activities of the holding,
- is managed by its owner with his/her family,
- It applies to forms of collective property if the fraction for each owner does not exceed 4 times the size of a "modulo fiscal".

### 1.1.3 The picture of smallholder agriculture in the world

**Overview of the current situation based on the size of the holdings**

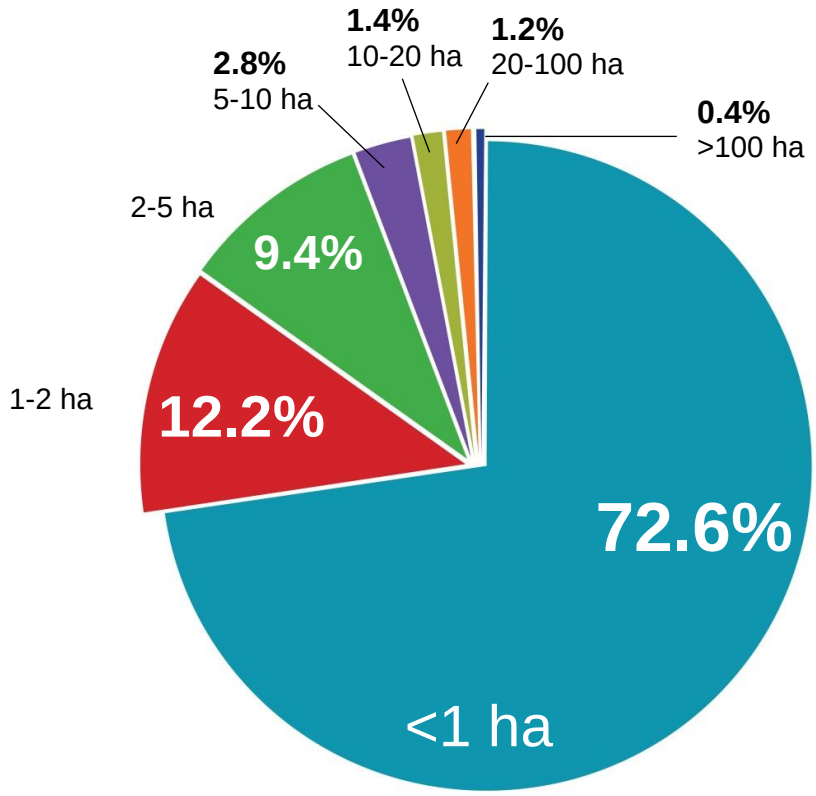
Despite the many challenges of definition and of data, it is clear that smallholder agriculture is a reality in virtually all countries and regions and that large numbers of smallholders is the norm, not the exception (see for instance IFAD, 2011).

[10] The US also uses a statistical definition for small farms, based on the volume of sales (see Section 1.1.3).

[11] Resources 2000 Act http://www.gpo.gov/fdsys/pkg/BILLS-106hr798ih/pdf/BILLS-106hr798ih.pdf)

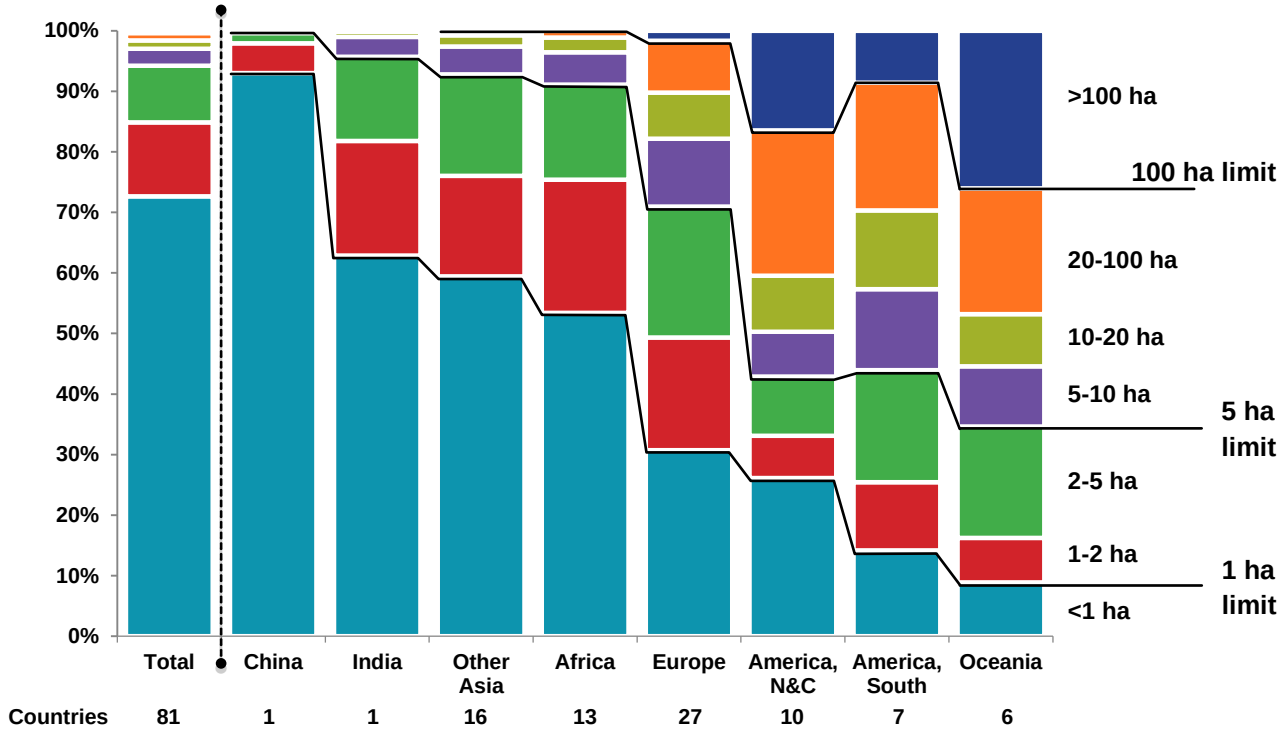
[12] Lei nº 11.326, de 24 de julho de 2006.

**Figure 2 Repartition of holdings by class area in the 81-country subset of FAO-WCA**




*Source:* calculation by authors based on national censuses on 81 countries (FAO, 2012b). The list of 81 countries is found in Appendix 1. These 81 countries cover **two-thirds of** the word total population and 38 percent of the world agricultural (arable) area.

**Figure 3 Regional diversity of holding size patterns in the 81-country subset of FAO-WCA**




*Source:* adapted from Beliérès *et al.* (2013); elaboration from FAO, WCA datasets.

Although the size of the holding is a debatable proxy, available data show a clear and strong picture. According to IFAD[13], there are an estimated 500 million smallholder farms in the developing world, supporting almost 2 billion people who depend on them for their livelihood, and these small farms produce about 80 per cent of the food consumed in Asia and sub-Saharan Africa (Hazell, 2011). WCA data show that in the South the absolute number of smallholders has continued to grow over the decades. In most OECD countries, the number of smallholders is decreasing. Data compiled from the WCA (FAO, 2010b; 2012b) covering 81[14] countries show that, in this set, 73 percent of all farm units dispose of less than 1 ha of land, and this proportion rises to 85 percent if we consider 2 ha, the threshold mostly used in the literature. Holdings under 5 ha represent nearly 95 percent of the holdings' estimates. The vast majority of smallholders therefore clearly have very limited access to land.

The significance of smallholder agriculture is not limited to a subgroup of low-income countries, contrary to widespread perception. Smallholder play a role in the EU, OECD countries, and in developing countries, including Brazil, India, China that have reached "middle income" status in the past 15–20 years. This does not imply, of course, that the problems faced by smallholders are identical in all these countries. Neither does it imply that the role of smallholder agriculture in wider processes of development is the same everywhere. However, smallholder agriculture intersects with issues of (relative) poverty, contributions to food security and food sovereignty, economic growth and broader rural development issues in almost all countries. Investment in smallholder agriculture, therefore, is needed in all countries.

**Africa** is currently receiving great interest from outside investors and therefore deserves particular attention. In Africa (considering the 14 countries for which data are available in the WCA 2000), around 80 percent of holdings are below the 2 ha threshold. When historical series are available they show a trend towards an increase in the number of holdings with a reduction in size. This is confirmed by studies stressing the risks of landlessness in Eastern Africa (Jayne, Mather and Mghenyi, 2010).

**China** presents a unique type of smallholder farming. Collective land ownership ensured that every rural family has user rights for farming. According to the WCA there are close to 200 million smallholder farmers in rural China, and up to 250 million according to Dan (2006). The average farm size is less than 0.6 ha and is declining over time.

In the **United States of America**, farm size is defined by an economic criterion: the "gross product". Even in this country, where agriculture has reached a high level of concentration, the number of small farms (those that have total sales of less than USD250,000) in the 2007 Agricultural Census was 1,995,133 farms, corresponding to 91 percent of all farms[15] (USDA, 2007). The 2007 Agricultural Census showed an increase at both extremities of the size scale distribution compared with 2002: small farms increased by 118,000 whereas the number of farms with sales of more than USD500,000 grew by 46,000 over the same period. Small-scale farming is a real concern for public policy (USDA, 1998) and national and state programmes are defined and implemented to support their development.[16] In the letter that accompanied the transmittal of its report, the Commission on Small Farms stated: *"Having gone through the process of developing this report, we are now even more convinced of the necessity to recognize the small farm as the cornerstone of our agricultural and rural economy. We feel that a sustainable rural renaissance can be anchored in a vibrant, dynamic, small farm sector and we believe that the Commission's recommendations, if implemented, will contribute to this renaissance."*

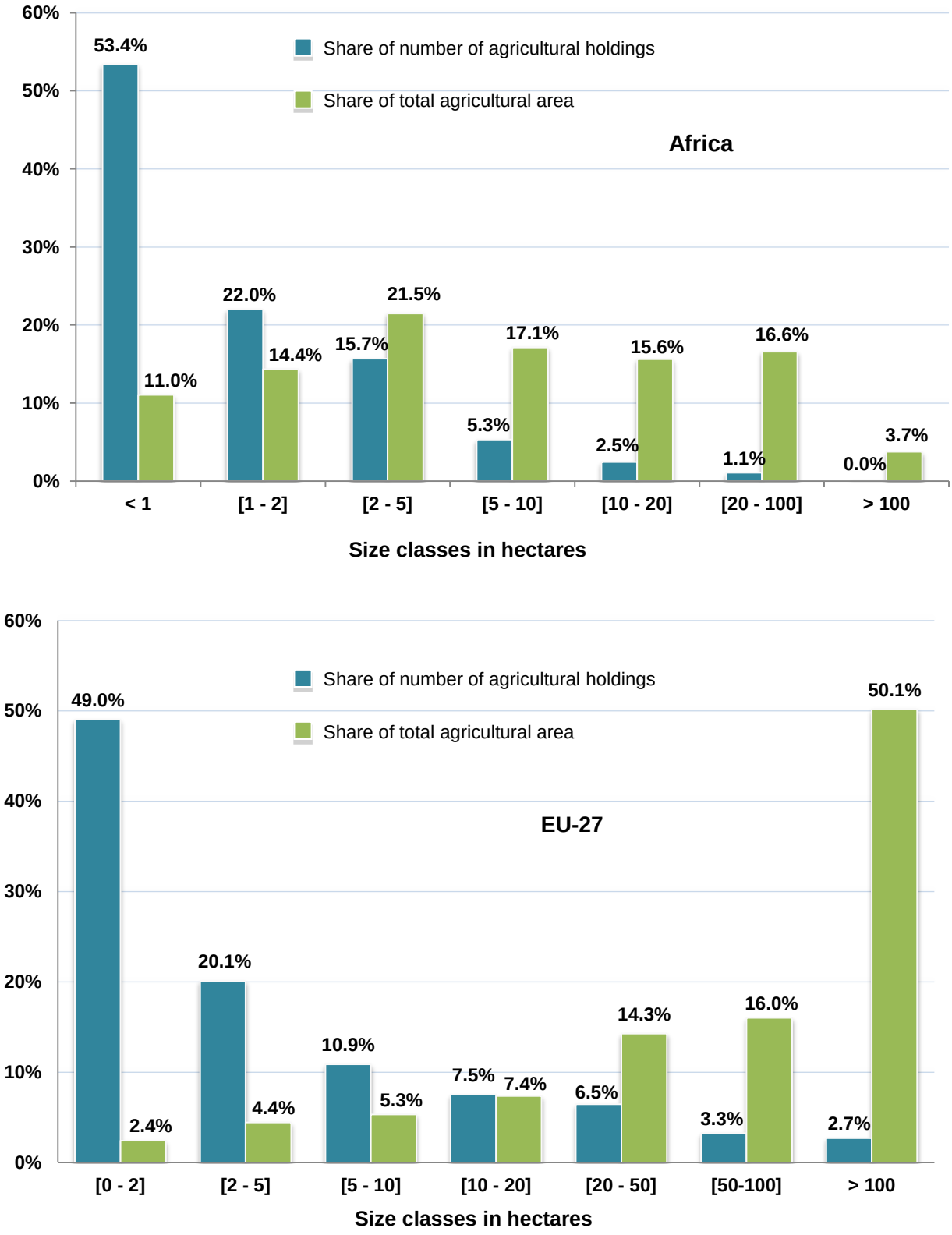
[13] http://www.ifad.org/pub/viewpoint/smallholder.pdf (Under this definition a small farm is a farm of less than 2 hectares).

[14] The 81 countries represent 2/3 of the world population and about 38 percent of the arable lands worldwide.

[15] We do not enter here into the debate about the use of these statistics to allocate public support (see Wise, 2005, and http://usfoodpolicy.blogspot.fr for debate), we just want to highlight the importance of this "subsector" measured by their contribution (even modest) to markets; the vast majority of the small farms shows less than USD10 000 of gross product. The fact that the households running these farms may pursue various objectives or combine other activities to get an income just fits with our definition here.

[16] See, for instance, the national programme (http://www.nifa.usda.gov/familysmallfarms.cfm) and examples of Land Grant Universities supporting their development through research and extension, in Oregon (http://smallfarms.oregonstate.edu/) and at Cornell (http://smallfarms.cornell.edu/).

**Figure 4 Repartition of the agricultural holdings, and of total agricultural area, per class of holding size in Africa for the 14 countries of the WCA-FAO subset of Africa, and within the whole European Union (EU-27)**




*Upper chart:* Africa, *source:* data from (FAO, 2012b) for censuses between 1996 and 2005 (calculation by authors, see list of countries in Appendix 1). *Lower chart:* EU-27, *source:* Eurostat, 2012.

In **Japan,** there is no official nor statistical category for "smallholder", however, scholars and officials usually consider size of the holding and part-time farming as criteria. The 2010 Census data give an idea of the importance of these farmers: part-time farmers number nearly 1.2 million and account for 72.3 percent of the total number of farmers; more than 900,000 (55.2 percent) farm less than 1 ha and 1.3 million (80.6 percent) less than 2 ha.

In the **European Union**, the Agricultural Census 2010 (Eurostat, 2012) surveyed close to 12 million farms in the EU-27. Of these, 49 percent had less than 2 ha and 67 percent less than 5 hectares. The current Common Agricultural Policy (CAP) reform envisages a number of new possibilities for the economic development of small-scale farming with specific orientations for local market development (EC, 2012). The EU concern for small farms is strengthened by the process of inclusion of new Member States from Central and Eastern Europe with a high level of “semi-subsistence” or “subsistence” farms (ENRD, 2010) and recent research takes into account the diversity of patterns to simulate different policy options (Fritsch *et al.*, 2010). Even though the debates are far from reaching a consensus on new transformation pathways (see Mincyte, 2011, for example, on Lithuania), smallholder farming is clearly part of the policy agenda, in one of the most intensified agricultural regions of the world.

## Challenges of data availability

The state of investment in smallholder agriculture is related to the structure of holdings (the structure represents their assets). These assets result from previous investments and are thus important for having a better picture of the state of the investments realized and working at the holding level.

The WCA, organized by FAO, aims to promote availability of internationally comparable data on the structure of agriculture. As such, it constitutes the most extensive set of available data at a global scale. It gathers data provided by countries following censuses conducted during a ten-year period. The last completed round, WCA 2000, gathers data provided by 114 countries, representing 83.5 percent of the global population, following censuses conducted during 1996–2005. The current round, WCA 2010, will include data provided by countries following censuses realized during the period 2006–2015. Data used in this report have been elaborated from data provided for the WCA 2000 round by a subset of 81 countries for which data on holding size were comparable (see list of countries in Appendix 1).

As with all statistics, the WCA has its limits. First, ideally an agricultural census should cover all agricultural activities in a country. But some countries restrict this scope by applying a minimum size limit for inclusion in the census. This is generally justified on the grounds that there are usually a large number of *very* small holdings, making little contribution to total production, and it is not cost-effective to include them in the census. However, in many countries these very small holdings make a significant contribution to household food supplies. Second, the FAO programme for the WCA recommends that the holdings be classified into 18 size classes. But many countries that reported data by class sizes used modified size classes to suit their own purposes, which makes international comparisons difficult (FAO, 2010b, 2010c, 2010d). Third, not all data items are included by countries. There are in particular important gaps in data availability on some items of crucial importance for estimating the productivity of the holding, such as irrigation, mechanization or livestock (FAO, 2012b). Finally, the WCA is focused on structure, it does not link these elements to data on actual production or income, nor does it include other sources of income. For all these reasons it does not enable having an accurate picture of smallholders’ income and livelihoods.

There is also a need to better assess the contribution of each category of holding to total agricultural output, measured through production (as a first step). Data on food produced by smallholders are neither available at the global level nor in many countries. Even in some European countries where land, crops, animals, etc. are expressed in terms of “size units”, i.e. the capacity to generate a certain level of value added, they often do not include the smallest holdings and generally do not include other sources of income. In some cases, subsectors of smallholders play a predominant economic, and food security role. In Brazil for instance, 5 percent of larger smallholders produce two-thirds of total production (Vieira Filho, 2012).

### 1.1.4 Smallholders form a highly heterogeneous and dynamic sector

The smallholder sector is also very diverse in each country, with important differences in terms of resources, wealth and production (Laurent and Rémy, 1998). Sound analysis and understanding of this diversity is key to designing appropriate policies for this heterogenous sector (Box 1 presents an example from Latin America and the Caribbean).

Jayne, Mather and Mghenyi (2010) analyse the diversity inside smallholder sectors in Eastern and Southern Africa *(*Ethiopia, Malawi, Kenya, Mozambique, Rwanda and Zambia*),* showing that "*the highest per capita land quartile controls between 5 and 15 times more land than the lowest quartile*". Furthermore, they highlight the fact that, contrary to the usual picture of land availability in Africa, nearly "*25 percent of the small-scale farm households in the countries surveyed are approaching landlessness*". Investment can play a key role in orienting the smallest holdings towards more intensive and value-added types of production systems such as irrigated farming, higher value crops or animal production. Patterns of land repartition show a trend to locate larger size and commercially oriented agricultural holdings in areas close to urban markets with infrastructures and services, leaving vast areas with more land availability owing to low connection to markets (Jayne, Mather and Mghenyi, 2010).

**Box 1 Diversity of smallholder agriculture in Latin America[17]**

There are essentially two main categories of smallholders in Latin America and the Caribbean (LAC). A detailed reading of the best estimates of the size of smallholder agriculture in Latin America and the Caribbean (LAC) enables us to conclude that it is made up of around 15 million farms.

One category, about 65 percent - relies significantly and perhaps increasingly on non-farm sources of income to sustain their livelihoods; for them, agriculture complements other activities. Remittances and cash and in-kind social transfers and supports are of great importance. Still, this group owns or controls well over 100 million ha. Even if small, the income derived from this land is absolutely critical for their survival and to reduce their vulnerability to shocks of all kinds. Many if not most in this group would be considered poor. Yet, a strictly agriculture-based or agriculture-led development strategy would miss the fundamentals in the case of this group.

A second category is those family farmers who indisputably and most clearly meet the criteria considered by most experts. Their livelihood predominantly depends on the operation of their farms, they hire little or no non-family labour, and therefore they operate and manage their farm with the members of the farm family. They are integrated in agricultural markets, but face significant challenges derived from the limits of their own household and farm assets, and because of the imperfections of factor and product markets, and the gaps and limitations of institutional frameworks of all kinds. This group is made up of about 4 million small farmers, who control around 200 million ha of farmland and represent around 27 percent of smallholders. The contribution that this group makes to feeding Latin America and, increasingly, other regions of the world, cannot be underestimated. Because they are deeply embedded in the local economies, their agriculture-based development has production and consumption linkages that make them important local and regional players. This is a group made invisible by the definition of smallholders according to the 2-ha criterion but, at least in LAC, we believe that they represent the best bet for the revitalization of rural societies.

*Source*: adapted from Berdegué and Fuentealba (2011).

These heterogeneous distributions are far from static. Positions change frequently. Already in the 1970s, Zachariasse (1979) showed, for the Netherlands, that farmers who were initially in "top" positions could, after ten years, be in the lower echelons, and vice versa. Reverse trends exist where large, successful family farms might be divided at the moment of succession and split into smaller units. Also, young couples having a small farm might be very dedicated to develop this smallholding and make it grow effectively. This has been the case in places as different as China (Fei, 1992), Africa (Berry, 1985) and the Netherlands (Bruin and van der Ploeg, 1991). IFAD's Rural Poverty Report

[17] The authors consider another component that in our opinion does not fit in with our common understanding of smallholder. These are consolidated family farms that are fully commercial. They are not to be ignored since positive synergies – but also competing claims – can occur and empirical evidence also indicates that heterogeneous membership in collective organizations often provides positive outcomes for the less well off. However, given the scope of the report, they cannot be our main focus here.

2011 (IFAD, 2010) shows also that poverty, generally speaking, is not a static condition: people leave it and enter it. The typical internal distribution and the associated dynamics are due to both demographic and socio-economic differentiation (Little, 1989). Smallholder realities change over time.

The overall pattern is further complicated by the fact that the "lower" echelons of the pyramid are often enlarged through an inflow of newcomers (for Europe see for example Safiliou-Rothschild and Rooij (2002), while at the "top" many people definitely shift towards the urban economy (while selling or renting their rural resources to newcomers or smallholders, for example, who want to further develop their holdings).

## 1.2 Investments

Investments, which can take many forms, play a critical role in increasing productivity and compensating for land scarcity. According to The New Palgrave Dictionary of Economics [18](2008): "*Investment is capital formation, the acquisition or creation of resources to be used in production. As such, it captures the production side of intertemporal consumption/savings decisions. In capitalist economies, much attention is focused on business investment in physical capital, such as buildings, equipment and inventories. But investment is also undertaken by governments, non-profit institutions and households, and it includes the acquisition of human and intangible capital as well as physical capital. In principle, investment should also include improvement of land or the development of natural resources, and the relevant measure of production should include non-market output as well as goods and services produced for sale. There is a widespread mythology that investment is good and the more investment the better. But investment may be good or bad and there may be too much as well as too little."*

This last point has to be borne in mind to avoid overinvestment which would increase economic vulnerability instead of reducing it. For example, larger farms are not necessarily more successful. Recent studies in Dutch dairy farming (Zijlstra *et al.,* 2012) show that large entrepreneurial dairy farms that expanded considerably over the last decade present high debt levels per kg of milk. They suffered *negative* cash-flows during the 2008–2009 period of low milk prices and had to be re-financed by the banks. Now, the expectation is that in the current period (characterized by high fodder prices) many of these large farms will go bankrupt because the banks are now unable or unwilling to refinance them again.

### 1.2.1 A sustainable livelihoods framework for understanding investments

The Sustainable Rural Livelihood (SRL) Framework (Scoones, 1998, 2009; Carney, 1999) offers a very useful framework to understand investments. It considers, in an integrated way, several key characteristics of a family-managed agricultural holding within a set of off-farm activities. It is based on different assets in which to invest; it considers not only different types of capital but also the entitlements that make investment possible. The activities can be either socially or market oriented. A similar framework was used by Reardon and Vosti (1995) to assess conditions under which poor households can invest to develop specific assets in order to improve their natural environment and to increase productive outcomes.

**Human capital** refers to the quantitative and qualitative labour available at holding level. It covers both physical health and cognitive skills (Ram and Schultz, 1979). Many of the investments made by smallholders concern their family labour. Health and nutritional status are key components of human capital (Lipton and de Kadt, 1988), as well as education all throughout life, key to achieve what Sen (1985) calls "capabilities". Capacity to adapt to future changes will require increased investments in human capital (White, 2012; Proctor and Lucchesi, 2012).

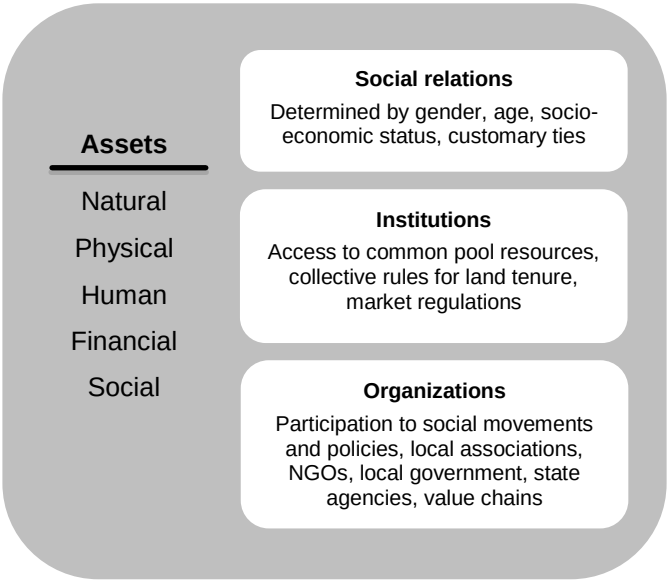
**Social capital** may be considered along three lines: (i) kinship and neighbourhood ties linked to social activities; (ii) customary ties that influence access to natural resources; and (iii) development or professionally oriented associations (rural producers' organizations, development associations, etc.).

**Natural capital** is given by local resource endowment but is also a product of human actions. Investments in natural capital imply access and security conditions (not necessarily property, see Ciriacy-Wantrup and Bishop, 1975; Ostrom, 1992; Oakerson, 1992; Lavigne Delville, 1998). Investment in natural capital may also involve collective action and in these cases will depend on coordination capacities involving individual, customary and public (often local authorities)

[18] http://www.dictionaryofeconomics.com/dictionary

stakeholders. Inequality in access or lack of access for the most vulnerable may require public action to redistribute or allocate land through agrarian reforms.

**Figure 5 Assets/capitals of a livelihood and what enables them**




*A livelihood comprises five basic capital assets that serve different functions, required for a means of living (left side). Someone within a livelihood is entitled to these various assets by social relations, institutions and organizations (right side).*

*Source:* authors, based on SRL (Scoones, 1998, 2009; Carney, 1999).

**Physical capital and financial capital are aggregated** by some authors (Scoones, 1998) in one single category, i.e. economic capital. Here we prefer to disaggregate them since their nature is rather different. The access mechanisms are equally different. Both physical and financial capital access can be supported by collective actions through organizations.

The SRL Framework also allows considering related levels of investments that will directly influence or improve the capacity of smallholders to invest themselves, increasing their capabilities through social relations, institutions and organizations that provide increased opportunities to individuals. This means considering several types of collective investments: (i) collective level investments in landscapes and resource management, (ii) collective investments to improve access to markets – cooperatives, associations, (iii) socially oriented collective investments (self-help groups, etc.), (iv) corporate and private stakeholders' investments upstream and downstream; and (v) public goods types of investments.

## 1.2.2 Investments and productivity

Following Lipton (2005) and others authors using a historical perspective, there are no examples of agricultural development leading to poverty reduction without sharp increases in productivity in smallholder agriculture. Improving the productivity of smallholders should be high on the agenda, taking into account the diversity of smallholders and their accumulated empirical knowledge, often materialized in the genetic material used, for plants or livestock (see Devendra and Sevilla (2002)) for Asia). Also, the increases in productivity can only be achieved if the linkages to markets are working, meaning that transport and market infrastructure are the basic conditions for smallholders to develop market-oriented production and increase their productivity. As shown by Antle (1983), there is strong evidence that a country's level of infrastructure is closely linked to the increase of agricultural productivity.

Investments are a means of increasing productivity, which in turn is at the core of the transformation of agriculture. Productivity is a measure of production efficiency concerning the factor engaged in the production process. In agriculture, production is a complex process and productivity has to be measured or estimated within a system approach. Particularly for smallholders, investments to

increase productivity per hectare are a way to compensate for scarcity of land, as well as investments to increase the added value to the raw product, if investments in processing are made possible.

### 1.2.3 Smallholders are the main investors

Most of the investments in smallholder agriculture are made by smallholder families themselves (FAO, 2012a). Many of them are mainly labour investments to construct buildings, for irrigation schemes, anti-erosion works, terraces, etc. They mobilize the available family labour force and often at the neighbourhood, village or community levels. Investments also occur through the enlargement and improvement of herds, the improvement of tools, the selection of improved varieties and the associated building of ecological capital. A typical example is the improvement of soil fertility through goal-oriented interventions of different types at plot and landscape levels; see Blanchemanche (1990) for historical and technical perspective and Reboul (1989) for an economic perspective on soil fertility considered as an asset;[19] – both authors make the point that soil fertility is a product of continuous labour investment that requires specific assets for transport of heavy material and techniques to organize water circulation, for instance.

Alongside labour investments that result in improved soils, buildings, animal breeds, crop varieties, etc., smallholders also invest in and through: (i) the accumulation of experience and knowledge; (ii) collective action; (iii) crafting appropriate governance rules and corresponding enforcements to maintain individual and joint investments over time, as has been empirically and theoretically demonstrated (Ostrom, 1990).

Together, these tasks constitute a process of *capital formation*. In smallholder agriculture, capital formation does not necessarily occur as investment of financial or physical capital, as is the case in corporate agriculture. It is more the exception than the rule. In smallholder units, capital formation basically occurs through labour investments (in which *human* and *ecological* capital, instead of financial and physical capital, are central).[20] This does not imply that financial investments are irrelevant – on the contrary. The point, though, is that labour investments and financial investments require different conditions.

The balance of drudgery and utility (a concept that was coined by the Russian agrarian economist Tchayanov [1925] at the beginning of the twentieth century) is decisive for labour investment. The extra utility of additional production decreases with the overall increase of production. And with such an increase in production, the extra drudgery needed for one extra “unit” produced increases. Utility and drudgery are to be brought into balance. The importance of this Tchayanovian view resides in the fact that, through labour investments, smallholder families can engage in capital formation and thus contribute to growth and development. This is primarily *endogenous* development: it is driven “from within”.

For capital formation to occur, certain requirements need to be met:

- There has to be hope in the smallholder families, i.e. the long-term expectations need to be positive (if not, people will not move the “utility” line upwards).
- There has to be security. That is, if the property rights of current and future resources are not acknowledged and actively protected, then it is quite unlikely that smallholders will invest their labour in their qualitative improvement and/or quantitative increase. Both the socio-cultural and the political economic importance of smallholder agriculture need to be recognized and assured by the state.
- The downstream markets in which smallholder agriculture is operating need to show price levels that are remunerative. There should be relative price stability in these downstream markets. Too much price volatility excludes planning and thus hampers capital formation.

[19] Through the ages the building of productive soils was one of the main forms of capital building in smallholder agriculture.

[20] This also explains why smallholder farming can operate under conditions where corporate agriculture cannot function because there is insufficient return on financial capital.

## 1.3 Constraints on investing in smallholder agriculture

### 1.3.1 Persistent poverty, lack of access to assets and compounded risks

There are multiple risks and constraints on investing in smallholder agriculture. Investment in itself always bears a part of risks. Conversely, the complex environment of risks of various nature (biotic, climatic, economic, etc.) in agriculture form one of the main constraints to investments. A framework for analysing risks/constraints and also the level at which they occur is presented in Table 1, below.

A key feature of many of these risks is that they are linked with poverty, which is certainly the main constraint to investment. *"Despite the volume of production that smallholders generate and the variety of additional sources of income they draw on, small farmers – in addition to the landless and urban poor – are among the most disadvantaged and vulnerable groups in the developing world"* (Nagayets, 2005). Poverty not only means limited savings; it also targets the limited income of the family to the basic needs: food, when self-provision is not enough, health and schooling expenditures, etc. It also puts productive assets at risk of being sold to compensate for reduced income or in the case of an unexpected family event.

Poverty has an important gender dimension as women have less access to assets and to opportunities. *The State of Food and Agriculture* (FAO, 2011a) indicates income and living standards 30 percent lower for women-headed households. Women's access to productive assets suffers a strong negative bias, with mechanized farming two to three times lower, ownership of animal stocks three times less important and use of fertilizer 30 percent lower.

Intrafamilial relations may prove more or less favourable for women, which will also depend on education, status and marriage arrangements. Women also make a different use of assets and the wealth distribution within the household will affect the household expenditure pattern on food (and then influence the nutritional status of the family and especially of children), but also for health and education. The allocation of wealth within the household also shows a positive impact on empowerment in the community through collective action.

Losing access to productive assets is a key risk and constraint on investments. A specific constraint that emerges in several Latin American countries, for example, is related to the model of farming promoted by the state, which can result in the deprivation of natural assets from the smallholder communities, such as the deviation of irrigation water – away from communities towards large agricultural corporations or newly created medium-size entrepreneurial farms. An example of the first is found in the north of Peru (province of Piura); an example of the latter is the large Majes settlement and irrigation project that completely neglected the already existing smallholder agriculture in the Andean mountains. Thus, smallholder agriculture is faced with a triple set of constraints: (i) the water is deviated; (ii) scarce resources, such as credit and construction facilities, are channelled towards other farming types and withheld from smallholder agriculture; and (iii) the promising new market opportunities (e.g. vegetables, milk) are siphoned away from smallholder agriculture and channelled towards other farming enterprises.

Another critical dimension to take into account when considering investment is vulnerability and risks as investments can be prone to various risks but can also be a critical way of reducing vulnerability. Such considerations have to include a forward-looking perspective including potential modifications of vulnerabilities and risks introduced by climate change (HLPE, 2012a).

Risk can be defined as the probability of an event occurring. Kaplan and Garrick (1981) associate "uncertainty and damage" and distinguish risks from hazards, being defined as the "source of danger". In this perspective, we would say that smallholders' livelihoods are exposed to several hazards that can induce several types of risks, that can affect them directly or indirectly at different levels from farming system, individuals, to household, but also at community level (Gitz and Meybeck, 2012). Smallholders are particularly vulnerable to several hazards that result in different risks that combine with one another and increase the negative impact on the households affected.

Hazards affect the production and commercial dimensions of the household. Agriculture is prone to various production risks, many of which are directly or indirectly climate dependent (length of growing season, pest and diseases, droughts, etc.) and are, and will continue to be, modified by climate change. Vulnerability to many of these risks is increased by a limited technical capacity to prevent or respond to them, as timely intervention is a key factor of efficiency. Investment, both at farm and collective levels, can play a key role to reduce vulnerability. For example, the lack of mechanical equipment and motorization, especially in Africa but also in parts of Asia, Latin America, Eastern and Central Europe, blocks increases in productivity, maintains a high level of drudgery and limits the capacity of heavy transport, which is a condition for fertility improvement, natural resource management and multipurpose uses that are drastically lacking in most rural areas.

Uncertainty in market behaviours (volatility of prices and uncertainty of access to outlets), in policy decisions influencing them, asymmetric information and power imbalances between smallholders and other markets agents appear to be main hazards that turn into major risks at household and community level (see section, below, on market failures).

Hazards affect also the family well-being, including health and events that pave the life cycle, from birth to death with related social obligations. All these can affect the food and nutrition security of the most vulnerable households. These obligations have consequences on family budgets and affect the investment capacities of the holdings.

For agriculture-based livelihoods, one of the major constraints is the seasonality of the production process, meaning that one needs to "invest" – even if over a short cropping season – at a time when liquidity is scarce. Therefore, hazard exposure is also tightly linked with seasonality of farming, which is more sensitive when the rainfed climatic conditions just allow one cropping season and especially where seasons sharply define the possible growing seasons for agriculture such as in Sahelian countries or in India with a monsoon season. This kind of constraint is well known but still poorly addressed (Devereux, Sabates-Wheeler and Longhurst, 2011). It has been increased by the demise of marketing boards, of agricultural development banks and the reduction in agricultural projects from the 1980s onwards (World Bank, 2007).

These hazards and related risks are reinforced by the constraints faced by smallholders regarding the lack of services, and the inadequate public goods provision that tend to increase vulnerability to the risk itself. Lack of market regulation in a context of high domestic price volatility increases the risks for the smallholder. Lack of health services increases the risk of low production by lack of labour, etc.

Table 1, inspired by OECD (2009), describes the different levels of risk affecting smallholders. Many of these risks, not only are factors of vulnerability but act in practice as constraints to investments.

Without well-coordinated strategies and policies there is little possibility for resource-poor smallholders to protect themselves against these risks (Box 2 gives an illustration).

**Box 2 Examples of interrelated risks from Latin America**

A bitter, but widespread, feature of many smallholder landscapes, especially in Latin and Central America, is the deprived smallholding family suffering from malnutrition and that is, at the same time, surrounded by fields lying barren. This is described, in everyday language, as *tierra sin brazos* (land that is not worked by a human labour force) and *brazos sin tierra* (labour force without land). Land and labour are separated here, thus simultaneously provoking low levels of production and hunger. This absurd situation is mostly due to the lack of credit. Credit is no longer provided because previous debts have not been paid (probably owing to natural disasters, bad harvests, illness, low market prices, etc.). And even when enough credit can be obtained, there might be no access to promising markets (owing to transaction costs being too high). Or there is only credit available, for example, for export crops, while many smallholder families are more interested in, for example, fruit trees, goats, dairy cows, etc. (which function at the same time as a mechanism for capital formation, and provide food for the family and surplus for market). Many reasons might converge here, but the dramatic result is time and again the same: stagnation, deprivation and underutilization of resources. This situation evidently translates into several interrelated risks. The family becomes too poor to risk the few resources that remain in any further investment in agriculture. But equally for other market partners, the smallholder families suffering this situation become insecure or risky partners to deal with.

*Source*: authors, adapted from van der Ploeg (2006).

**Table 1 Risks for smallholder agriculture at different levels**

| | Domain of risks | | | |
|---|---|---|---|---|
| **Level of expression** | **Holding** | **Community level** | **National or regional level** | **International level** |
| Domestic | Illness, death, personal hazards | Lack of public services for health<br>Lack of drinkable and safe water | Lack of safety nets or other social protection tools: food reserves and their access, access to social services, crop insurance in many cases, calamity funds | Macro-economic policies to reduce public spending in agriculture<br>Price volatility (households as buyers) |
| Market-related risks (agricultural products and inputs) | Uncertainty in price for products<br>Increase in input prices | Market failures<br>Missing markets – inputs, credit, etc. | Changes in input/output prices due to shocks and lack of regulatory policies<br>Endogenous volatility<br>Unfair competition from food imports | International volatility of products and input prices<br>Energy and natural resource scarcities (phosphorus)<br>Low international food prices |
| Agricultural production | Family labour affected by illness, poor nutrition<br>Lack of assets for timely intervention<br>Breaking of machinery, equipment<br>Pests, diseases of crops and livestock<br>Unstable levels of production | Rainfall uncertainty<br>Floods, drought, landslides<br>Lack of service facilities for repair and maintenance of equipment | Floods, droughts<br>Lack of public goods provision for investments<br>Limited infrastructure for communication and transport<br>Incoherence of agricultural policies in relation to other policies such as trade, environmental and social safeguards (policy coherence) | |
| Non-farm activities | Competition for labour allocation between agriculture and non-agricultural activities | Unstable opportunities due to limited wealth | Reduction in growth | Migration restrictions |
| Institutional and legal | Uncertainty about property rights<br>Weak governance<br>No legal regulation of land<br>Civil insecurity for assets and individuals | Uncertainty about property rights<br>Weak governance<br>No legal regulation of land<br>Civil insecurity for assets and individuals | Uneven legal recognition of land tenure<br>Massive national land acquisition process | International land grabbing<br>Investments in agriculture regulations at international levels and the role of international agencies and institutions |

*Source:* compilation by authors, based on OECD holistic framework (OECD, 2009).

### 1.3.2 Market failures

The issue regarding markets is not whether smallholders can or should be part of the market – they are part of the market economy – but under which conditions they can take advantage of different markets to achieve economic growth and sustainability (Box 3).

**Box 3 Markets and smallholder agriculture**

Smallholdings participate in different markets.

- The downstream markets that serve as outlets for the products and services produced on smallholdings.
- The upstream markets where specific inputs (and technologies) might be acquired.
- The labour market on which different members of the smallholders family might sell their labour force in order to obtain a salary.
- The general market for consumer goods
- Land markets where they may rent, or buy or sell land, or participate in other forms of land tenure arrangements involving two or more households.
- Financial markets (including informal lenders) where they acquire capital to cover both operations or investments

The conditions that govern their participation in these markets are a key issue for smallholder agriculture.

Smallholders are fully part of different markets but their position in these markets is weak. The conditions under which smallholders are part of the market economy are debated issues: contract farming, price volatility regulation, the relative prices of inputs and outputs linked to "induced innovation processes" and subsidies are among the more debated topics. One side of the market debate supports policies promoting agricultural development driven by agricultural export markets. During the liberalization process, investments were mainly oriented to support the development of export value chains. The question of whether this scenario is a viable option to pull smallholders out of poverty is highly debated.

The position of smallholders in markets can be weakened when the production system is based on few products: the smallholder has to sell at harvest time when prices are low, and often to buy again when prices have increased. This directly affects incomes (by reducing them at harvest) and also food security when it is difficult for the household to get enough food for the family when prices are high.

This constraint is reinforced (HLPE, 2011a) by price volatility: higher prices can be seen as an opportunity for producers, but they also directly impact food security of smallholders who are often food buyers. As mentioned in a former HLPE report, price volatility has also domestic causes that are disconnected from international volatility (HLPE, 2011a).

In Africa, the urban markets have not been used as the powerful engines of agricultural and economic growth they are. Most of the urban demand is met by increasing imports (Rakotoarisoa, Iafrate and Paschali , 2011), and the gap between potential yields and current levels of productivity highlights the huge margins for progress in food production (Jayne, Mather and Mghenyi, 2010). In northern African countries it is even worse, since the urbanized and well-off part of the population living within a close distance to the sea highly depends on imports of elaborate food from the agribusiness and retail chains. Meanwhile, the rural areas concentrate a high level of poverty associated with market disconnection (CIHEAM, 2008).

After the demise of marketing boards and other public schemes, smallholders faced high levels of market failures, and missing markets were mostly due to inputs and equipment becoming out of reach for the majority of them. Uncertainty in markets also results in risk-adverse behaviour from smallholders facing at the same time high liquidity and income constraints in an uncertain environment. These conditions dramatically limit willingness to invest (Kydd and Dorward, 2004).

A large proportion of the rural population in many developing countries is still excluded from the economic opportunities arising from access to decent roads (UN, 2008). Road access rates are lowest in sub-Saharan Africa, but there are also some countries in Asia and Latin America where access is very poor. Inadequate access to roads increases a variety of costs, from obtaining inputs to

transporting goods to market, to finding buyers and monitoring contracts. It can also increase the cost to access health care if public facilities are not in a neighbouring area (UN, 2008).

After the structural adjustment period, and until now in many parts of the world, smallholder access to the capital market is blocked. This is due, among other reasons, to high transaction costs that make banks withdraw from smallholder agriculture and risk-avoidance mechanisms on both sides. Banks are currently less interested in assuming part of the risks associated with productive activities and even less when smallholders are their potential clients. At the same time, the generalized poverty in the countryside also blocks the use of informal credit. Here there is an issue for collective and public action.

Rural households in developing countries are still largely reliant on informal sources for their financial needs. In several Latin American countries, access to formal credit is only half as common in rural areas as it is in urban areas. Informal lenders provide the bulk of the loans to rural households in many countries. Their dominance as a credit source is even greater among poor rural households. In Pakistan and Cameroon, for instance, less than 5 percent of the amount borrowed by poor rural households was obtained from formal lenders, including banks and microfinance institutions.

**Changing role of the public sector**

Over the last 30 years, profound changes have occurred in this economic and institutional environment. By economic and institutional environment we refer not only to the different markets, but also to organizations, infrastructures and institutions that structure, provide access to and regulate these markets, and the availability of technical and organizational knowledge through research and extension.

Sharp reductions in public spending for research, extension, credit and support to rural areas are part of these changes, as well as a growing “urban bias”. The recent land appropriation processes represent a new “threat” to smallholder agriculture.

Since structural adjustment, policies dismantled most of the public schemes and policies supporting smallholder agriculture – most of them carrying high costs and low efficiency – and markets have been promoted as the main avenue for progress in agriculture. This vision proved to be too simple, but at the same time one needs to recognize that agricultural progress has historically been paved by the development of a market economy led by urban markets.

## 1.3.3 Imbalances of power in economic and political relations

Farmers’ organizations and collaborative networks can play a key role in investments. Negotiation skills, power and political representation are critical if small-scale farmers are to participate in the improvement of their regulatory and institutional environment. A key issue is the lack of power and negotiation capacity of most small-scale farmers (Barrett, 2008).

The last 25 years have changed the institutional landscape for smallholder representation on both national and international levels. Smallholder organizations obtained space and are now able to defend their views on various levels to influence policies and provide services to their members. Cooperatives and associations formed by smallholders themselves proved to be effective ways for organizing smallholders to have better bargaining power (Rondot and Collion, 1999) and to influence policy-making (Mercoiret, 2006). Experience gained through mainstreaming and implementing support to rural producers’ organizations in World Bank-supported projects shows the huge potential for smallholder assets’ enlargement and increased access (World Bank, 2012) (see Box 4).

The empirical evidence of the role of rural producers’ organizations in defending rights and interests, and providing services and goods to their members and even to non-members (see the case of the Colombian Coffee Growers Federation (Bentley and Baker, 2000)) has been widely documented both for OECD countries with a long-term history in collective action and also for newborn organizations and associations in developing countries (see Chirwa and Matita, 2012, for Malawi experience and Thompson *et al*., 2009, for a synthesis on the relevant key factors for successful smallholders’ organizations).

**Box 4 Main lessons from the World Bank experience on building capacity of rural producer organizations**

1. The efficiency of Rural Producer Organizations' (RPO) support mechanisms is mostly based on the quality of the negotiation process between the various stakeholders and on the effective position occupied by the organized producers in the negotiation.
2. It is necessary to take the socio-economic and institutional contexts of the agricultural services support programmes into consideration and design evolutionary mechanisms whose scope extends as the context evolves.
3. There is a need to grant autonomy to the "RPO support" component in the agricultural services support programmes.
4. The specific funds set up at the local level constitute a relevant innovation and are appreciated by the producers. The gradual extension of such funds and the decentralization of their management are desirable avenues for change.
5. It is necessary to support national and regional RPOs in addition to grass-roots RPOs.
6. RPO enhancement creates conditions for agricultural services to be demand-oriented; however, the efficiency of the mechanisms' set up depends also on the quality and diversity of service supply.
7. The scope of reformed agricultural services may be undermined by shortcomings in the economic environment of agricultural activities.
8. RPO support programmes contribute to poverty reduction.
9. Activities to enhance the capacity of RPOs unavoidably impact pre-existing organization dynamics. It is essential to pay attention to these dynamics and avoid exploiting them.
10. The impact of agricultural services' restructuring would be amplified if similar efforts were simultaneously made to define and implement national education and rural training strategies geared towards the same goals.
11. RPO capacity building may encourage harmonization of the various interventions in the rural areas at the grassroots level.

*Source*: World Bank, 2012.

Smallholders' organizations play a crucial role to strengthen the institutional environment in three main areas:

- to rebuild services adapted to the needs and resources of smallholders and especially the poorest of them;
- to increase their market power including strengthening their bargaining power with other economic actors or simply to allow market access in remote places; and,
- to influence the decision-making process at the local, national, sub-regional and international levels, in particular in order to promote agricultural and rural policies that take into account the specificities of smallholder agriculture and their role in challenging poverty.

**Lack of social recognition and access to basic human rights for smallholders**

A recent study commissioned by the Human Rights Council Advisory Committee of the UN General Assembly describes peasants and other people working in rural areas as "most vulnerable people". The study specifies that this applies in particular to "smallholder farmers, landless workers, fisher-folk, hunters and gatherers". Recognition of their basic rights under the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights is urgent. These basic rights include: "(a) the right to food, (b) the right to adequate housing, (c) the right to health, (d) the rights to water and sanitation and (e) the right to education, and are the most relevant with regard to the protection they offer for the rights of peasants and other people working in rural areas" (Human Rights Council, 2012).

Of course, situations vary widely across countries but recent experiences in Brazil or China show the importance of this dimension: these rights, for example, open the possibility for social protection to be part of policy measures that aim to contribute to the well-being of smallholder farmers and help them

to enlarge their resource base (HLPE, 2012b*)*. This recognition is currently on the international agenda, but it should also move to, and become part of, national policy and legislation.

Recognition of the indicated rights implies, as argued in the Farmers' Forum launched by IFAD, a national recognition of collective representation of smallholders organizations as partners in policy dialogue (IFAD, 2012). It also translates into the definition of new social and professional rights (see for example, the Brazilian law[21] to define family agriculture and the corresponding support policy measure targeted to the different types of family farmers (MDA, 2010; Maluf, 2007)). Similar processes occur in countries such as Senegal and Mali[22] where Orientation Laws have been negotiated with strong inputs from rural producers' organizations. Laws alone do not make the change, but they make the change possible if adequately mobilized by the representatives of smallholders.

### 1.3.4 Towards a typology of constraints on investment in smallholder agriculture

As shown above, smallholders are very diverse, and there are many ways to describe them. Any attempt to "categorize" smallholder agriculture could use various criteria and serve various objectives. The objective for this report is to use criteria that play a role in facilitating or impeding the capacity and willingness of smallholder families to invest. We group those factors underlying investment decisions under three dimensions: assets-, markets- and institutions-related constraints to investments. Each of these criteria defines in practice categories or situations, each of them calling for different types of actions.

Assets are, of course, key to facilitating investment, as they can be used as collateral and also determine income and capital formation. Their quantity, quality and nature also influence the type of investments that a smallholder can most easily engage in.

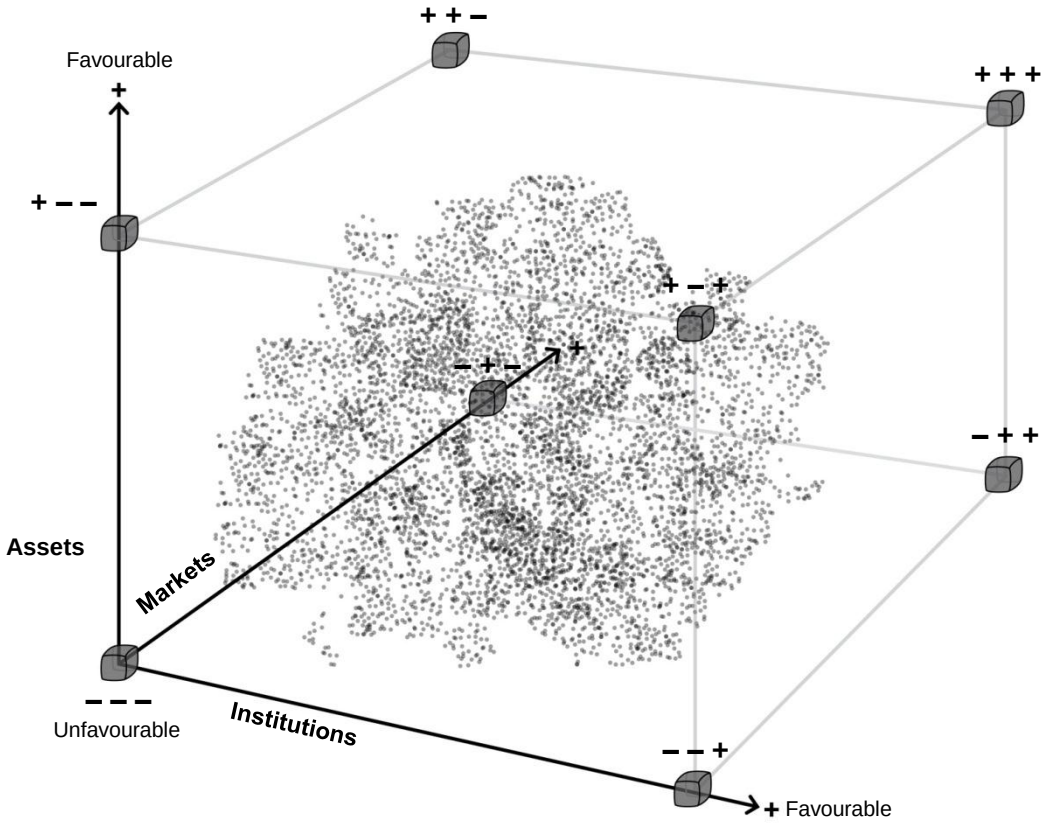
The way markets function determines opportunities and also how new investment can produce the expected added income. Exchange relations between agriculture and industry can play a role here, just as the overall ordering of markets and the associated power relations. Price stability versus volatility is another key issue. Proximity versus distance (and therefore infrastructure) can be relevant here, just as the overall relations between smallholder agriculture and the state (an issue also discussed as the "urban bias"). Lack of access to promising markets (such as the growing domestic markets in developing countries) is another extremely important element here. Balance of power between the various market agents is key to enabling smallholders to benefit. This second dimension reflects and summarizes the interaction between the smallholder farm and the economic environment in which it is embedded. Favourable markets will strongly help smallholder agriculture in processes of capital formation and associated processes of development and growth. Unfavourable markets will hamper such processes.

The third dimension regards institutions and policies, and includes power relations. Here, gender, class, agrarian structures, ethnic discrimination, repressive regimes, grass-root organizations, property rights and agrarian and rural policies may all play a role. These variables interact in complex ways; reinforcing or contradicting each other. Sometimes they will mutually enforce each other; at other times and in other places there might be more balanced situations. At the extremes of this third dimension are, on the positive side, smallholder farms that dispose of a self-governed resource base that allows for a degree of autonomy, with associated rights that are fully recognized and endorsed. Smallholders are seen as important and respectable members of civil society. At the other extreme, the negative side, are the highly dependent smallholder farms that hardly dispose of self-owned resources and have to engage in dependency relations. Their rights are often not respected and their voice is weak. Their socio-economic importance is neglected.

[21] Law defining the "*Política Nacional de Agricultura Familiar e Empreendimentos Familiares Rurais*". http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2006/lei/l11326.htm.

[22] See http://loa-mali.info.

**Figure 6 Diversity of smallholders' situations mapped against assets-, markets- and institutions-related constraints to investment**




*The small dots, forming a cloud, represent possible situations of a smallholder farm, depending on the context. The small cubes in the Figure represent archetypal situations described in Table 2.*

How are these three different dimensions affecting smallholder agriculture? Generally speaking they create, on the negative side, precariousness, which in turn translates into poverty, hunger and the impossibility to produce, let alone to further develop agricultural production. However, such precariousness and the subsequent paralysis do not result from a mere addition of the three dimensions. It is specific forms of interaction and combination that produce the undesirable effects.

A low level of endowments, for instance, can be compensated (Bennett, 1981) through capital formation, enlargement, diversification and/or pluriactivity. Unfavourable market situations can be endured by smallholders having enough assets. However, when a negative market situation interacts with marginal resource endowments, it could further degrade the situation of smallholders – the relatively modest amount of resources can get lost. Resorting to formal credit might be impossible, simply because the banks judge this situation to be barely profitable, too risky and/or entailing far too high transaction costs.

Together, the three dimensions define eight typical situations (in empirical reality there will be, of course, many in between situations as well). This results in typical features that characterize smallholder agriculture. The point is that such features are not intrinsic – they are induced. Table 2 briefly summarizes the different situations as created by different constraint combinations.

**Table 2 Archetypes of smallholders according to a typology of assets-, markets- and institutions-related constraints to investment**

| A | M | I | Characterization/illustration |
|---|---|---|---|
| + | + | + | This is the archetypal situation of the *yeoman* (well-off) type, in well-developed, well-balanced, highly productive farms. The farms are family-owned, with considerable patrimony, often been created by different generations. These farmers are also able to engage in investments that go beyond the single farm. At the beginning of the twentieth century, Nigerian cocoa farmers, for instance, were able to finance the construction of bridges and roads. |
| + | + | – | This pattern induces insecurity. Smallholders appear to be "traditional" and "passive"; they do not move forward, neither do they protest. There is a slowdown of investments. This situation might even provoke an outflow of capital. Possibly many smallholders engage in labour migration. This situation might provoke "rightful resistance", as occurred in Viet Nam, for example, and the Philippines. |
| + | – | + | This combination is associated with stagnation. Smallholders will refrain from investing, especially in further enlargement and improvements of the resource base. These smallholder farmers will probably very strongly diversify their productive activities. Pluriactivity is the rule rather than the exception. In extreme cases there will be de-activation in smallholder agriculture (while highly indebted farms will face bankruptcy). |
| + | – | – | Stagnation and insecurity. This situation has been characterized as "structural involution". Farmers will de-invest ("consume their own farm"). Smallholder farmers appear to be, in this situation, "*those who have no future*". This situation may trigger a massive rural exodus. Widely spread throughout, but not limited to, the Latin American mountains. An historical reference can be found in *The Grapes of Wrath* by John Steinbeck (1939). |
| – | + | + | A relatively favourable market situation and positive policy context allowing poor smallholders to work hard, to produce and invest. Here smallholders typically emerge as *sturdy people working to improve their livelihood* and, especially, to contribute to the well-being of their children. The search for income improvement translates here into increasing agricultural production. This type is strongly present in today's China and Brazil, but not limited to them. |
| – | – | + | When these traits combine, it is probable that smallholder agriculture mainly features as being limited to *self-consumption only*. |
| – | + | – | This is the situation of the "rising expectations" that get frustrated due to political and institutional malfunctioning. It is here that criminality, violence and/or anarchic rural movements emerge. *Zapatistas* are, as much as "*coca producers",* a logo for this situation. |
| – | – | – | Here we locate *Les damnés de la terre* (Frantz Fanon, 1961). They are locked-out and even the possibilities to struggle in order to escape the situation of poverty, hunger and lack of prospects are missing. This is the majority of the rural poor of today. |

**A** = Assets; **M** = Markets; **I** = Institutions.

**Table 3 Differentiated responses to constraints based on different development trajectories (a few examples)**

| Constraints | Different expressions of constraints | Trajectory 1 Smallholder agriculture in a modernization process (e.g. Chile) | Trajectory 2 Smallholders in search of options to consolidate (e.g. Brazil) | Trajectory 3 Smallholder-based development (e.g. Viet Nam) |
|---|---|---|---|---|
| Access to assets | Persistent poverty; lack of access; risks; marginal resource base. | Assets to differentiate products: information, training, processing of products, diversification of products, self-provision of food as a safety net, use of sustainable cropping patterns<br>Training and education | Land reform processes driven by social movements to increase land assets, diversification of agricultural products, including processing and labelling<br>Training and education | Redistribution of land (and water); shift from rice to high-value products (fruits; vegetables, small livestock, aquaculture, etc.); diversification in diets through self-consumption; diversification outside agriculture (training, education) |
| Markets | Price-cost squeeze; volatility; urban bias; skewed market relations. | Link to specific markets, quality oriented, through producers' organizations | Public procurement targeted at smallholders, local and labelled markets, through collective action | Collective access to markets<br>Grading and quality standards implementation |
| Institutions | Failing policy environments; lacking recognition, rights and voice. | Research and extension oriented to quality and diversification in a sustainable and economic way | Policy reform to increase access to land when needed, support to quality product labelling, research and extension towards sustainable farming | Research and extension in support of sustainable farming cropping patterns |

*Source:* compilation by authors.

Whether or not a particular feature is perceived as a constraint depends very much on the specific development trajectory in which smallholder agriculture is engaged; it also heavily depends on the strategic view of smallholder agriculture. The differences in perception will generate differentiated responses. What looks, in isolation, as one and the same constraint, will be dealt with in contrasting ways. This is illustrated, in a far from exhaustive way, in Table 3 (that is limited to the first three out of the five trajectories discussed previously). Take, for example, the lack of access to land. In trajectory 1 this will be seen as a hindrance on land mobility that slows down the creation of modern, medium-sized farms. This typically will be resolved through market-led land reform (as tried for example, in South Africa) and/or through investment in large irrigation schemes (Majes, Peru; see Vera Delgado, 2011) rather than investing in small farmer-managed irrigation schemes. This will result in the emergence and strengthening of medium-sized, entrepreneurial farms. Nonetheless, two central questions remain: what can be done in the meantime for smallholders and smallholder agriculture?

Table 3 provides some suggestions. Second, it might turn out to be necessary to induce changes in cropping patterns, in the routines of animal husbandry, etc., in the medium-sized sector. In trajectory 2, lack of access to land is typically a problem for smallholders, their children and landless people. Here land reform will be shaped as a process driven by social movements and controlled by the state; it is located at the margin of large holdings and not directly threatening them. In trajectory 3, lack of access is understood in terms of inequality and, consequently, land redistribution becomes the key in agricultural and rural policies. A similar reasoning is possible for the other constraints.

# 2 WHY INVEST IN SMALLHOLDER AGRICULTURE?

Knowing what smallholder investments cover, what the investment environment is and understanding the system of constraints is only a starting point (Chapter 1) to our analysis, for which the real question is “what needs to be done?” Before we come to this in Chapter 3, we need to understand: “Why invest in smallholder agriculture?”

Therefore we need to understand the roles of smallholder agriculture at present and in the future, in the context of the structural transformations of both agriculture and the economy. This is the objective of this chapter.

The need to invest requires understanding what is the significance of smallholder agriculture, in several dimensions. Reasons for action stem from the roles societies want agriculture, and smallholder agriculture, to play (section 2.1). Reasons for action also stem from the dynamic context and the trends into which the evolution of smallholder agriculture is inscribed (section 2.2).

What are the forces at play at several scales, from macrodrivers (urbanization, demographic growth, etc.) down to territorial situations (land use and tenure, population density)? What are the current roles of agriculture, and smallholder agriculture, in the overall economy? What is likely to be its future role if trends persist, and what are the margins of manoeuvre to act to change these trends, for the sake of food security and sustainable development? As has been seen in Chapter 1, there are smallholders in all countries in the world and the main roles and functions of smallholder agriculture, their trajectories, and the policy priorities vary between nations. Answers to the questions above cannot be totally generic and the “main role” of smallholder agriculture is not the same, for example in Italy and in the United Republic of Tanzania, but nevertheless providing an answer to these questions is a prerequisite to set the frame of the next questions: “What to do?”

## 2.1 The roles of smallholder agriculture in achieving food security and sustainable development

During several decades from the 1960s onwards until the last food security crisis of 2007/08, the orientation of policies and the trends in the economy were not necessarily as concerned with smallholder agriculture as today, and broadly followed other directions:

(i) a focus on technological packages to increase production instead of concerns over improving farming systems;

(ii) a reduction (even a disappearance in some cases) of state interventions in the economy and markets of many developing countries – which led to an increase of imbalances in comparison with some key developed blocs (like the US and EU) or emerging economies (such as Brazil, China, India) still supporting their agriculture, large- and small-scale;

(iii) more broadly in the economies in development, structural adjustment programmes, which led to the progressive extinction of some key agricultural banks (mostly linked to and supported by the state), vanishing state-supported extension services, applied research and decreasing public investment in rural infrastructure.

Future visions were oriented towards large-scale and industrial, rather than small-scale and agrarian agriculture. Despite, and perhaps because of, these policies (Interagency Report, 2012), the world community is realizing today that some of the major Millennium Development Goals set for 2015 (notably poverty alleviation and eradication of hunger) will not be reached. Some 70 percent of global poverty is rural poverty, and many of the rural poor are dependent on agriculture. The same applies to hunger and undernourishment: it is often located in rural areas. This points to one central issue: the livelihood of the many smallholders is to be improved if targets of food security, the fight against poverty and economic development are to be met. Agriculture is not only about producing commodities; it is also about the creation and maintenance of productive employment, the generation of incomes to allow for a decent life for billions in the rural economy, and the conservation and sustainable use of the natural resource base on which their livelihoods depend.

This section examines the case of smallholder agriculture for food security and sustainable development, in the four dimensions of food security, and pointing to the importance of smallholder agriculture and to its roles in food processing, food chains and links to consumers; in socio-economic collective structures and organizations; in the non-farm economy through pluriactivity; in economic

growth; and in relation to environmental issues. It finally mentions the cultural and social importance of smallholder systems.

### 2.1.1 Food security

The contribution of smallholder agriculture to food security has to be examined in relation to the four dimensions of food security: food production (availability), providing livelihoods and income (access), as a way to diversify diets (utilization, which also includes absorption of nutrients, water quality and sanitation) and as a buffer to price volatility, market related and other shocks (stability).

**Production**

Smallholder agriculture often shows an impressive productivity. Many high-value crops, for example, rubber, and fruit and vegetables that require labour-intensive farming, perform better in well-developed smallholder agriculture than in other types of farming (HLPE, 2011a) because of the favourable incentive structure in self-employed farming and the significant transaction and monitoring costs of hired labour.

China, according to the WCA, has close to 200 million smallholdings, and according to Dan (2006), it has at least 250 million small family farms (Dan, 2006); they cover only 10 percent of the total amount of agricultural land that is globally available, and they produce 20 percent of all food in the world (Dan, 2006). This is an important indication of the productivity that might be achieved in smallholder agriculture.

Smallholder agriculture is strategically contributing to food security. In Brazil, 58 percent of all milk is produced by "household agriculture"[23] (*agricultura familiar*, see chapter 1 for definition); for chicken and pork this is respectively 50 percent and 59 percent. For coffee, the contribution of smallholders is 38 percent, for maize 46 percent, for beans, the contribution of smallholders reaches 70 percent and for cassava this is as high as 87 percent (data from IBGE, [24] 2009).

In Benin, the traditional sector, consisting of small-scale family-run units, provides 80 percent of the production of palm oil. This craft industry has always been able to adapt to changes in the upstream sector (variations in the volumes of raw materials offered by planters) and downstream (changes in demand), and covers most of the local market. New techniques have secured the stability of the sector. For palm oil, similar situations can be found in Nigeria and other West and Central African countries. Other products can also be mentioned, in so many ways, by craft industries often run by women: making *farinha* out of cassava in Brazil, or *tempe* from soybeans in Indonesia (CGPRT, 1988), with tens of thousands of production units.

This capacity of smallholders to achieve high production levels per unit of land has been amply documented for different places and times (see, for example, the *Comite Interamericano de Desarrollo Agricola* (CIDA) for Latin America in the 1960s (Netting, 1993), a recent World Bank paper (Larson *et al.,* 2012) and van der Ploeg (2008)) for a similar analysis applied to European agriculture).

The opposite situation might also be encountered, due to limited or restricted access to production factors and inputs. This led to some observers contesting that smallholder agriculture might be the answer to food security for a growing population. However, the fact that smallholder agriculture is able in some cases to outperform large-scale agriculture in terms of yield should be reason enough to concentrate on the question of overcoming the problem of limited or restricted access[25] to factors and inputs to production, rather than to focus on the change of model/scale.

**Income**

Although smallholders are partly producing to feed their families, they are also profoundly part of the market economy. Subsistence-oriented smallholders are often referred to in the literature but we may consider here that they are almost a "vanishing" type *(*and an "ideal type" that no longer exists in most places*)*. In nearly all parts of the world, income is important for smallholders' access to food, manufactured goods and services of all kinds. The value of the production per hectare is therefore an important parameter, all the more so when exploitations are "small". The intensity of employment is also an important contributing factor, as smallholder agriculture is labour-intensive.

[23] http://saladeimprensa.ibge.gov.br/en/noticias?view=noticia&id=1&busca=1&idnoticia=1466

[24] http://www.ibge.gov.br/english/estatistica/economia/agropecuaria/censoagro/default.shtm

[25] According to Rabobank, 60 percent of the rural population in developing and emerging countries lacks access to basic financial services (Rabobank Group, 2012a, p. 43).

Income generation is considerably strengthened when small- and medium-sized farms expand activities and integrate production and processing. This is often the case with products that are important in local food markets and cultures. Despite their size, these production systems occupy a significant cultural, social and economic place in many countries: the number of jobs created, particularly in rural areas, is far from negligible (see Box 5).

**Box 5 Potential of small-scale processing of sugar cane in India and Columbia**

In India, *jaggery* (also called *gur*) and *khansari* are traditional sweeteners (a mixture of sugar juice from cane and molasses), which are widespread with about 5 million tonnes per year in units having a capacity between 1 and 5 tonnes processed/day. This implies the use of 50 million tonnes of sugar cane and about 1 million ha harvested.

The share of *jaggery* and *khansari* still represents 32.5 percent of the cane produced, processed through small-scale mills (a cottage industry), engaging over 2.5 million people. They are mostly consumed by rural populations, representing around 70 percent of the total. The mineral and micronutrient contents of both sweeteners question the shift to white sugar in global consumption in India (like elsewhere). The Indian sugar cane sector faces challenges compared with world prices, hence the competitiveness of the sector should take full advantage of the processing industry in order to modernize it, which does not necessarily increase the size of the units.

To process sugar cane, Colombia's *trapiches* (mills) were estimated around 12 000 to 15 000 using animal traction and producing 850 000 tonnes of *panela* annually corresponding to 191 000 ha harvested (Boucher and Muchnik, 1998). They generate around 9 million working days to grow sugar cane and 15 million in processing, which represents 50 000 to 70 000 permanent jobs.

These figures would deserve to be updated. For *panela* in Colombia, a national federation, *Fedepanela*, exists, gathering this craft sector for service producers and allowing it to have a voice in national policy agendas (see http://www.fedepanela.org.co/). The extent of these activities could be more accurately depicted since they represent huge amount of jobs, income and value added, and are strategic for territorial development.

*Source*: India: from Jagannadha Rao, Das and Das (2007), Muchnik and Treillon, (1990) and Murthy (2010); Colombia: Boucher and Muchnik (1998).

The values produced per unit of land in smallholder agriculture can outweigh those of large-scale agriculture. It is true in Asia, notably in rice systems (Stoop, 2011; Jaffee *et al*., 2012). It is also true in regions in which the large and small systems co-exist and can be compared. In Brazil, for instance, according to the latest census, *agricultura familiar* only take up 24.3 percent of the total agricultural area, but generate 74 percent of all agricultural employment and produce 38 percent of the total value of production (IBGE[26]). Expressed in absolute terms: corporate agriculture produces, on average, 358 Reais/ha/year while smallholder agriculture produces an average of 677 Reais/ha/year.[27] In Argentina – well known for large-scale agriculture and its more recent expansion in the Pampa region, and where large-scale holdings dominate the production in absolute value – the value per unit area of smallholder production is on average 1.5 times (and up to five times in some regions) greater than that of large-scale producers (Figure 7).

**Diversification of diets**

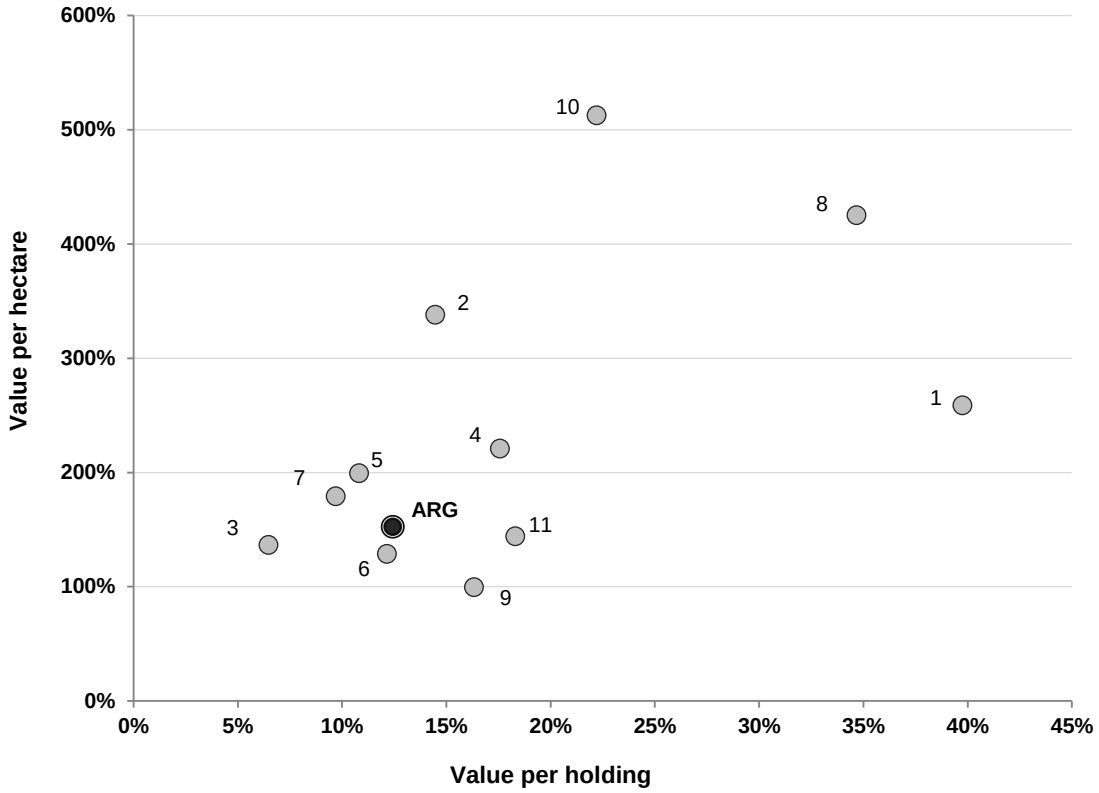
Smallholder agriculture can play a key role in improving dietary patterns, both for smallholders themselves and for urban populations, with an enabling infrastructure, market and policies at broader levels.

The "white revolution" in India (Box 6) provides an outstanding example of a successful development pathway combining technical, organizational and institutional dimensions within an inclusive, policy-oriented scheme, which made it possible to keep up with quality market-driven demand and income generation for poor and less poor farmers including landless or marginal farmers (owning at least a cow). It is also a remarkable achievement in terms of improving nutrition in urban and rural areas.

[26] http://www.ibge.gov.br/english/estatistica/economia/agropecuaria/censoagro/default.shtm

[27] Crocevia in http://www.fao.org/fsnforum/cfs-hlpe/smallholder-investments-v0.

**Figure 7 Per-hectare and per-holding value of smallholders' production, as compared to large-scale farming production, in different regions of Argentina**




*Horizontal axis: Value per holding of smallholdings' production in percent of value per holding of large holdings' production. Vertical axis: Value per hectare of smallholdings' production in percent of value per hectare of large holdings' production. 100 percent represents the value of outputs for the large holdings. Definition of smallholdings in Argentina as per Section 1.1.2. Dots represent regional averages.*

*Regions (numbered dots): 1. Puna, 2. Valles del NOA, 3. Subtropical del NOA, 4. Chaco seco, 5. Monte Arido, 6. Chaco, Humedo, 7. Mesopotamia, 8. Patagonia, 9. Pampeana, 10. Oasis cuyanos, 11. Valles patagonicos, ARG. Argentina (total country).*

*Source:* calculations by authors based on de Obtschako, Foti and Roman, 2007.

**Stability**

Smallholder agriculture's asset in terms of the stability dimension of food security is clear from the fact that they produce for themselves.

Smallholders keep a variable but widespread share of their production to feed the family and engage in reciprocal relations within the kinship or neighbourhood. Doing this is not a backward attitude; it is also a means for being protected from market volatility. This share of self-provision is a key component of the smallholders' risk management strategies, towards a certain level of autonomy regarding access to food and managing scarcities and risks in the face of imperfect and volatile markets.

The same observation can be made in developed countries where farming for subsistence is a strategy for low-income or vulnerable households that have access to land and can find a way to escape from market expenditures, especially in times of crisis. This is especially true in those developed countries where the linkages between the population and rural farm land are still important, which often goes with the fact that there remains a significant number of smallholdings, for instance in Eastern or South Europe (Eurostat, 2012).

In smallholder households' strategies, the farm therefore plays an important role of economic refuge in case of crisis: household members having left the farm could eventually come back to the farm if they have lost employment in other sectors. This contributes to the stability dimension of food security, and also to the resilience of the economy as a whole.

**Box 6 The "white revolution" in India**

Dairy cooperative development in India began in Gujarat with the establishment of the milk company AMUL in 1946 in response to limited opportunities for traditional milk producers. Operation Flood built on this experience when cooperative dairy development became a priority for agricultural development in the 1970s. Beginning with support for three projects in Karnataka, Rajasthan and Madhya Pradesh from 1974, and moving to support two national dairy projects up to the late 1980s, the World Bank has lent over 500 million USD to develop the milk industry via cooperatives (comprising district unions combined into state federations). The national federation comprises 120 000 village milk cooperatives that have some 13 million individual participants in 2008 including 3.7 million women drawn from over one-third of India's 500 districts, most of whom are small and marginal farmers, or even landless farmers. Toward the end of Operation Flood, average milk procurement was at about 12.3 million litres per day with 8.2 of the 12.3 marketed as liquid milk, and the rest turned into milk powder, butter and cheese, creating an annual additional income for each family of 90 USD and acting as a significant driver of the considerable increase of dairy production in India (more than a six-fold increase from 1960 to 2010). The projects have focused on capacity building (strengthening cooperative institutional structures and training) and support for activities and infrastructure related to production and marketing. The overall objective was to promote viable cooperative businesses owned and managed by producers for collecting and marketing milk products in order to expand rural incomes and improve milk productivity.

Investment has been heavy, and some observers have been concerned about the cooperative being over protective and monopolistic, and the occasional inappropriate use of its political power. However, these problems seem to be heavily outweighed by impressive results, arising from committed membership, sound management, an enigmatic and influential leader and strong accounting systems. Results include the following:

- strengthening farmer control and autonomy in the milk sector, at all stages of production, collection, processing and marketing;
- creating a positive economic rate of return for the project;
- enabling poor, small-scale women producers and poor landless or smallholder farmers to benefit by being able to market their milk through the federation;
- increasing smallholder access to intermediate and sophisticated technologies;
- some cooperatives have established rural roads and rural health services for their members and a range of other social and economic services for members.

India is now the largest milk producer in the world with a yearly production of 128 million tonnes in the 2011-2012 period (http://www.nddb.org/English/statistics/Pages/Statistics.aspx).

*Source*: Cunningham (2009a, 2009b).

## 2.1.2 Food processing, food chains and link to consumers

In both emerging and developing countries, due to population growth, urbanization, the growth of middle classes and rising income levels, domestic markets for agricultural produce and high-value food will grow considerably. The African Union Commission expects that the value of these markets will rise, in Africa, from USD50 billion in 2000 to USD150 billion by 2030: "*For farmers and small and medium enterprises in Africa, the benefits of supplying domestic food markets, in terms of both volume and economic value, could soon dwarf those of exporting to overseas markets. But harnessing this potential to boost local development, fight poverty and improve food security will require investments*" (UNIDO, 2010).

In that context, new marketing channels and market places are emerging around cities in order to restore more direct links between producers and consumers. This movement is often built around agro-ecological or organic farming principles (Friedmann, 2007; Marsden and Sonnino, 2012). Though it is still modest and we lack a global evaluation of the scope, it is growing. Significantly, these new markets work outside subsidized schemes, provide opportunities for creating new farms and require more labour per production unit in situations where high rates of unemployment are increasingly worrisome (see Deléage and Sabin, 2012, for a case in Brittany, France).

**Box 7 Case Study: Community supported agriculture in Japan (teikei)**

The *teikei* system, known as a form of community supported agriculture (CSA), started in the late 1960s in Japan (Jordan and Hisano, 2011). *Teikei* means "cooperation" or "partnership" in Japanese. This is a system developed as a form of direct sale to re-connect agricultural producers and consumers to make the supply chain shorter and more visible in order to achieve food safety and high quality, including organic (Parker, 2005). In this system, agricultural producers, usually smallholders and consumers, make mutual agreements on planting and pricing (Ichihara, 2006). Sometimes consumers agree to come to pick agricultural products by themselves and also participate in farm tasks such as weeding. Under the *teikei* system, producers can obtain stable incomes and cover their production costs. The *teikei* system appeared as a social movement against industrialization of agriculture and food supply chains that generated food risks such as pesticide residues. Several types of *teikei* system exist in Japan and in other countries, known as CSA in the US, *Association pour le maintien d'une agriculture paysanne* (AMAP) in France, etc. Their experiences are important for smallholders to stabilize their farming activity and household income as well as to seek alternative food networks.

### 2.1.3 Smallholder organizations and access to markets

The role of the smallholder in food chains can be organized in very different ways, with models ranging from the smallholder farm selling its produce directly to local markets, to more complex means of organization, involving, to various degrees, formal and informal associations of farmers, collective structures, intermediaries at various levels, retailers merchants and traders, etc.

Some key foods are typically produced by smallholders (e.g. cassava, baobab leaves, many fresh fruits and vegetable, traditional cheese, etc.) and this gives critical importance to their organization within socio-economic structures.

Access to markets and the need to obtain bargaining power often play a catalytic role in triggering collective organization of farmers. It is often through such means of collective organization that they gain political voice in decision-making.

Well-functioning rural cooperatives and farmers' organizations are key to empower small agricultural producers, and in particular women farmers. Cooperatives offer networks of mutual support and solidarity that allow them to increase their social capital, improve their self-esteem and self-reliance, and collectively negotiate better contract terms, prices and access to a wide range of resources and services (UN-Women/FAO/IFAD/WFP, 2011). The cases of a women's cooperative of shallot producers in Mali, Kenyan milk cooperatives, and the creation of new markets to directly link produces and consumers illustrate the vital role of smallholder organizations (see Box 8, Box 9 and Box 10).

**Box 8 Small Benkadi women's cooperative of shallots producers in the Segou region of Mali**

Members of the small Benkadi women's cooperative of shallots producers in the Segou region of Mali were experiencing difficulties getting a good price for their produce and as a result were unable to invest and expand their production. By reaching out and coming together with 21 other small associations of women shallot producers, they were able to integrate the larger Faso Jigi farmers' cooperative. Faso Jigi invested in 19 shallot storage facilities and marketed the produce where prices were more advantageous, offering the women a better income and the opportunity to invest in their businesses and expand their production. Currently, 920 of the Faso Jigi's 4 200 members are women shallot producers whose needs and concerns are taken into account in the cooperative's operations.

*Source*: FAO (2013a).

**Box 9 Kenyan milk cooperatives and the smallholder sector**

"In 2003, a new government swept to power with a strong mandate for reform. In the dairy sector, the Government launched an initiative to bring Kenya Co-operative Creameries (KCC) back into public ownership and revitalize the industry. KCC was renationalized in June 2003. The repurchase was finalized in February 2005, at a cost of about Ksh. 547 million (7.8 million USD). The company was renamed 'New KCC' and a 15-member interim board was appointed to run it. Steps were taken to revive dairy cooperatives and improve KCC's management. The reforms have been hailed as a major success. There has been a dramatic revival of the KCC, the dairy sector in general and the fortunes of smallholder diary producers in particular. Competition has increased, which has contributed to better farm-gate prices. Nationally, milk processing has risen from 173 million litres in 2002 to 332 million litres in 2005. KCC's daily milk intake increased ten-fold, from 40 000 litres per day in 2002 to 400 000 litres per day in 2006. The revival of dairy cooperatives has stimulated the development of new businesses such as feed suppliers and providers of artificial insemination, veterinary, breeding and financial services. Small-scale market traders have been allowed to operate licensed milk bars and transport operations, which were previously considered illegal, and received support from a project to improve hygiene standards."

*Source*: Atieno and Kanyingo (2008).

**Box 10 The creation of new markets directly linking producers with consumers**

As part of new rural development processes designed to address different market failures, farmers (smallholders included) have started to develop new products and services that entail more added-value per unit and that are increasingly marketed in novel ways. Through the construction of new infrastructures and new institutional arrangements that link producers and consumers, new market segments are being created that are nested in the general markets.

This occurs, for example, for high-quality food products, regional specialties, fresh and local products, agro-tourism services, "green energy", care services, maintenance of landscapes and nature, and the production of biodiversity. By carefully "nesting" the corresponding flows and transactions, a wide range of mutual benefits can be generated. According to a comparative European research programme (IMPACT), the estimated extra net added-value generated through these new markets amounted in 2000 to some 6 billion euro for Ireland, the United Kingdom, the Netherlands, France, Germany, Italy and Spain together (van der Ploeg, 2008). Nested markets also abound in China (see Ye, Rao and Wu, 2010). Brazil also offers some very interesting forms, some created by smallholder movements (like ECOVIDA), others created by the state (PAA) (see Schneider, Shiki and Belik, 2010). A comparative analysis of these nested markets is given by van der Ploeg, Schneider and Jingzhong (2012).

### 2.1.4 Smallholders, pluriactivity and the rural non-farm economy

Pluriactivity, both at the level of smallholder farmers and at the level of territories, is not a new feature of rural economies, either in OECD countries or in developing regions. Pluriactivity, including non-farm activities is not a new phenomenon in France (Mayaud, 1999).

The process of farm specialization in Europe is tightly linked with the transport revolution and the "modernization" process during the twentieth century with an accelerated pace after the Second World War (see Duby and Wallon, 1977, for the historical perspective on France, Chatellier and Gaigné, 2012, for the recent 50 years' trends and determining factors and Cronon (1991), for a US perspective on it).

Specialization in agriculture carries a higher level of risks in environments where diversification is a common pattern for adaptive risks strategies. Rural, but also urban (through migration), non-farm activities are well known strategies to cope with the uncertainty of agricultural production. What has to be clear is that diversification of activities is not a recent feature that would appear now because of the constraints, difficulties and challenges faced by agriculture-based activity systems. Even before the recent crisis in Europe, in 80 percent of all Dutch farms either the man or the women has a paid job outside the farm. This rendered, before the crisis, on average some 30 to 40 percent of the available income. Without this pluriactivity, it would be impossible to continue with the majority of farms in the Netherlands. And the Netherlands has one of the most modernized farming sectors. Similar data from France have been elaborated by Laurent *et al*. (1998). More than half of the full-time farms had "other gainful activities". In Italy, pluriactivity characterizes more than 90 percent of all

farms. More important probably is that the specialized, intensive farms that represent a full-time activity have proven to be very vulnerable in the current economic and financial crises. In Denmark especially, but also in the Netherlands, many of them have closed down (Mayaud, 1999).

Another process is occurring in several parts of the rural world. “Urbanization of the countryside” as described by Graziano da Silva and Eduardo Del Grossi (2001) for Brazil refers to the process of emerging cities in rural areas, which implies a more complex understanding of the dynamics beyond the agriculture sector, many households relying both on farm and non-farm activities. The complementarities of such patterns have also been observed in Colombia (Deininger and Olinto, 2001). They frame the new rural life in China as a result of the public policies implemented (Fan, Zhang and Zhang, 2004) that experience a high level of self-employment creation (Zhang *et al*., 2006) together with the impact of infrastructure development on agricultural productivity (Zongzhang and Xiaomin, 2009). Sub-Saharan Africa is already well on its way in terms of diversification of rural employment (Haggblade, Hazell and Dorosh, 2007). A recent revision of the data by Wiggins and Hazell (2011) estimates that the rural non-farm economy (RNFE) in sub-Saharan Africa is 20–25 percent (this includes not only villages but also rural towns), or 10 percent if considering the labour force in villages.

This widely diversified pattern of activities is fully part of the picture of contemporary agriculture, not just as a process of “diversifying” livelihoods because agriculture would not allow coping with the household’s needs, but because it is historically a structural feature of agriculture in the north and in the south. This trend towards diversification is sustained by the process of densification of rural areas as described for Latin America or Africa; it can be strengthened by public policies through infrastructure and industrial policies (China, Viet Nam) specifically targeted to rural areas (Ye, Rao and Wu, 2010).

It is not obvious if these dynamics correspond to the process of structural change as described for OECD countries. Even if the process of urbanization will continue with the share of rural population in sub-Saharan Africa decreasing from around 64 percent to 54 percent of the total population by 2030 (UNDESA, 2011), the decrease is moderate and the rural and agricultural population will continue to increase. In Africa, the rural population will be the majority until mid-2030 with absolute increase in rural population after 2050. The rural population of sub-Saharan Africa will increase by 330 million (1.1 billion in total) for which external migration will not be an option (Losch, Fréguin-Gresh and White, 2012). There is a debate on the conditions for RNFE to become an effective step in the transition pathways; empirical evidence is still missing on a large scale and one has to rely on scattered “one-shot studies”, making assumptions on the possible general validity, at different moments in time, different scales and methods, regions and an important heterogenty in institutional frameworks (Haggblade, Hazell and Dorosh, 2007). The panel approach – where the same households are surveyed on a medium-term basis – is rarely implemented, except in some long-term commitments from donors and academics (see Djurfeldt, Aryeetey and Isinika, 2011). One may think that the “growing” rural non-farm economy is the premise of structural change based on global aggregates leading to increased incomes, whereas others will see it as a coping process for a majority stuck in poverty traps through a combination of diversification strategies but limited to survival and not leading to economic growth.

### 2.1.5 Role in economic growth

Smallholder agriculture plays a major role in the national economy of many countries, particularly in least developed countries. Delgado (1997) affirms that “*smallholding farming in sub-Saharan Africa (SSA) is thought at present to account for 70 percent of total employment, 40 percent of total merchandise exports, and 33 percent of GDP on average, although the shares are much higher in many countries of the region. One-third to two-thirds of value added in manufacturing depends on the supply of agricultural raw material, mostly from smallholders. Furthermore, primary agricultural commodities account for large shares of total merchandise exports in the region, again mostly from smallholders (…) despite these achievements, economic conditions for smallholders in SSA have been especially tough*".

The large amount of people living in poverty constitutes a considerable potential internal market for goods and services, provided that agricultural growth plays its role in income generation and repartition. This potential, however, is only partially being used. Substantial improvements in the purchasing power of these *rural* people can have a substantial and significant effect on the

dimensions of the internal market and thus help to alleviate the effects of the current economic crisis. The performance of China is a case in point.

Agricultural growth might contribute considerably to overall economic growth. It can especially be “the engine of rural nonfarm growth” (Haggblade, Hazell and Dorosh, 2007), as the Chinese experience for example shows (Zhang *et al*., 2006; Mohapatra, Rozelle and Goodhue, 2007).

Mechanisms called “growth linkages” that link agricultural growth and overall development are especially strong in countries were a smallholder agriculture dominates (Haggblade, Hazell and Dorosh, 2007). Especially for ”consumption linkages”, it has been shown that these are the weakest in estate-led agricultural growth (Haggblade and Hazell, 1989; de Janvry and Sadoulet, 1993), but strong in smallholder agriculture, which can at the same time contribute to increase production and form a large part of the internal market (Delgado *et al*., 1998; Mazoyer and Roudart, 2002).

When producing sufficiently and achieving increasing incomes, smallholders spur the sale of so-called “wage goods” produced in urban industries. In periods of economic crisis, this is a strategic feature. If, alongside the need to increase total agricultural production, there is *also* a considerable need to enlarge rural employment and/or to raise rural incomes, then smallholder agriculture carries far more potential than large-scale, less labour-intensive, forms of agriculture.

### 2.1.6 Environmental significance

Relations between agriculture and the environment have been heavily discussed, and there are many ways, by which agriculture impacts the environment. The interactions between smallholder agriculture and environment can be particularly contrasted, driven as they are by land scarcity. In many cases smallholders make the most of their scarce land resources by developing diversified systems, often integrating trees, livestock or even aquaculture. These systems, often traditional, are very knowledge intensive and often linked to local markets and specific enabling social institutions (IAASTD, 2009).

In other cases, to compensate for land scarcity smallholders engage in intensive specialized farming systems. In such cases intensive use of synthetic fertilizers and pesticides or intensive livestock rearing can lead to serious imbalances (ground water depletion, eutrophication) and pollution, particularly as, most of the time, such models are adopted on a whole area. This is the case for instance in some areas of Europe, the US, China and India. These practices, promoted by the Green Revolution, are now heavily questioned and most of these countries are now engaged in processes to reduce the use of inputs and promote more diversified models, at farm or landscape levels (IFAD and UNEP, 2013). Such a change of farming system generally entails important investments in knowledge and often also material investments.

Lack of resources, and particularly land scarcity, can also cause in some areas, especially in arid and semi-arid areas to overgrazing and nutrient mining, leading to land degradation and soil depletion. Reversing this process generally requires collective investments to restore the land and collective practices towards sustainable management of land and water.

Small farmers play an essential role in the in-situ preservation of biodiversity, even more within conditions of continual genetic adaptation to changing environmental, economic and even social contexts (*e.g.* Kull *et al.*, 2013). For example, in India, women have developed a system of community conservation of biodiversity through in situ on-farm conservation, in other words, the landraces. Hardly four or five or six crops today of market importance for the food basket today, while there were several hundred crops in the past (Swaminathan, 2010). Unlike in the temperate areas, smallholder farmers in the tropics have always husbanded trees on their farms, using them for a variety of pruposes (Garrity *et al.*, 2010). Finally, smallholder farmers, herders pastoralists etc. play a vital role in the preservation of animal biodiversity and local breeds, to a large extent threatened in many places. This biodiversity and Indigenous breeds are often adapted to harsh conditions, drought and extreme heat or tropical diseases, contain unique genetic material important for breeding programmes, which makes them even more important in a world threatened by climate change.[28]

In some countries, greater awareness towards the various ecosystem services provided by agriculture often linked to the recognition of values carried by smallholder agriculture, and/or associated to a specific area creates opportunities for specific valorizations. These can be linked to specific products (quality products) or services (tourism, hunting, fishing) or to particular schemes recognizing for

[28] As recognized in the implementation of the Global Plan of Action for Animal Genetic Resources. See http://www.fao.org/news/story/jp/item/162972/icode/

instance a particular contribution to water quality, which can take the form of payments for environmental services for instance (Lipper and Neves, 2011).

As smallholders form the majority of the farmers in the world and as the area they cover form a very significant part of the agricultural area worldwide (and in some countries close to the totality, see Figure 3), there will be no environmentally sustainable agriculture without the involvement and initiative of smallholders. Environmental significance is linked to the efficiency of farming, with major parameters being the reliance on fossil energy (Pimentel, 2009a; 2009b) and on synthetized nitrogen (Foley *et al*., 2011). Finding ways for improving resource efficiency of smallholder systems will pave the way for the evolution of the whole agriculture.

### 2.1.7 Social and cultural importance

Perhaps one of the most important reasons to develop and assist smallholder agriculture is because it is home to many social groups, whose emancipation is key to broader social and human development.

This applies to women, who comprise on average 43 percent of the agricultural labour force in developing countries (FAO, 2011a), to youth with low levels of education and to elderly people.

It also applies to the many ethnic minority groups that in the past have found refuge in the agriculture sector and who are still trying to rise above the many injustices they experienced. Examples here are the *quilombolos* from Brazil and the *libres* from Colombia (these are groups of former slaves who escaped in the past from plantations and who developed smallholder agriculture in remote places). The Indian people from the Americas are another example. Especially in countries like Peru, Ecuador and Bolivia, they are omnipresent in the agriculture sector. For all these groups, the development of smallholder agriculture should be applied to directly support their emancipation.

Smallholder populations also represent an impressive and highly variegated cultural repertoire that includes arts, music, dances, storytelling and architecture. Part of this cultural heritage is what the French rural sociologist Henri Mendras referred to as "*art de la localité"*. This concept refers to the many knowledge systems in smallholder agriculture. These developed over time and represent an amazing capacity to adapt to the specificities of local ecosystems and societal patterns and to turn agriculture into a highly productive system that is essentially based on local resources.

## 2.2 Structural transformations and smallholder agriculture

To determine "what can be done?" and "what needs to be done?" for smallholder agriculture, countries must determine the roles and importance of agriculture, and in particular of smallholder agriculture, for food security and sustainable development (section 2.1). This should be done in the perspective of investments in agriculture, therefore looking into the future and the transformation of the sector and of the economy. Consideration of the forces at play in different sectors, sometimes supportive, but many times adverse to agriculture and smallholder agriculture, is essential to design the right policies and strategies.

Understanding the relationship between the organization of the agriculture sector and the development of the economy as a whole is key to this. The evolution of one depends on the other and viceversa, thus there is a need to understand their transformations, their interactions, the margins of manoeuver, the consequences of the choices that one can make and, finally, what can be put in place to implement these choices.

This section aims at depicting the very diverse and different contexts to structural transformation of both agriculture and the economy (in terms of demography, productivity, etc.), and which will to a significant extent condition the kind of investments and the nature of the actions needed for smallholder agriculture.

As we have seen, smallholder agriculture is in many countries essential for food security and sustainable development. It is, however, incorporated in different types of contexts. The particular context is important to consider in policy-making, both for policies towards smallholders in the context of structural transformations, and for policies that aim at adjusting/controlling how structural transformations themselves are taking place.

### 2.2.1 Pathways to economic and agricultural structural transformations

There exists a large academic literature on structural transformations, which we do not pretend to summarize here. It started with the publication of C. Clark's book in the 1940s, followed by studies of developing countries (Johnston and Mellor, 1961; Johnston, 1970; Johnson, 1973) and recent syntheses by Timmer (1988, 2007) and Byerlee, de Janvry, and Sadoulet (2009) deepening the framework of the "*Agriculture for development*" Report (World Bank, 2007). The structural transformation provides the framework to analyse the contribution of agriculture to economic development.

The economic and agricultural transformation pathway is empirically described by Timmer (2007) through the evolution of three macro-economic variables: GDP per capita and the shares of agriculture in GDP and in total employment.

When all variables are put together across countries, a "classical pathway" emerges, in which the shares of agriculture in GDP and in the labour force decrease with time and development, marking a shift from agricultural and rural societies to urban societies, as today over 50 percent of the world population live in towns and cities (UN, 2012).

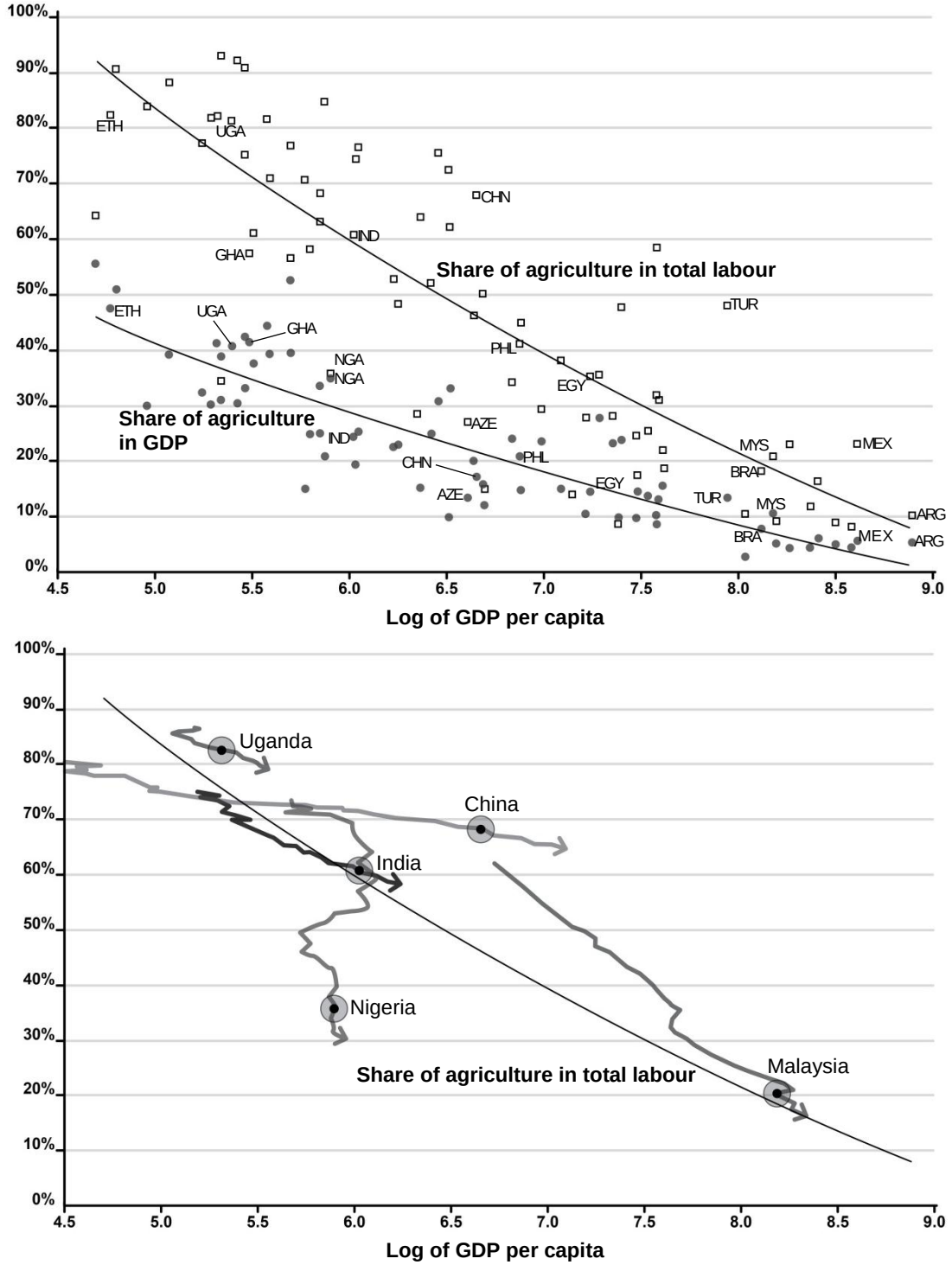
This trajectory was followed in the European countries starting at the time of their industrial revolutions in the late eighteenth century, and by most Latin American (as for example Mexico, Brazil) and Asian countries (Republic of Korea, Japan) during the last 40 years. Investments progressively drove these economies to higher levels of productivity in agriculture, associated with higher use of inputs, often combined with irrigation, supported by public and private investments, but often leaving behind considerations about employment or the environment.

Underlying this classical pathway is the fact that the growth in employment in the non-agricultural sectors exceeds the growth of the active population. The development of labour-saving technologies in agriculture enables a reduction in agricultural employment, which comes together with a concentration in the agri-food system (McCullough, Pingali and Stamoulis, 2008; Burch and Lawrence, 2007) and a freeing of labour for industry, with a convergence in per capita income between agriculture and the other sectors of the economy (see Section 2.2.3 and Figure 12. Labour-saving technologies in agriculture were not "scale neutral" and induced a process of technical change, a concentration, standardization and specialization of the production process, favouring the most productive units. The number of farms[29] tends to decrease and the average size of those remaining in agricultural production tends to increase (Eastwood, Lipton and Newell, 2010), even if we observe the permanence of small-scale farms (Wiggins, Kirsten and Llambí, 2010; Perrier-Cornet and Aubert, 2009).

In this "classical" model, the outlook offered to smallholders by economic forces was either to grow in size or to disappear if they were less competitive than larger farms. The number of farms would consequently decrease even if population was increasing. As far as smallholders were concerned, economic conditions favoured the "exit option" from agriculture, as other sectors (or other countries) were able to provide job opportunities for the younger generations, and as public policies gave them the opportunity and the choice to leave agriculture (through education, internal migration possibilities, etc.).

[29] In fact, in Latin America, the sector that has most rapidly and deeply diminished is the traditional *latifundia* that used to support land-based oligarchies, through a combination of economic forces (e.g. huge cotton *latifundia* in the Brazilian Northeast and the Argentinean Chaco), but also thanks to structural agrarian policies (Agrarian Reforms).

**Figure 8 Structural transformation across countries at a certain period, and past trajectories for some specific countries**




*Top: The horizontal axis measures the logarithm of GDP per capita. The vertical axis shows the share of agriculture in total labour (white squares) and the share of agriculture in GDP (black dots) for developing countries, in country average for the period 1990-2005. The structural transformation shows the strong cross-country regularity of declining shares of labour in agriculture, and of agriculture in GDP, as GDP per capita rises. Abbreviations of countries can be found in Appendix 2.*

*Bottom: Trajectories of specific countries in terms of share of agriculture in total labour (vertical axis) and logarithm of GDP per capita (horizontal axis), between 1960 and 2005. The diagonal curve is the cross-country pattern (average 1990-2005). China is retaining more labour in agriculture (flatter trajectory) than the pattern while Nigeria is releasing more labor from agriculture than the pattern. Shaded dots are the 1990-2005 average.*

*Source:* adapted from de Janvry and Sadoulet (2010).

There is a strong and persistent representation in development thinking[30] that this is a "universal" pathway for agricultural development. But at least two observations contradict this perspective:

First, some key countries strongly differ in their development trajectory from the "classical pathway" (see Figure 8). Does it mean that they are underperforming? Or just that they are following a more adequate trajectory to their particular circumstances with respect to food security and sustainable economic development, for example by maintaining a substantial share of employment in agriculture (especially in China with restrictions to urban migration and to a lesser extent in India)?

Second, the underlying technical and agronomic model to the classical transformation pathway, which inspired the Green Revolution in Asia and to a lesser extent in Latin America, is now being questioned. This questioning is due to its excessive reliance on industrial inputs and its negative environmental externalities and social consequences. It has been reinforced by the rise in the cost of inputs, particularly those that are very energy-intensive such as fertilizers.

Therefore, the drivers of the structural transformation have to be more carefully scrutinized. Specific national conditions prevail such as the demographic dynamics, the level and growth rate of GDP per capita, the relative importance and dynamics of agriculture in the economy, the structure of the sector, etc. These different socio-political contexts can lead to very different paths of transformation for agriculture and smallholders.

There are different and sometimes strongly contrasted *trajectories* (not to be confounded with different stages of development) for the role of smallholder farmers in development.

Schematically, these trajectories range from :

(i) the managed and gradual differentiation and decline of a smallholder sector, and the emergence of a highly modern medium farm sector (as in Chile),

(ii) an explicitly managed dualism trying to promote functional complementarities between large and small farms (Brazil, Mexico),

(iii) a long-term peasant-based agriculture as in the crowded countries of Asia and Eastern Central Africa (China, Viet Nam, India, Malawi, Uganda), at least for a long time until urban economic growth creates sufficient employment opportunities and farm consolidation can be pursued. Over the last two decades,

(iv) a fourth trajectory has been emerging in which the delivery of so-called green and blue services (maintenance of landscapes and natural assets, conservation of biodiversity, water retention, energy production, mitigation of global warming, etc.) plays an important role alongside the production of high-quality and local-specific foods. In this emerging trajectory, which is prominent in Europe and also in Canada and in particular locations of Latin America and Asia, smallholders are often the main actors.

(v) Finally, there are processes of de-activation where smallholder agriculture is increasingly being pushed to the margins, thus losing its ability to invest.

These different trajectories might exist alongside each other. Parts of Africa are very much into (iii), with others in (i) and (ii). Some of Latin America are between (ii) and (i), but most are grappling with consolidating (ii). But it is also possible that widespread economic and financial crises or political unrest (Zimbabwe) will induce changes towards (iii): the urban unemployed will seek refuge, and build new livelihoods in rural areas (as occurs in most parts of Eastern Europe but also in the Western part of Europe, and Latin America).

The situations and trajectories observed are the result of past choices made under a wide range of determinants at the macro- and micro-levels, including demographic patterns, economic transitions, and policy choices. Future trajectories cannot be expected to be mere extrapolations of the past. There is a need to look at how the macro and micro trends, today, frame the options for investments for the future.

[30] We do not mean these works promote a normative thinking, but the use of these works taken as the "norm" can be misleading.

## 2.2.2 Drivers of structural transformations

Smallholder agriculture is part of a diversity of situations framed by major trends: demography in rural and urban areas, the relative speed of productivity gains in agriculture and other sectors, and natural resource endowments (productive lands, water, etc.). These trends are shaping the context for the roles that smallholder agriculture can play, today and in the decades to come, for food security and nutrition.

**Demography and population in agriculture**

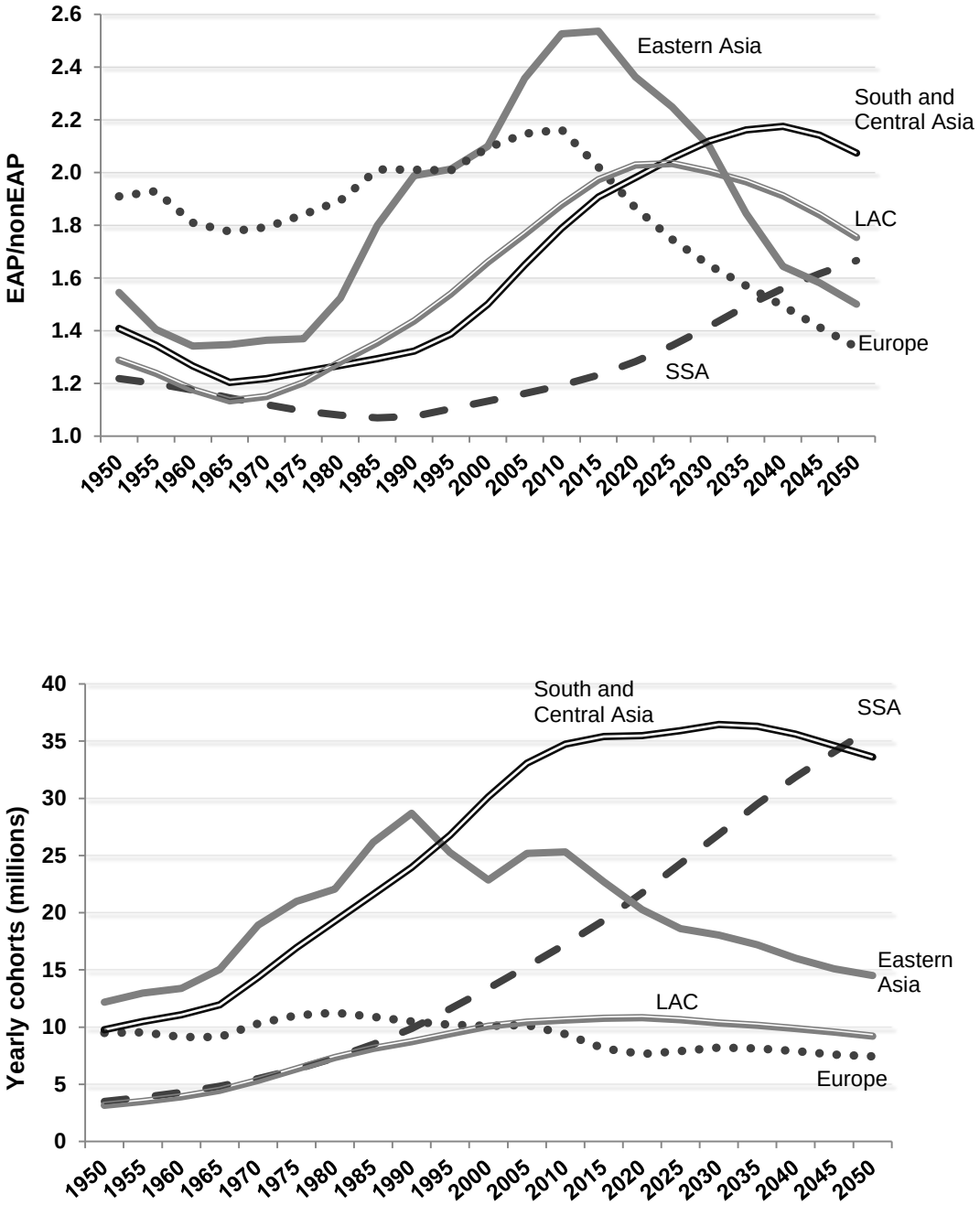
In Europe, at the end of the nineteenth and early twentieth century, farm productivity was increasing with respect to both labour and land, and millions of European farmers and farm workers were migrating massively to the cities and to the Americas and Australia, where opportunities for work and new livelihoods existed. Such labour-saving and technology-intensive patterns of agriculture transformation in the Northern countries resulted both from the agricultural modernization process, and from the appeal of employment opportunities in other sectors (industry and services) and abroad. In Europe and other developed countries, the agricultural population decreased sharply and only a limited share of the population today derives its income from agriculture, which is furthermore often associated with off-farm activities (in particular with the non-farm activities of the spouse).

This heavily contrasts with regions and countries with strong demographic growth and which did not yet complete their demographic transition. This presents rural populations (mainly in Africa and Asia), with the challenge of jointly taking care of the inactive population and of finding employment for the youth in sectors of the economy other than agriculture (Losch, Fréguin-Gresh and White, 2012), as population growth exceeds the absorbing capacity of agriculture. Agricultural and rural populations are still increasing in Asia, whereas Latin America has achieved stability for the share of its agricultural population.

Regarding the demographic transition and the opportunities it can generate for investment, especially labour-based, one key variable is the “activity ratio” that measures the share of active to inactive population. This activity ratio evolves from a situation where “in the first phase of the demographic transition, the population is young with a high share of inactive youth” to a second stage where they become active “and – if the conditions for growth exist – offer a potential bonus to the economy referred to as the ‘demographic dividend’”. The third stage corresponds to the ageing of the population (Losch, Fréguin-Gresh and White, 2012). The East Asian countries took advantage of a very high activity ratio (between 2 and 2.4 active people per inactive individual) in the last three decades (Figure 9). This situation contrasted heavily with Africa, which presents the lowest activity ratio in the developing world, but with an activity ratio expected to slowly increase over time as the demographic transition progresses. Situations of low activity ratio constitute one more constraint to investment, as income generated by the active population needs to be used to sustain the inactive part of the population.

Regions can make the most of an increasing activity ratio, by definition, if there is work to offer to the cohorts of young people entering the labour market. Figure 9 shows that pressure will increase in sub-Saharan Africa (with yearly cohorts entering the labour market rising from 17 million/year towards 25 million/year in 2025, which means a total of 330 million additional workers within 15 years) and in South Central Asia (particularly India) with the need to find new jobs for around 35 million people/year from today to 2050. The questions then become: will economic diversification be strong enough to absorb the newcomers? Are labour-scarce agricultural development pathways, without other employment alternatives, economically and politically viable? Will investments in agriculture and smallholder agriculture permit a sharp increase in land productivity and be able to keep high levels of employment, dealing at the same time with the drudgery of agricultural work?

**Figure 9 Activity ratios (top) and yearly cohorts entering labor markets (bottom) for selected regions (1950-2050)**



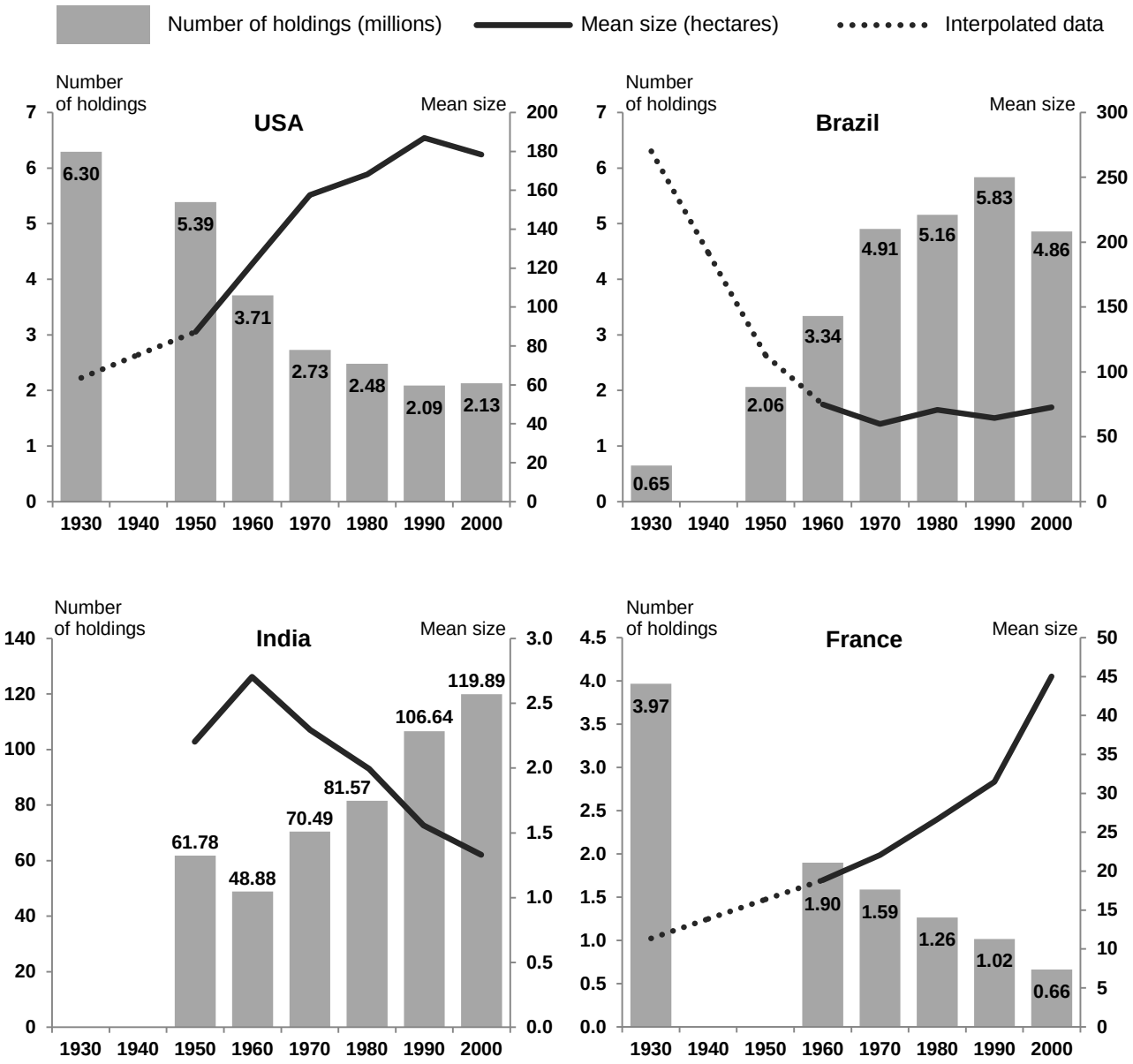

*Source:* adapted from Losch, Fréguin-Gresh and White (2012), actualized.

**Four contrasted examples**

The data from the WCA help define several profiles that help think about the future of the transformation process in agriculture.

We present here, as examples, four different country profiles: Brazil with the effect of redistributive policies and a sharp decrease in the mean land holding size towards around 70 ha; India with an increasing number of holdings and a marked decrease in the mean size of holdings to around 1.5 ha (which we could call an Asian profile); then France and the US with a strong reduction in the number of holdings – stronger for France where it was divided by more than 4 against 3 in the US – and in France a net increase in the mean size of land holding towards 50 ha, while in the US there seems to be a leveling around 150–200 ha.

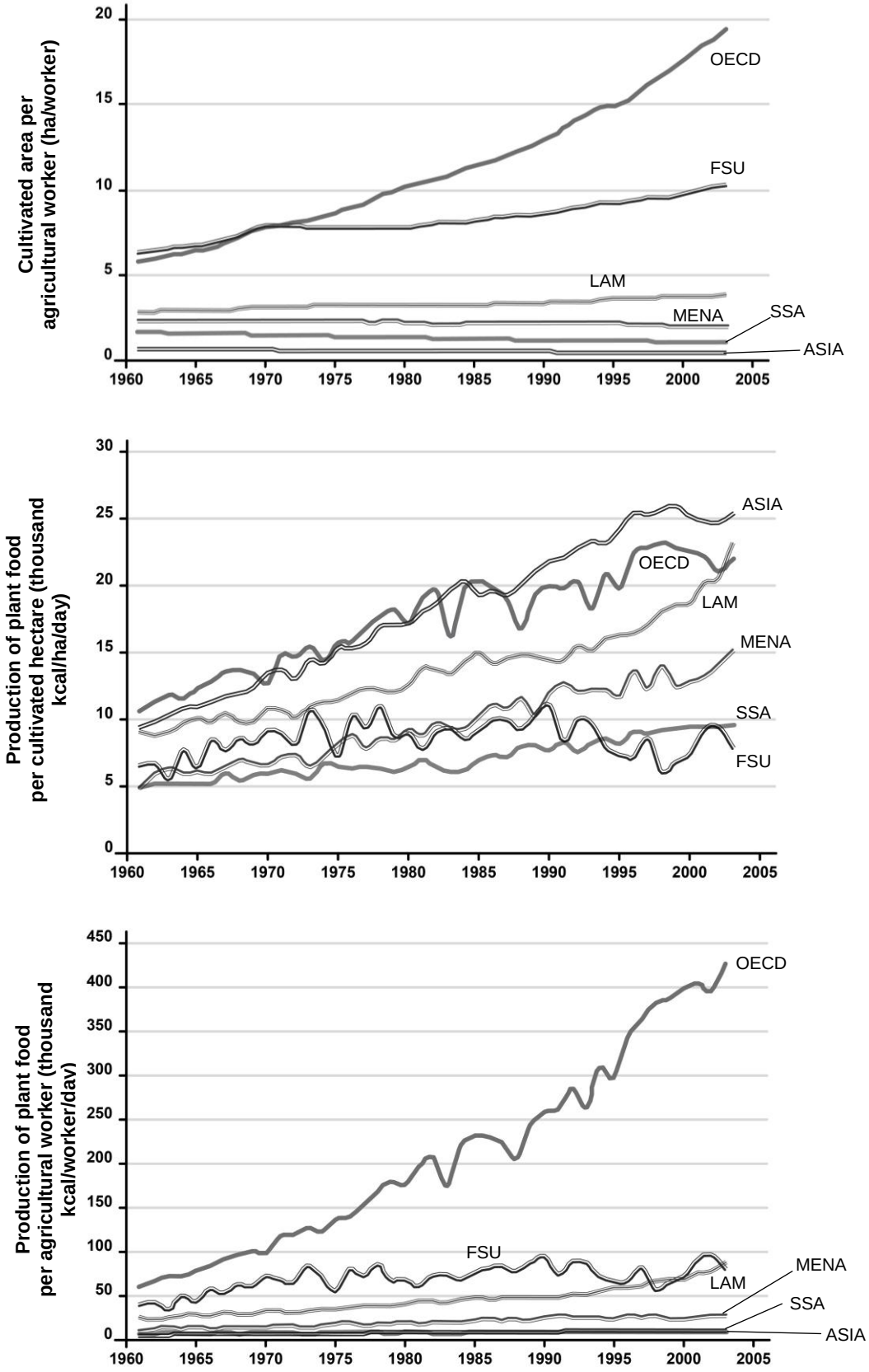
**Figure 10 Evolution of the number and mean size of holdings in Brazil, the United States of America, India and France (1930–2000)**




*Source:* FAO (2010b).

Present structures have been shaped by past evolution and policy decisions. Choices for the future will result both (i) from the current trends and dynamics, which have their own inertia when it comes to reversing them, and (ii) from the decisions countries take now, and will take, on the orientation of their economy, their agriculture and the smallholder sector.

**Figure 11 Cultivated area per agricultural worker (top), production per hectare (middle) and production per agricultural worker (bottom) by world regions (1961-2003)**




*Note:* These data have been gathered and processed with the foresight exercise "Agrimonde" bringing together the countries according to the groupings elaborated in the Millennium Ecosystem Assessment (MEA) collective expertise. FSU = Former Soviet Union; LAM = Latin America; MENA = Middle East, North Africa; SSA = Sub-Saharan Africa. *Source:* adapted from Dorin (2011).

**Productivity increases**

The agricultural transformation is closely linked to productivity gains (Timmer, 1988). These changes in productivity have been extensively studied to point out the role of the specific combination between technologies and policy conditions to orient what has been called “induced technical change”, where selective technology generation and adoption depend on the differences and changes in relative factor prices (Hayami and Ruttan, 1985).

Peasants, characterized by Schultz (1964) as “poor but efficient”, are to play a key role in these transformations, since their capacity to adopt technical change has been recognized early in empirical works (e.g., by. Binswanger and Ruttan, 1978) mostly based on the Asian experience. Following Lipton (2005) and other authors using a historical perspective, there are no examples of agricultural development leading to poverty reduction without sharp increases in productivity in smallholder agriculture. But the remaining persistent poverty traps (Carter and Barrett, 2006; Barrett and Carter, 2012) in countries where productivity has been sharply increased (such as in Asia) or in countries where productivity has remained rather stagnant compared with population growth, as in Africa, are an argument for differentiated means to address this issue.

Historical productivity changes present a great deal of regional heterogeneity (Dorin, 2011). This is shown in Figure 11.

First, in the OECD countries and in the countries of the Former Soviet Union (FSU), the increase in the area per agricultural worker (Figure 11) was enabled by investments in mechanization and the capacity to generate them, often with strong support from the state. Obviously, because of demography, of the importance of the agriculture sectors in the workforce and of the contrasted situations, this pattern of mechanization and modernization could not be reproduced without negative social consequences.

Second, in terms of land productivity, Asia has the highest level of all regions, even higher than in the OECD countries since the mid-1980s. Margins of progress exist in large regions where investments would be appropriate to increase the level of land productivity, especially in the Middle East/North Africa region, the Former Soviet Union and sub-Saharan Africa.

Third, looking at food produced per agricultural worker, the combination of high level of land productivity with high level of labour intensity in Asia leads to a very different situation from that observed in the OECD countries.

There is an obvious need to increase total agricultural production in the time-path to 2050 when the world population is expected to reach its peak. If smallholder agriculture plays a central role in the required increases of overall production, then there might be, *simultaneously*, an important contribution to poverty reduction (de Janvry and Sadoulet, 2010) and the consolidation and strengthening of internal markets. This option gains relevance when food prices experience sharp increases.

### 2.2.3 Developing options for smallholder agriculture within global transformations

Based on the classical works on the structural transformation by Lewis and Timmer, in a recent work Dorin, Hourcade and Benoit-Cattin (2013) represent productivity trends in the main regions of the world along two axes: (i) the share of active population in agriculture and (ii) the income gap between the agriculture and non-agriculture sectors.

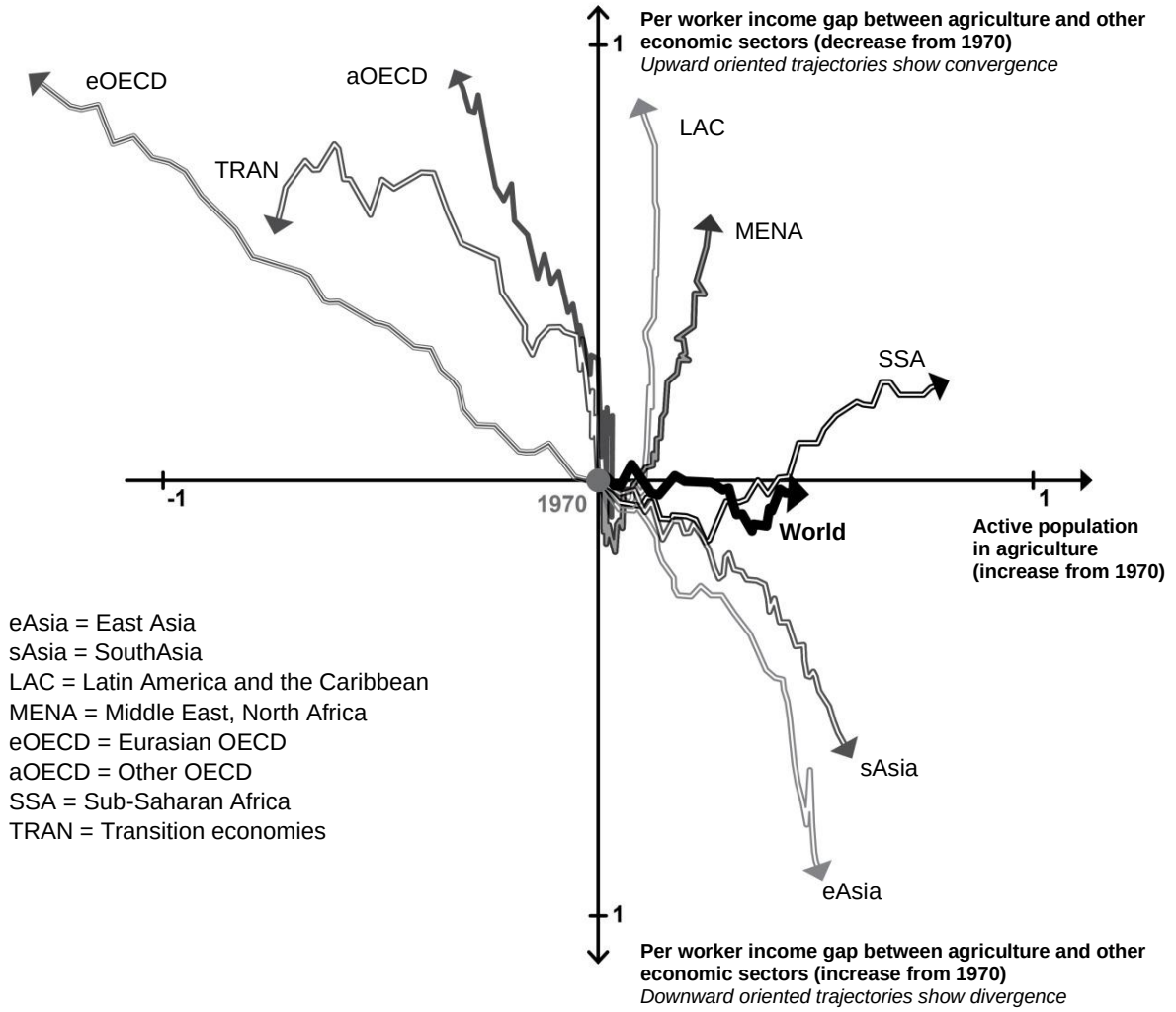
This analysis of the transformations having occurred between 1900 and 2007 (Figure 12) shows two major divides. The first divide is between the right and left sides of the figure and separates OECD and transition countries (with a decreasing active population in agriculture) from developing countries of the main regions (with an increasing active population in agriculture). The second divide is between Asia and the other developing regions, with an increased income gap between the agriculture and non-agriculture sectors. This highlights the specific challenges faced by those countries with a labour-intensive, socially and economically very significant agricultural sector, which will have to develop in a context of increasing income imbalances (and opportunities to generate investments) as compared with the rest of the economy.

It also highlights the challenges of increasing household income, of taking smallholders out of poverty, and of producing more value added per worker. Such increases in income can only come from two sources:

- Increased productivity per worker in smallholder farms with the challenge of offering potential employment to a growing active population to keep up with demographic trends. This means increasing, at the same time, the value added captured at the farm level.
- For households that are net sellers of food: higher producer prices for agricultural products, driven by growing demand and especially growing urban markets to provide opportunities for high-value products. This shows the importance of a "double reliance" on markets for smallholders to sell higher-value products and to buy more basic staple foods.

A third dimension very much linked to the above two is the organization of food systems and food chains, to ensure that an important part of the value added generated along the food chain is, first, remunerating labour, particularly at the farm level, and, second, goes to farms and rural areas. Governments and all stakeholders, especially consumers, have an important role to play for this to happen. The situation will also reflect the choice among non-farm households to allocate increased absolute values, and perhaps an increased part of their household expenditures, to food consumption. This could be linked to the recognition of other goods and services produced by smallholder agriculture.

**Figure 12 Structural transformations (1970–2007)**




*Relative trajectories of regions between 1970 and 2007 with respect to (i) cumulative annual rate of evolution of active population in agriculture (horizontal axis, increase towards the right), and (ii) cumulative annual rate of evolution of per-worker income gap between agriculture and the other economic sectors (vertical axis, reduction of the gap towards the top). Origin = situation of the region in 1970. End of arrow: situation in 2007. The longer the curve, the faster the process. Regions according to Millennium Ecosystem Assessment.*

*Source:* adapted from Dorin, Hourcade and Benoit-Cattin (2013).

Smallholder agriculture is playing a crucial role for food security. It is, of course, especially the case where agriculture is the major economic sector and is a source of income for the main part of the population. And it is also the case in many countries where other economic sectors have replaced agriculture as the main source of income.

The diversity of trajectories followed by agriculture, with the coexistence of models dominated by large holdings and other models in countries where smallholders are the norm, shows that there exist alternatives and that smallholder agriculture is part of the options.

In all countries, and even in those where large-scale farms predominate today, recognition by society of the diverse functions and roles that smallholder agriculture can play gives smallholder agriculture a special place and a viability, defining a “path for investments” in the midst of structural transformations.

In countries where demographic projections predict a dramatic increase, which are precisely those countries where agriculture is not only a purveyor of food but also the main purveyor of jobs and livelihoods, smallholder agriculture will play a special role. Often these countries experience food shortages and scarcities of resources, especially land and water, exacerbated by lack of means to exploit them more efficiently. These countries are also the most at risk of climate change (HLPE, 2012a).

All of this calls for investing in smallholder agriculture, given the many roles it can play for food security and sustainable development, and given its many roles to provide food and income where they are most needed. Using investment to increase productivity and to help capture a larger share of value added seems to be the most autonomous solutions in the sense that they develop and strengthen the capacities of the smallholder family in the long term.

# 3 WHAT TYPES OF INVESTMENTS?

Before looking at the way ahead for investments in smallholder agriculture (chap 4), this chapter aims at describing some of the main categories of or options for investments.

In the previous chapters, we depicted the system of constraints to smallholder investments (Chap 1), and the roles and importance that smallholder agriculture has in the context of structural transformation of the economy (Chap 2), giving strong background to the question “why invest in smallholder agriculture”? Smallholder agriculture needs to develop but faces a combination of constraints to do so.

Overcoming these constraints requires a better understanding of the types of investments to be considered, first at farm level, but also at broader levels, which are often needed to facilitate or make investments possible at farm level. To a great extent, lack of former investments is also what makes investment difficult.

As this report focuses on constraints to investments, and how to overcome them, a useful distinction can be made among the main categories of investments:

(i) The first category comprises those investments in productive assets that are limited. These are seen concretely from the point of view of the smallholder, when s/he wants or needs to invest to improve his/her farm (section 3.1).

(ii) The second category comprises those “enabling” investments that allow overcoming the constraints to investments. These investments can be easily described by linking them to the system of constraints in the first place: investments that allow unleashing investments in productive assets (section 3.2), investments that allow improving functioning of markets (section 3.3), and investments in institutions (section 3.4), especially the institutions that protect investments.

Transversal to the two categories above is another useful distinction between those investments that are made by smallholders themselves, individually or collectively, and the ones that need to be made by other categories of stakeholders: public sector, private sector, public–private investments, etc.

## 3.1 On-farm investments by smallholders in productive assets

Poverty, few assets, at risk of any unexpected event, an income that is small, irregular and committed to first satisfy basic needs, all contrive to impede investment. Therefore, the first concern is to increase productivity of these few assets and protect them and the income they generate from hazards. The objective is thus to increase productivity and value adding at holding level while strengthening resilience, with medium- and long-term investments. Given the importance of labour investments, particular attention has to be given to reducing drudgery, which has often been overlooked.

### 3.1.1 Increasing productivity

Given the low availability of resources, especially land, the first objective is to increase their productivity, whether in volume or value. As shown before by the very discussion above on what is small, the economic size of a holding can be increased without increasing its land size but by better management. Typical examples are irrigation (e.g. van den Dries, 2002), improving the fertility of the soil, landscape management to improve the resource base.

This increase in productivity requires technical solutions at low monetary cost and relevant to smallholders’ needs, that increase the efficiency in the use of scarce resources, that mobilize better the local resources and develop local employment.

Yield is the most common metrics to measure productivity, particularly where land scarcity is a key constraint. In many areas there is an important “yield gap”, the difference between actual farm yields and the maximum achievable yield with latest varieties, removing as much as possible all constraints, generally achieved in highly controlled station, gives an indication of potential for improvement.

**Box 11 Closing the yields gap means addressing the diversity of agro-ecological conditions**

Grain yields generally fluctuate between 25 and 50 percent of potential yields. Best farmers' yields tend to underestimate the actual potential yields. Simple crop simulation models provide a more accurate estimation of potential yield. Soil fertility and weed management are the predominant causes of yield gaps. Great potential exists for closing the yield gap by improving agronomic practices and targeted investments. **In dry areas like Senegal**, it should be possible to double the actual mean yields, combining improved soil fertility and weed management with water-saving investments and techniques at field and landscape levels in order to reduce production risks induced by rainfall variability, which are expected to increase with crop intensification. For rainfed rice cultivation in Viet Nam, with new varieties of rice and with the same kind of investments and technical improvements, it seems possible to harvest four times the current yields. **In Brazilian *Cerrados***, on maize, it should be possible to progress and reach 5 tonnes/ha if investments are made to increase soil organic matter, together with water harvesting techniques, avoiding water run-off through mulching and conventional landscape-management techniques, and using relay plants to reduce nitrogen losses through lixiviation. *The main condition for such progress is fine-tuning such broad recommendations to the wide diversity of agro-ecological conditions* (Affholder *et al.,* 2013, Tittonell *et al.*, 2007).

When measured in value, productivity greatly depends on relative prices, especially of inputs but also of equipment and machines. In less developed countries, reduced availability and higher costs of inputs and equipment often makes productivity improvements more difficult to achieve. This calls, first, for implementing technical solutions less dependent on external inputs, second for strengthening collective and individual capacities through training and access to information towards improved efficiency. It also calls for improving smallholders' access to the inputs they need (see section 3.3.1). It also often calls for facilitating collective investments (see 3.2.1), particularly for buildings and equipments to reduce their individual costs. Economic productivity is also sensitive to relative prices trends. Increasing prices of inputs, particularly fossil fuels and synthetic fertilizers invites to invest in solutions that make their use more efficient. Cost reduction technologies may prove highly profitable on the medium to long term and therefore need specific attention, especially because they often need an increased knowledge base (agro-ecology, conservation agriculture, etc.). They may also require "investment" — in land, labour or even financial resources that will not produce returns in the very short run. Increasing main crops' productivity is a central objective, improving qualitatively and quantitatively the families' nutrition and diets has to be equally important. Strengthening smallholders' capacities to develop subsistence-oriented production,[31] diversifying and enriching family consumption should be part of coordinated strategies including improperly called "secondary crops", short-term cycles of animal-raising, and milk and fruit production in "house gardening type" production units close to home. Recent evaluation shows that increasing food security and improving the quality of nutrition are not necessarily linked, while it should be possible to do much better tackling the issue further upstream from the design of the interventions: "Although food security and nutrition are often used to justify agricultural interventions, there has been relatively little intentionality in the design of such interventions to ensure that food security and nutrition impacts are positive and significant." The studies discussed in this paper, however, indicate that such impacts can often be anticipated, and that agricultural projects can be oriented in ways that maximize positive impacts (Levinson, 2011).

These products may also – if there is a surplus – enter in local and regional markets. Small livestock with short reproductive cycles, milk production, diversified gardens with legumes and fruit production around houses are seen as possible interventions combining social welfare objectives (food security and nutrition) and economic objectives. While there is a general agreement on this option, few empirical and validated results are available that might show evidence of the improvement in children's nutritional status in programmes targeting the production of more diversified diets among smallholders (Masset *et al.,* 2011).

The case of cassava development – *Africa best-kept secret* (Nweke, Lynam and Spencer, 2002) – is a powerful example of a low-demanding plant suitable to rather poor environments and able to meet urban market needs in a variety of processed products. Research achievements made it yet more attractive for resource-poor smallholders (see Herren (1980) for mealy bug control and Nweke (2009)

[31] We refer here to adding a "subsistence component to social and economic policies targeted to the most vulnerable", see (de Janvry and Sadoulet, 2011)

for a global overview of the research and development achievements). Other products (fruits, legumes, etc.) have a wide potential to diversify and improve everyday diets (Subramanyam *et al.,* 2009). The strengthening of the introduction of legumes is a key option to improve smallholder food security (Misiko *et al.,* 2008), by capturing atmospheric nitrogen that is free to improve soil fertility and by providing the diets with proteins (and lipids depending on the crop). These crops can also contribute to income generation. What have been for long called and viewed as "secondary crops" (coarse grains, pulses, roots and tuber crops, but also vegetables and fruits) just because they are not "commoditized" and traded on the international markets, have now to come first on research and development agendas, with special attention to the food uses and specific processing techniques. Together "plants", "food processing", and "eating habits" or "cuisine" have to be considered as part of the food diversity and as an asset in market development strategies.[32] Food for rural areas or to supply the needs of urban populations in the cities is already – and can be expanded in the future – a viable commercial option for rural and peri-urban smallholder agriculture (FAO 2007). At the same time, it strengthens food security not only at holding level but also at more aggregated levels.

### 3.1.2 Developing resilience

Resilience has to be further strengthened at farm and landscape levels through the development of specific production capacities, which diversify and stabilize the farming systems, particularly in the face of climate change: improved land and water management, diversification through crops and short-cycle livestock, diversification through the introduction and development of trees (fruits, fodder, etc.), and greater biodiversity in the varieties of plants and livestock in the field, etc. Public seed breeding programmes and support to the development of small and medium private seed firms and seed systems, allowing the diffusion of locally adapted genetic material that farmers could freely save, use and exchange, are fully part of this agenda.

Options for cash and food crops are not mutually exclusive – they can very well be developed together, as the cotton cases show. Recent publications advocate inclusive schemes (Tschirley *et al.,* 2010) regarding access to assets and, when it comes to comparing scenarios through their impact, the Malian case (Gérard *et al.,* 2012) illustrate the superiority of investing in smallholder agriculture both for the rural and agricultural population and also for the urban poor that can access cheaper food.

Livestock (small and larger stocks) development is part of the possible diversification pattern for smallholder agriculture, as it also serves as savings. Raising small animals with short reproductive cycles is particularly adapted to smallholder conditions and may provide regular income throughout the year, which turns out to be strategic where seasonality of cropping patterns is marked. The same applies for dairy production that requires at least one cow but can provide both food for the family and extra milk for marketing. In wet areas of Asia, many constraints limit the expansion of livestock even though the urban demand for such products is increasing (Thomas *et al.,* 2002). Smallholders manage a wide diversity of local breeds (e.g. cattle, buffaloes, sheep, goats, etc.), well-adapted to the diversity of agro-climatic constraints which has to preserved and improved. A crucial issue is to increase availability of animal feed year-round (quality and quantity) through improved mixed farming, which has been rather low on the research and development agenda. There are also opportunities and technical options to widely spread improved, low-cost management husbandry practices (Suzuki *et al.,* 2006) to reduce potential diseases that reduce the productivity of livestock (Devendra and Sevilla, 2002). Supporting institutions such as veterinary services are key to improve resilience, and efficiency, of the livestock sector.

Resilience has also to be built through appropriate risk management strategies (see section 3.2.2) and at household level, through adequate social protection systems (section 3.4.4 and HLPE 2012b).

### 3.1.3 Models of production adapted to the conditions of smallholder agriculture

The question of models of production suited to local conditions is not only relevant to smallholder agriculture, as it concerns agriculture as a whole. However this question is particularly crucial for smallholder farmers, as their main assets are natural resources. If they deplete their natural capital,

[32] See for instance the international initiatives Global Hort (http://www.globalhort.org/about-globalhort/) and Food for the cities (http://www.fao.org/fcit/fcit-home/en/)

through production based on unsustainable models, they destroy the natural capital base of their livelihood.

Smallholders require models of production that provide diverse and nutritious diets for their own self-provision. They also require models that build on their strengths as investors (labour) and avoid their constraints (lack of cash to purchase expensive external inputs). As mentioned above, smallholders need to develop their resilience through diversification of their products, but also by bringing greater biodiversity into their fields. Lastly, they require models of production that are coherent with promising new markets for high-value products that allow smallholders to capture more of the value-added.

There are considerable hopes among farmers, CSOs and part of the international community to further develop models of farming that would be more sustainable, such as agro-ecology or ecological intensification, as defined and promoted by FAO (2011b) in Save and Grow. These sustainable models may be defined as such: practices and systems that aim to optimize management and use of natural resources and ecosystem services, well suited for smallholders as they require less external inputs. They often require high labour input and collective investment in landscape management; they are often knowledge intensive, thus requiring collective and public investment in knowledge generation and dissemination with close collaborative work between research, extension and smallholders (IAASTD, 2009). The technical proposals tend to be site-specific, and prospects for wide diffusion of ready to use types of solution appear limited.

Out of the wide range of technologies that refer to agro-ecology, and despite their multiple advantages, only a few show rapid and wide diffusion among smallholders (Giller *et al.,* 2009). Consequently, more research and extension are needed. Given the structure, dynamics, needs and possibilities of different types of smallholder agriculture, the agro-ecological approach promises to be an important resource for smallholders. At the same time, it would be unrealistic to discard the conventional intensification model in cases where it can be adapted and implemented in a more sustainable way. The issue is not to be for or against the different models that are often opposed in debates, but to think in terms of patterns of transition and in terms of context to determine what model of production may be most suitable to the needs of both smallholders and the environment.

### 3.1.4 Reducing drudgery of work particularly for women

Specific attention is needed to reduce the drudgery of agricultural work through adapted physical asset investments. This has rarely been high on the research or development agenda. Appropriate equipment is needed, not to increase the size of holdings or to farm more land, but to improve productivity of labour, facilitate the transport of heavy loads (important for soil fertility building), including harvests, and reduce drudgery.

Programmes are needed to help smallholders to build and/or extend a resource base. This occurs, for example, through the construction of irrigation and drainage works, terracing, the upgrading of soil fertility, anti-erosion works, improvement of houses and buildings, proper fencing, tree planting, the building-up of herds, etc. Investments by third parties are needed for the heaviest tasks, while other work can be carried out by the smallholders themselves.

Small-scale machinery that does not imply increasing the size of the holding but reduces the drudgery of agricultural work has to be promoted through market access and credit when necessary. Much of this machinery has been developed in Asia but remains unknown in other situations where it would be most relevant. Collective action can also play a role through small group, close collaborations around bigger machinery.

Then there is the need to diffuse small-scale equipment for product processing – again the Asia experience could be useful for direct testing and adaptation. These investments are relevant for women who already control a large share of informal food processing but under poor conditions and with low productivity.

Reducing drudgery also includes preserving the health of farmers when it comes to the use of harmful products such as agro-chemicals.

A vast majority of rural women in the developing world take part in agricultural field operations, Women specific drudgery include demand per time, feeling of exhaustion, postures, manual loads operative, perception of difficulty, workload (Mrunalini and Snehalatha, 2010). Rural women work very long days balancing a variety of tasks related to crop and livestock production, wage employment, childcare and additional household obligations (FAO, 2011a).The latter, such as food preparation and

collecting firewood and water, occupy a large amount of women's time and limit women's participation in more productive activities (Blackden and Wodon, 2006). As women are frequently responsible for collecting all water used domestically, the introduction of water sources in villages can significantly reduce drudgery and the time spent by women and girls fetching water (IFAD, 2007). Time and labour saving technologies used in harvesting such as improved sickles, harvest bags, vegetable harvesting knives/ cutters, push and pull or rotary weeders, threshing and cleaning equipment etc. comprise as suitable technology to reduce drudgery of women in harvesting, weeding and threshing operations (Mrunalini and Snehalatha, 2010).

## 3.2 Collective investments to overcome limited assets

### 3.2.1 Collective investments in productive assets

Investment decisions at holding level presuppose a combination of favourable factors within the environment. Clearly, productivity is an issue and there are many ways of improving efficiency and outcomes for smallholders that do not necessarily imply an increase in size. Following Ostrom's insights (1990, 1992, 1993), we need to consider rules and regulations to manage natural resources and investments (irrigation systems) in a more sustainable way as key investments for smallholders. The empirical evidence and theoretical foundations provide knowledge to frame new institutional arrangements that at the same time are "collective investments" but also allow individual investments at holding level.

Hence, the collective level is a key level for increasing and improving physical and social capital at holding level through collective investments. Investments concern improved natural resource management at landscape level in order to: (i) harvest more water in the soils through landscape management; (ii) increase the number of trees through support to smallholders and organizational support at landscape level; and (iii) better organize the overall use of the available landscape in order to make it more productive. These investments have been promoted in the most constrained environments of the Sahelian region and the successes are impressive (Reij and Steeds, 2003). As these experiences took root during the crisis between 1970 and 1990 (Rochette, 1989), an impressive knowledge of what to invest and how to invest is available using water harvesting techniques associated with the use of leguminous plants and trees (Sanginga *et al.*, 2003) backed by a number of publications. Irrigation is a key strategic investment in drought-prone areas where rainfall patterns are too erratic, as in North Mali. There, successful investments during the 1980s associated with market economy reforms led to spectacular increases in productivity (yields) that gave better income to smallholders. But due to demographic growth, the size of holdings is decreasing and threatens the household economies, and there is a need to continue such investments, which can be achieved at different levels of cost (Coulibaly, Bélières and Koné, 2006).

But when environmental constraints are too strong, without such possibilities of gravity irrigation as in Mali, landscape resource management will not be enough to tackle poverty (Reij, Tappan and Belemvire, 2005), but it will dramatically reduce the risks, increase the yields, open the way for diversification of diets and, hence, improve food security, which is a base for public security and peace. These investments need careful attention since they are not mere "hardware" types of land management like the many failures during colonial and early post-colonial period show. Land management is strongly a social and technical issue and it requires at the same time a real investment in knowledge to completely understand the ownership and rights' regimes (Crowley and Carter, 2000).

When dealing with soil fertility improvement in poor soils, investment is a pre-condition to improve food security. Solutions need to be tailored to local situations including social heterogeneity as mentioned earlier (Lahmar *et al.*, 2012, Tittonell *et al.*, 2010). These investments often need more work, they imply carrying heavy materials, and they require labour, which is not available with a zero opportunity cost (because of the need to earn money and diversified opportunities). Here one needs to consider supporting smallholder agriculture in a broader perspective, combining social sector instruments (conditional transfers in kind or in cash) with agricultural ones (access to agricultural services).

Investing in soil fertility in poor soils is a pre requisite to be able to use – if appropriate – more conventional inputs that can contribute to food security by increasing yields. These options do not exclude one another, but unless soil fertility is correctly built, it would be useless and uneconomic for smallholders to incentivize or promote the use of other inputs. They should be used wisely avoiding over doses, misguided management that is harmful for human health, costly, inefficient and generates environmental negative externalities.

**Box 12 Tailoring conservation agriculture to local conditions**

Smallholder farmers in semi-arid Africa are in an increasingly vulnerable position due to the direct and indirect effects of climate change, demographic pressure and resource degradation. Conservation agriculture (CA) is promoted as an alternative, to restore soil productivity through increased water and nutrient use efficiencies in these regions. However, adoption of CA is low for a number of technical reasons, but fundamentally owing to the fact that CA has been often promoted as a package, without proper adaptation to local circumstances. Farmers engagement in designing and implementing locally suited CA practices, as part of a long-term strategy of soil rehabilitation, is the core approach followed by the agro-ecology-based aggradation-conservation agriculture (ABACO) initiative, which brings together scientists and practitioners from West, East and Southern Africa coordinated through the African Conservation Tillage Network (www.act-africa.org). ABACO relies on agro-ecologically intensive measures for soil rehabilitation and increased water productivity in semi-arid regions, implemented, tested and disseminated through local co-innovation platforms. Rather than using rigid definitions of CA approaches that might not work in all sites, ABACO proposes the exploration of best engagement approaches for different sites. Simulation modelling is used in support of long-term cross-scale tradeoff analysis from field to farms and territories, in order to inform effective policy-making. Preliminary results from the field are used here to illustrate and discuss the principles of ABACO, which may also apply to regions other than semi-arid Africa. (Tittonell *et al.*, 2012)

## 3.2.2 Investing in risk management strategies

As Section 1.3.1 showed, there are multiple risks and constraints on investing in smallholder agriculture. Investment by nature is always a risky activity. Conversely, the complex environment of risks of various types (biotic, climatic, economic, etc.) in agriculture forms one of the main constraints on investment.

Risks faced by producers can lead to heavy income losses and thus can force them to sell assets and/or compromise their capacity to reimburse loans. In the worst cases they could be forced to sell productive assets below their acquisition value while still being indebted in paying for them. Risks can also directly impact asset portfolios. The example of drought in a pastoral system (Gitz and Meybeck, 2012) shows how short term and long term consequences of the shock cumulate on livelihoods through a degradation of productive assets (cattle, pastures). Vulnerability to risks, in itself, prevents investment and access to credit. Reducing producers' vulnerability to uninsured risks and strengthening their resilience to shocks is thus an essential part of any investment strategy.

Producers can be affected by risks of various types: political instability, price-related and other economic risks, climatic, environmental, pests and diseases[33], and this at different scales. Yield risk in main staple crops is particularly important for smallholders, who tend to consume a large part of their own production. Farmers are also exposed to land tenure insecurity, instability in access to inputs (fertilizers, seeds, pesticides, feed) in quantity and quality, instability in access to markets. Often risks of various types, when superposed, exacerbate their effects: for example, livestock already weakened by a lack of feed due to a drought is more prone to becoming infected by a disease. Also, after a poor harvest seeds could be lacking for the next growing season. Additionally, climate change is likely to exacerbate a whole set of natural and environmental risks, including pests and diseases. Increased climate variability is also likely to be a driver of increased price volatility.

[33] Just to take an example, 62.5% of the global small ruminant population is at risk of being infected by PPR (*peste des petits ruminants*).

In devising a comprehensive strategy to address risks and vulnerabilities (cf 1.3.1), three different approaches should be considered:

(A) Risk management (ex-ante relative to shocks): reducing the vulnerability of productive or livelihood systems to shocks (for example through the early detection of emerging risks, the subsequent reduction or elimination of a specific risk) and increasing, ex-ante, the resilience of such systems to risks.

(B) Risk coping (ex-post relative to shocks): ensuring that agents (farmers, communities, small scale food processors, poor consumers) rendered vulnerable, food and nutrition insecure by a shock can benefit from continuing access to food and adequate diets, and keep their asset levels and means of livelihood, including by mutual insurance and social safety nets (see section 3.4.4).

(C) Recovery: helping systems recover after exposure to a shock;

In doing so, such strategies should combine specific policies targeted to address specific agents and categories of risks.

Policies targeted at smallholders to increase the resilience of their assets and investments against risks of various types include measures aiming at building economic resilience at the farm level either by increasing income; by promoting diversification (see section 3.1.2) especially if the risks affecting each activity are not correlated; or by compensating mechanisms, including insurance, in certain cases, in particular to compensate for the loss of productive capital. They also include measures to reduce or eliminate specific risks, such as plant pests and animal diseases,[34] including advanced observation networks for quick response.[35] Often the best answer to a pest problem is the diffusion of a plant variety more resistant to it (Allara *et al.* 2012).

**Box 13 Prevention as investment**

The establishment of Locust Control Centres under the EMPRES Desert Locust programme is a significant step towards being prepared at any moment to react rapidly to the onset of Desert Locust outbreaks. It has been estimated that the annual cost of preventive control in the Western Region of Africa is USD 3.3 million, less than 0.6 percent of the expenses incurred during the 2003-2005 major outbreak (Brader *et al.*,2006 and Cossée *et al.* 2009)

The international collaboration for control of stem and leaf rust of wheat through durable resistance (Dubin and Brennan 2009) is another example of how monitoring and quick reaction, making available seeds of varieties resistant to the new stem rust race, Ug99, enable to prevent major potential losses.

The Peste des Petits ruminants (PPR) is a major threat to livestock production in vulnerable areas, especially small ruminants which are often found in marginalized extensive production systems and/or are produced by people with limited access to services, such as women and pastoralists. For these people, small ruminants are often their most important asset. At the national level, small ruminant lobbies often have limited access to political will or resources, reducing the attention given to PPR (and small ruminant health). Due to the short reproduction cycle of PR, farmers resist investing in animal health or vaccines, as there seems to be no significant return.

The reality of PPR damage for vulnerable herders calls however for a strategy with small ruminant owners investing to improve their own production systems and with the private sector enhancing delivery channels for veterinarian treatments (FAO, 2013b; Njeumi and Rossiter, 2012).

Other measures either prevent the loss of productive assets, such as feed banks for livestock during droughts, or enable quick recovery, such as availability of seeds.

Vulnerability to uninsured shocks is one of the main determinants of poverty. Risk management and risk coping help reduce vulnerability to shocks. In both cases, costly investments are needed, but they may be the most cost effective way of enhancing the long-term viability and welfare of smallholder farmers.

[34] The success of the Global Rinderpest Eradication Programme (GREP) has suppressed a major risk for livestock and livelihoods.

[35] The establishment of Locust Control Centres under the EMPRES Desert Locust programme is a significant step towards being prepared at any moment to react rapidly to the onset of desert locust outbreaks.

## 3.3 Investing in enabling markets

### 3.3.1 Improving smallholders' access to input markets

Smallholders often suffer from reduced access to the inputs and services they need to invest or to make the most of their investment. Poor infrastructure, high prices and inappropriate products, all contrieve to this situation. Making appropriate products and services accessible to small holders is a major challenge.

Local markets play a crucial role to provide smallholders with adequate seeds (Lipper, Anderson and Dalton, 2010). In the Cochabamba province of Bolivia farmers sell potatoes as seeds sometime directly to other farmers but mostly to the intermediaries. These women are major actors. They play a facilitating role, storing, transporting and reselling potatoes, to answer demand for seeds from different regions and different planting times. They are also important providers of inputs and credit for farmers (Almekinders *et al.* 2010).

The creation of local seed enterprises enables to provide smallholders with seeds more adapted to their needs. It also induce the development of local plant breeders and seed producers. All these activities constitute new opportunities to create local enterprises that are adapted to the needs of smallholders. Although business models and organization have to be adapted to local situations, studies show that these activities can provide added value and activities for farmers (Van Mele *et al.* 2011).

The success in the uptake of metallic silos to reduce post-harvest losses has been facilitated by the development of small rural enterprises to manufacture them. For example, in 2007 there were 892 metal silo manufacturers working in El Salvador, Guatemala, Honduras and Nicaragua. Studies show that the involvement of the private sector in silo production and farmer uptake is crucial for up-scaling the technology (Tadele *et al.*, 2011).

These examples show the importance of local actors in providing appropriate inputs and services for investment. They ensure that they are adapted to smallholders needs, proximity facilitating understanding and trust, particularly important for long term decisions.

Organisations of smallholders can also play a lead role in that respect. They can also contribute to reduce costs.

The development of small local enterprises dedicated to providing inputs and services to smallholders can also create potential additional activities and sources of income. For example, the implementation of the Urea Deep Placement technique in Bangladesh led to the creation of 2500 small enterprises, generally owned by women, that prepare briquettes from imported fertilizers.[36] More generally, preparing and selling small bags of inputs, fertilizers or seeds, is often needed at the local level to make these inputs, which come from big enterprises, accessible and adapted to the needs of smallholders. This triggers the creation of small enterprises, often owned and operated by women.

### 3.3.2 Investing to develop markets that favour smallholders

Regarding markets, our recommendations give the highest priority to domestic markets, meaning the usual products that compose the national daily diets including the diversified products (fruits, vegetables, milk and animal products, including continental fish). These products are also part of the daily diets of low-income populations. For smallholder agriculture, urban markets – large and growing middle-size cities – are to be a powerful engine of growth. When necessary and for determined periods, these markets could need to be protected to allow local smallholders to strengthen their productive capacities.

In order to create and improve linkages between smallholder agriculture on the one hand and the growing domestic markets on the other, different and well-coordinated investments strategies are needed. Downstream, near the consumer end, it is necessary to modernize urban wholesale and retail food markets in intermediate and large cities. This includes investments in infrastructure (storage, cold storage, electricity, clean water, pavements, access, bank branches, regulated weights and measures), but also in the modern management of the markets themselves, and, last but not

[36] IFDC 2011, Fertilizer Deep Placement (FDP) http://ifdc.org/getdoc/81fcf68e-c3b8-406a-a252-5148b99d8684/Fertilizer_Deep_Placement_(UDP)

least, in rules such as quality grades and standards and weights and measures that are effectively enforced by public officials. Upstream, at the farm level, training, market information, business advisory services and producers' organizations are critical for traditional markets to function better. Public investment is decisive here.[37]

As argued before, smallholder agriculture is not located outside the markets. There is no point in "linking" smallholder agriculture to the markets. The central issue is, instead, how to invest and with which stakeholders to increase and keep more value-added at holding and territorial level. First is the recognition that producing "commodities" is often threatened by unfair competition on internal markets. The share of value retained at holding level may fall under adverse market conditions. When possible, qualifying products through specific processing is a valuable option to differentiate and escape from "commodity" competition and add value to the product. Unlike some false representations, these markets are not niche markets; they tend to represent a large part of the smallholders – in developed countries, in France for instance, up to 20 percent (Bonneuil *et al.*, 2006); see also (De Roest and Menghi, 2000). The existence of identity relations between human and natural resources through specific know-how for production and processing in the territories plays a key role in the emergence of these alternatives,[38] where smallholder production has a comparative advantage and can mobilize cooperative networks linked to proximity, assets' specificities and external territorial linkages to access markets (Perrier-Cornet, 2009).

These products are also processed locally and hence provide value-added at local level. Food processing and other value-adding at the farm level or small and medium industries need to be strengthened as a component of the smallholders' livelihood strategies, increasing the autonomy and capacity to better access markets. Investments in processing to allow long-term preservation of products is a way to overcome low market infrastructure, smooth seasonality of production and incomes, and a strong means to keep value-added at smallholder and territorial levels.

Whenever possible, local markets where producers and consumers meet directly (short circuits) have to be encouraged and strengthened. These dynamics are emerging in Northern countries but they remain limited in volume; they are also reported in emerging or developing countries through women's associations and networks, for instance, directly linking rural producers or processors to urban consumers. Social movements can help considerably in the creation and development of these new market segments that are nested in mutual understanding of, and new arrangements between, producers and consumers. As many examples throughout Europe indicate, national and regional but also local authorities can strongly support this new development by facilitating infrastructure and opening regulatory space. They should receive a high priority including support from public policies.

Public–private partnerships include local authorities, traders and traders' associations, producers' organizations and national institutions in the development and governance of market infrastructure and regulations. Promoting producers' organizations to gain market power and reduce transaction costs and supporting local traders or small-scale food processors is not a contradiction. This option supports the development of a fair market economy that limits dominant and unequal positions.

### 3.3.3 Increasing smallholders' access to financial services

The credit scarcity for smallholders must have an end: innovative schemes are of highest priority and it should be possible to draw lessons from long-enduring cooperative systems that build upon solidarity values and ties. Informal financial systems need to be more institutionalized and linked to formal financial systems. Building upon local relations of trust (social capital), smallholders can organize their common funds to accumulate their savings and collectively invest in their agriculture. These funds could also be supported by private financial institutions with public guarantees. Given the existing informal networks in rural areas, this community-based solution would have a high potential for smallholders to obtain appropriate financial services.

[37] It is interesting to note that in developed countries there is an impressive rise in farmers' markets and other types of short circuits that directly link the production and consumption of high-quality, fresh and/or local food products. European schemes for protected designation of origin (PDO), protected geographical indication (PGI), and traditional speciality guaranteed (TSG) have considerably strengthened this development.

[38] See FAO Web site, for instance http://www.foodquality-origin.org/resource/other-documents/en/

**Box 14 Cooperative banking: the Rabobank, old lessons, new prospects**

As one of the responses to the deep agrarian crisis of the 1880s, farmers created, throughout the Netherlands, a dense web of cooperative banks. These were initially small banks, operating at the level of the village and sometimes supported by the clergy and/or local intellectuals (for example teachers). Although small, these local banks played a strategic role in the recovery of Dutch agriculture and in the boom that followed later.

The local banks merged and the Rabobank is now a solid bank that operates internationally. It remains a cooperative. During the recent crisis, this proved to be an important advantage. The Rabobank finances many farms and food industries.

Rabobank Group currently runs many programmes in developing countries and assists in the development of new, cooperative banking schemes. One of the aims is to "correct or mitigate the negative impact of market failures for the benefit of the members (of these cooperatives)" (Rabobank Group, 2012a). Rabobank also refers to cooperatives as "key for smallholder inclusion into value chains" (Rabobank Group, 2012b). A framework for an inclusive food strategy has been developed.

The state and the financial institutions (banks, but also pension funds and insurance companies) should study the possibility that the latter dedicate a well-defined part of their lending capacity to smallholders. By offering public guarantees to private financial institutions in smallholders' investment, governments or public financing institutions can encourage private financial institutions to develop financial services adequate for small-sized investment while sharing their burden to finance them. Cooperatives or smallholder groups can cooperate with public and private financial institutions in the mobilization of smallholders to have a better education about financial services as well as effective investments and risk management. Those initiatives from smallholders' cooperatives and groups will also be crucial and useful for achieving financial services and expanding their investment. It is important that the role of small and medium enterprises (SME) in food processing is enlarged. The same applies to on-farm processing. Regulatory space is to be tuned to the reality of both SME and on-farm processing. This is a responsibility of the state.Credit alone will not improve productivity unless it is combined with relevant technical proposals, as pointed out in a recent study (see Box 15) commissioned by the *Agence Française de Développement* (AFD) (Jessop *et al.*, 2012).

**Box 15 Creating access to agricultural finance**

This study emphasizes that the weaknesses and risks found in agriculture are not solved by financial institutions with financial products. The authors of this study suggest that agricultural credit by itself does not make the wheat grow taller, and agricultural insurance does not stop the weather from destroying the crop. Indeed, decades of agricultural credit programmes have had little effect on agricultural development. To some extent, the opposite may have happened, as in Tunisia and India, where farmers have become overindebted with little to show for it in agricultural results. To have an impact on agriculture, financial services must be structured to induce farmers to make innovations in their operations. The six countries studied provide some examples where this has indeed been achieved. The elements key to innovative agricultural finance are: (i) reduce delivery costs (efficient lending methodologies, technology); (ii) adapt to agricultural growth patterns and cash flow cycles; (iii) use value chains to ensure proper loan repayment (that credit is used for the intended purpose, that it results in increased productivity, that the farmer sells to the intended buyer, and for a fair price allowing repayment). Indeed, the value chain is central to nearly all agricultural finance innovations and key to banks' risk management. Many of the practical examples throughout this study are grounded in value chain logic. Credit risk is reduced by a viable sales contract and implicit technology transfer. The trigger in value chain finance is the linking of the value chain partners; finance is just the oil in the system. Likewise, most successful examples of agricultural credit guarantees or insurance aim to make value chains operate smoothly. By mitigating performance and price risks, producers and buyers can efficiently collaborate in the value chain. There is no doubt, therefore, that value chain thinking has to take centre stage in the development of agricultural finance.

*Source*: from Jessop *et al.* (2012).

As regards access to investments for productive resources, microfinance institutions have often been seen as a substitute for former credit schemes that worked before structural adjustment policies. However, recent reviews confirm that agricultural needs are not at all covered by this type of mechanism (see Box 16). Nevertheless, as in the case of social protection, these mechanisms have an impact on domestic budgets and these indirect effects might favour investment strategies, but in an indirect way. Nevertheless, these schemes still operate with high interest rates, which is a threat for the most vulnerable.

**Box 16 Microfinance institutions and investments**

Microfinance institutions (MFI) are not the solution for supporting agricultural investments unless they receive adequate means to operate in that direction.

Most MFI are urban-oriented since activities appear less risky and more profitable and, in rural areas, consumption and domestic expenditure – food, health and education – are the priority. Agriculture is not a priority compared with less risky activities. Financial products developed by MFI are not targeted to support investment, or even to fund short-term cultivation season expenditure. Investments to improve production conditions cannot be supported.

*"Given that finance for agricultural purposes generally needs to be long-term in maturity and larger in amounts, traditional microfinance products appear too rigid and inappropriate if applied on their own. Agricultural production is also typically exposed to covariant risks whereby farmers tend to cultivate similar crops in the same locations. Microfinance products are largely short-term and small-scale and, therefore, more suitable for* (*off-farm and non-farm) commercial businesses that experience a high turnover"* (Marr, 2012).

See also (Korth *et al.*, 2012) and (Van Rooyen, Stewartm and De Wet, 2012) for a meta-analysis stressing the methodological weaknesses of the evaluation, when evaluation actually exists. The project results reviewed showed positive – but limited – impacts on food and nutrition for children when women were the clients of the scheme and very limited or counterproductive effects on child schooling.

We also refer to a growing financial arrangement through a value-chain approach (Jessop *et al*., 2012; FAO, 2012a). This approach makes use of the transaction-based relationships among actors in the value-chain, such as input suppliers, smallholders, processors, retailers and consumers. While these vertically coordinated actors can receive financial services from external financial institutions, they can also organize themselves to accommodate loans between them and to improve their capacity for financial literacy, for instance. We can find different types of value-chain approaches, such as contract farming and warehouse receipt finance, etc. Usually credit is guaranteed by the anticipated sale of the crop in the future. Value-chain approaches, which are well adopted for export crops and linked with governmental development banks, can be oriented to local food staples to improve food security conditions (see section 3.2.2 of this report on contract farming).

### 3.3.4 Contract farming and investments: the economic and institutional conditions for contract farming as an inclusive process

The advantages and disadvantages of contract farming for smallholders have been a centre of controversy. While many studies have evaluated its positive effects on smallholders (Minten, Randrianarison and Swinnen, 2009), others proved its limits in the smallholder inclusion process and even its deteriorating features in smallholders' welfare (Iwasa, 2005); (Tsurumi, 1982). It is worth saying here that contract farming cannot be a miracle solution to problems smallholders are facing, neither can it be applicable to all smallholders in the world (Miyata, Minot and Hu, 2009). Knowing its limits, in this section we suggest the economic and institutional conditions for contract farming as an inclusive process for smallholders.

Contract farming refers to a condition in which a buyer of agricultural products (e.g. an agri-processor, an export firm, a specialized wholesaler, or a supermarket, or agents working on their behalf) establishes a contract or a quasi-contract with one agricultural producer or with an informal group or formal organization of producers, to purchase a given volume, at an estimated date, under a set of conditions (typically including product quality standards), for a pre-set price or a price that will vary within a more or less fixed range depending on the actual market and product conditions upon delivery. Sometimes, but not always, these contractual arrangements can include the provision, by the

buyer to the producer, of credit, agricultural inputs, technical advice, machinery services, transportation, and so on; the cost of these goods and services is deducted from the final payment to the producer. This scheme has been widespread in the world since the 1970s (see Box 17 and Box 18).

It has been argued that contract farming can be beneficial to smallholders primarily for two sets of reasons: it reduces market risk, and it complements their disadvantaged condition (e.g. lack or rationing of credit outside the contract arrangement, or lack of access to market and relevant and up-to-date technology and information). From the perspective of buyers, who tend to be medium to large firms, contract farming is a vehicle to transfer the risks of market price volatility and climatic change to producers or spread out such risk by contracting in different regions of a country, reducing labour supervision costs, gaining access to products without investment on land, and introducing new products that are demanded by markets but are not available in sufficient quantity. It is often pointed out that this "win–win" relationship can offer smallholders a variety of benefits in improvement of their livelihoods and an inclusive modernization process.

Henson (2006) summarizes well some of the key reasons why medium and large downstream firms would want to contract with smallholders: “There is evidence that small-scale producers may have lower production costs and/or that the economies of scale for many high-value crops are often limited, while small-scale producers can be competitive in the production of high-care fruits and vegetables, for example, where strict quality standards require high levels of labour input.” According to Glover and Kusterer (1990), corporations may prefer to work with smallholders because they are less organized than plantation workers and less likely to accuse them. Furthermore, contract farming with smallholders can attract several kinds of support, mainly financial, from local authorities, international development agencies and NGOs for rural development or poverty alleviation programmes. There is evidence of large companies sourcing from small farmers even when large farmers are accessible. Examples from Latin America referenced in Reardon *et al*. (2009) include (Milicevic, Berdegue and Reardon, 1998) for the tomato processing sector in Chile. Smaller farmers may be more able and willing to follow the highly labour-intensive field management practices needed by the companies. For example, von Braun, Hotchkiss and Immink (1989) show in Guatemala that large exporters of vegetables in the 1980s moved from plantation-style own production, to medium farms, and finally to contracts with small farmers because of the capacity of the latter to supervise family labour closely and perform intense and careful field practices. In Asia, it is reported that the Sri Lankan tea sector shifted its procurement from vertically integrated plantations to smallholders because of state intervention in the transparency and stabilization of tealeaf pricing, as well as the rise of labour cost in plantations where trade unions are active (Herath and Weersink, 2009).

However, (Burnod *et al.*, 2012) insist through their comparative studies on several countries that the rise of income level of smallholders was not observed systematically and this increase was only temporary or happened only for better-off farmers. While new technology application and introduction of quality standards may open high-value markets for smallholders, these challenges can be selective for less-endowed smallholders. With regard to provision of inputs (pesticide, fertilizer, feeds vaccine and machinery, etc.) and services (finance, extension, storage and transportation, etc.), there can be a risk of overloan and bankruptcy for smallholders (Burnod *et al.*, 2012); (Iwasa, 2005); (Tsurumi, 1982). Glover and Kusterer (1990) point out that, between firms and smallholders in contract farming, there is also "considerable room for conflicts of interest, exploitation and bargaining". It means that there is significant gap of economic (as well as social and political) power between firms (often they are transnational corporations or monopolistic domestic corporations) and smallholders. Smallholders’ weak position and voice can directly affect the transaction arrangement including pricing, rights of land use and quality standard operation. And it can result in deterioration of their living conditions. If smallholders cannot gain bargaining power, such as establishing farmers’ organizations and support from governments and NGOs, they risk losing their autonomy in value-chains rather than improving their economic and social independence (Iwasa, 2005); (Vellema, 2002). It means that contract farming cannot be *a priori* beneficial for smallholders but it needs certain supports and policies to be successful. To be sure, these risks are problems only for better-off smallholders who are in the contractual scheme but not for excluded smallholders.

On the other hand, there is evidence of exclusion of smallholders in the context of "scale-dualism in the farm sector," in which case companies have the option of sourcing from medium or large farmers (Dries *et al.*, 2009); (Neven *et al.*, 2009); (Reardon *et al.*, 2009).[39] Henson (2006) also points out some of the reasons why downstream buyers will as a general rule prefer to stay away from contracting with smallholders if they have other product sourcing options: " … location and product-specific transaction costs associated with the coordination and management of supply chains involving numerous small suppliers can be prohibitive, especially where there are significant risks of transaction failure due to opportunism, lack of coordination or rent-seeking. There is evidence that such costs are being enhanced by the increasingly strict food safety and quality standards associated with high-value markets, to the potential exclusion of small-scale producers. Further, while there are numerous instances of supply chains having evolved to facilitate the participation of small-scale producers in supply chains to high-value markets, there is relatively little agreement on the most effective mechanisms of inclusion and the processes through which these might be brought about."

So what are the conditions for a fair inclusion of for smallholders in contract farming schemes?

First, we urge the essential role of public policies to make contract farming work for smallholders as an inclusive process, with particular attention to women. We have already depicted the urgent need for legal, political and social recognition of smallholders in other sections. Moreover, especially for contractual schemes, the authorities have to establish a clear regulatory framework for contracts between smallholders and firms to adjust their power gap. EU countries are now seeking the establishment of a set of antitrust compatible agreements with the purpose of strengthening the economic power of farmers against large retail chains (Carrau 2012); (Del Cont, Bodiguel ad Jannarell, 2012). After the world food crisis in 2008, the French Ministry of Economy and Finance decided to observe and disclose a monthly review on prices and margins of the main agri-food products on its website.[40] The first report on these reviews was submitted to the national parliament and offered materials to enrich the national debate on the highly unequal power relationship between farmers (mostly smallholders) and large corporations in 2012 (MAAF, 2012). As shown above with the case in Sri Lanka (Herath and Weersink, 2009), transparency of contract arrangement and appropriate regulation of contract farming are the primary bases for an inclusive and fair process for smallholders in contractual schemes.

Second, secured land tenure is an essential condition for landless farmers and smallholders with insufficient legal recognition of their land. The literature shows emerging evidence of exclusion of some types of small farmers (those with limited non-land assets) even in contexts dominated by small farms, but where there is an unequal distribution of non-land assets. Several studies have shown that the small farmers' non-land assets were crucial "threshold investments" for "inclusion" in modern food industry channels. For the processing segment, this is illustrated in Mexico by Berdegue *et al.* (2008), where having crop-specific farm equipment was a key requirement. For the supermarket segment, this is shown for fresh tomatoes by Hernandez, Reardon and Berdegué (2007) in Guatemala. A national programme for land reform would be an indispensable condition for a smallholder's contractual scheme and rather contract farming could be useful for land redistribution programmes. Land tenure works towards independency and the right to self-determination of smallholders. Where conflicts arise about land between large plantations or firms and smallholders, public intervention and regulatory measures are required to secure the living conditions of smallholders. Furthermore, governments and development authorities need to pay special attention to the long-term effects of contract farming on land use and smallholders' way of life (Burnod *et al.*, 2012).

Third, establishment of farmers' organizations, such as farmers' cooperatives and production groups, can be a solution for many constraints of smallholders in contractual schemes, e.g. lack of scale economy, bargaining power, efficient structure to receive several services such as finance and technology extension. Small farmers may be able to reduce transaction costs to companies by forming effective marketing cooperatives. (von Braun, Hotchkiss and Immink, 1989) show this for the

[39] Examples from Latin America, referenced in (Reardon *et al.*, 2009) include: (Carter and Mesbah, 1993) show for Chile that fruit packing and export firms source only 10-15 percent from small farmers. (Farina et al., 2005) show, for Argentinian and Brazilian modern dairies, a sharp shift in sourcing from small to medium/large farmers as the dairy processing sector consolidated and multinationalized over the 1990s, and private quality standards increased. (Berdegue *et al.*, 2005) for Guatemala, and (Reardon *et al.*, 2007) for Mexico show that the leading chains mainly source from large grower/shippers when facing a scale-dualistic sector such as tomatoes in Mexico or bananas and mangoes in Guatemala. The firms source from small farmers when they face a sector dominated by small farmers, such as tomatoes in Guatemala and guavas in Mexico and China (Wang *et al.*, 2009).

[40] See the website of DGCCRF (http://www.economie.gouv.fr/dgccrf/concurrence/Observatoire-des-prix-et-des-marges).

Cuatro Pinos cooperative in Guatemala. Meanwhile, states, NGOs and firms are requested to organize better smallholder support. However, (Berdegué, 2001), using data on “new generation cooperatives” from Chile, considered much superior to traditional cooperatives in dealing with modern markets, reported that still the vast majority of cooperatives of this type that were created in the early 1990s ended up bankrupt. He found that those that succeeded had to have a complex set of assets, institutional arrangements to discourage free-riding and careful management, and that this combination is rare. And while it is relatively easy for cooperatives to enter modern markets, it is rare and difficult for them to be able to sustain their participation by evolving with the market’s requirements and making the needed investments and adjustments. However, these limits of existing farmers’ organizations do not signify their ineffectiveness but rather a need for effective assistance to strengthen them.

Fourth, improvement of access to assets such as infrastructure, machinery, inputs, finance and technology is an indispensable component of inclusive contract farming for smallholders. Food industry companies sometimes use “resource providing contracts” (Austin, 1981; (Dries *et al.*, 2009) that address small farmers’ constraints to access to credit, farm inputs, extension and output procurement. The provision of these resources resolves “idiosyncratic market failures” for small farmers and makes them competitive with large farmers. Governments and NGOs may also provide the resources used in these contracts. For the Mexican frozen vegetables sector in the 1980s, (Bivings and Runsten, 1992) found substantial variation in sourcing practices over large processors; one multinational company that was contracting from both large and small farmers had seven contract types ranging from no resource provision for large farmers to high resource-providing contracts for the smallest farmers. However, these "resource providing contracts" can often be the source of debt for vulnerable smallholders (Burnod *et al.*, 2012). Overloans not only reduce smallholders income but also decrease their independency on procuring companies and sometimes push them to go out of contract farming and even land tenure (Tsurumi, 1982); (Iwasa, 2005). Contractual schemes need to be programmed to improve smallholders’ economic and social situation as the first priority under public policy and regulation.

**Box 17 Cases studies in Latin America**

Contract agriculture has been strongly promoted both by governments and by the private sector in almost all Latin American countries for several decades. According to Arroyo (1980), it was already firmly established in the region in the early 1970s as a very important form of organizing production outside the grain sector. One could make the argument that among the medium- or large-scale Latin America farmers, including a small percentage of smallholders (Berdegué and Fuentealba, 2011) that produce for the large urban and international markets, those who produce outside some form of contractual or quasi-contractual arrangement are rapidly diminishing in number. While contract agriculture tends to be more frequent in relation to higher value products where product quality is of critical importance, it is also increasing in the case of grain production in Mexico (Echanove Huacuja, 2009).

An excellent example of contract farming with smallholders, many of them initially poor, and most of them belonging to a Mayan indigenous group, is that of the Cuatro Pinos Cooperative in Guatemala. Lundy (2007) states that “Cuatro Pinos is a successful Cooperative with nearly 30 years of experience in the vegetable export business. Recently the Cooperative has succeeded in opening large markets for several products in the US through an alliance with a specialized wholesaler. Existing demand significantly outstrips the capacity of cooperative members and new producers and areas are needed. To achieve this, Cuatro Pinos identifies existing farmer groups including associations, cooperatives and lead farmer networks among others in favorable environmental niches, works with them to test production schemes and then contracts with those that show an ability to meet quantity and quality targets. The cooperative signs a legally binding contract with the producer group that specifies quantity, quality and a production schedule as well as providing a fixed price for the product. In addition, credit in the form of inputs and technical assistance is provided. This is later discounted from the first few product deliveries. Through this model Cuatro Pinos has achieved an annual growth rate of 50 percent in vegetable exports over the past three years.” The points here are successful improvement of smallholders’ capability in organizational management and marketing as well as the ripple effect on other smallholders’ inclusion.

(Schejtman, 2008) studied a large number of successful and unsuccessful cases of contract agriculture involving smallholders throughout Latin America. His conclusion is that “the common denominator in all successful cases found in the region is that the new institutional arrangements that emerge with contract agriculture need to incentivize and reward the firm commitment of producer organizations to comply with the contract and its provisions.” This in turn requires a long-term view on the part of both parties, understanding that a successful partnership is built and achieved over time and not in a single season.

**Box 18 Cases studies in Asia**

In postwar* Asia, contract farming was introduced in the 1960s by American transnational corporations (TNCs) in the Philippines banana and pineapple sectors (Tsurumi, 1982). Under globalization and market liberalization, Asian TNCs also developed contractual schemes in the region from the 1980s to meet the growing demand for fresh fruit and vegetables, broilers, seafoods and oil palm, etc. In countries such as Malaysia and Indonesia, large public corporations played an important role in export-oriented contract farming with smallholders while the private sector is dominant in Thailand (Little and Watts, 1994) as well as in the Philippines. As these export-oriented arrangements have flourished, TNCs, adopting localizing policies, now develop contract farming with local farmers for local markets (Sekine and Hisano, 2009). Moreover, contractual schemes are also increasing in transactions between smallholders and domestic retail chains, food industries and restaurants as well as consumer cooperatives.

Asian case studies in the literature also suggest quite important implications of contract farming. The Malaysian Federal Land Development Authority (FELDA) project has been considered one of the most successful cases involving nearly 30 000 smallholders in cash crop production until the 1980s. However, Iwasa (2005) shows that at that time FELDA's project strayed from its original goal of salvaging the rural poor by creating small landowners through settlement and contract farming of rubber and oil palm. Once this large public corporation started to develop its agri-food and non-agri-food business sectors through its subsidiaries, it pursued high economic returns and, in fact, revised its promise to distribute land tenure to contractors. Though the revision was finally withdrawn because of strong opposition by contractors, this event significantly discouraged a second generation of contractors and left them going out of contract farming. From the 1990s FELDA opened its own plantations to compensate for the reduced production and employed foreign labour, mainly from Indonesia. This case indicates how important distribution of land tenure and economic independence are for successful contract farming.

On the other hand, it is reported that better recognition of land tenure of smallholders contributed to development of contract farming in Thailand (FAO, 2012b). As the Foreign Business Act constrains the participation of foreign investors in primary agricultural production, they expanded contract farming with local smallholders. On the contrary in Japan, the government decided to deregulate the land act to encourage private corporations to invest in primary agricultural production. Sekine and Hisano (2009) described how the American TNC, Dole Food Company, withdrew from contract farming with smallholders and established its own farms in this business climate. Conflict over land is also becoming severe in Cambodia (FAO, 2012b). The land issue needs to be paid special attention as it directly concerns smallholders' food security and nutrition.

* This does not mean that there was no contract farming in the prewar years. For example, the Japanese colonial state used contractual schemes in Taiwan sugar production in the nineteenth century.

### 3.3.5 The role of smallholder organizations in facilitating market access

Smallholders' organizations should be in a position to promote the interests of their members; however, they sometimes lack capacity and experience to organize in an effective way. Therefore, in supporting these organizations, governments, NGOs and development-oriented organizations are recommended to play a catalytic role until these organizations became mature (Diaz *et al.*, 2004). The investments should be supported if the organization is to perform a service that other market agencies do not provide or provide in poor conditions regarding the interests of smallholders; and, if support is needed as a starter, then competition will force the improvement of efficiency, as has been the case for producers' organizations elsewhere in developed countries.

Cooperation in buying, processing and selling, exchange of new knowledge, skills and seeds through networks and shared investment for equipment and machinery are only a few of the many examples. Other categories of investment are geared towards improving conditions for market access by increasing individual and collective efficiency in linking up to market chains, seeking economies of scale and a substantial reduction in transaction costs, as well as increasing smallholders' bargaining power with downstream agents. These types of investments may also concern warehouse management for storage just after harvest (in order to obtain a better price), and small- or medium-scale processing equipment (to keep more added-value at farm or territorial level, etc.). Smallholders' organizations also need to be strengthened in order to reach the standard (technology development) and negotiate the participation of smallholders in these markets under improved conditions.

## 3.4 Investing in enabling institutions

### 3.4.1 Investing in public goods provision

Policies in favour of providing public goods and services (health care, education, roads, irrigation, drinking water, etc.) to smallholder farmers can be very effective in strengthening smallholders' own capacity. Too often, public goods and services for rural people, especially smallholders, are lagging far behind those for urban people. Thus, providing better services for smallholders would enable them to better invest not only in farming but also in non-farm activities that can bring remittances home to better invest in agriculture.

The available family labour force is the first and foremost asset of smallholders. Undernutrition, lack of drinking water of good quality and available nearby, diseases, lack of education, highly unequal gender relations, etc., all degrade the quality and quantity of the family labour force. Consequently, safeguarding the basic needs is absolutely essential. It is a crucial prerequisite for any other investments in smallholder agriculture. Here public investments and the role of NGOs are strategic. Public health, provision of basic public goods (such as safe drinking water, sanitation, and electricity and education), collective goods such as school food provision through specific smallholders' oriented procurements, as well as social protection schemes including cash transfers, insurances and retirement schemes, will have an important effect on the development of smallholder agriculture and, consequently, on investments.

Roads and communications, electricity, irrigation, schooling, water and sanitation are the basic public goods that can make life in rural areas more attractive for younger generations. At the same time, these basic conditions help improve the productivity of family labour. Investing in public goods will lead to poverty alleviation as well as reduction of regional disparities (cases from India and China, by Fan, Zhang and Zhang, (2002), Fan, Hazell and Haque (2000) and Zhang *et al*., (2004). Roads can help smallholders to have better market access and off-farm employment (Gibson and Olivia, 2010), particularly in regions such as Africa where market access is far more expensive than in other regions (Livingston, Schonberger and Delaney, 2011). In the United Republic of Tanzania, for example, having better roads or villages closer to roads would make local people more supportive of government efforts for poverty alleviation (Kwigizile, Chilongola and Msuya, 2011). Warr (2005) showed that, between 1997 and 2003, the poverty level was reduced by 9.5 percent, among which development of roads contributed 13 percent.

Communication and a related information system on prices and demand are needed to ensure better information (technology, pricing, credits, etc.) transfers for productive as well as for social matters. A China study (Fan and Zhang, 2003) shows that returns to rural communication investment can be high. For example, for every dollar invested in communication, it can increase rural GDP by nearly USD7. It also increases agriculture GDP by USD1.91. The return to off-farm income increase was as high as USD5. This also applies to electricity, irrigation, schooling, drinking water and sanitation facilities. Market information systems (including diffusion mechanisms) bringing together public officials, private market agents and rural producers organizations in sharing and debating the evolution of markets are key tools that provide better income for producers (an average of 5–10 percent in price increase) and also influence policy decision making through building common understanding (Galtier, 2012).

Fine-tuning the resource combinations and searching for the best possible utilization of the resources become central. Here new forms of knowledge-sharing (or extension) such as the *campesino-a-campesino* approach that has been developed in Central America for instance are paramount (Hocdé and Miranda, 2000) or recently for Africa other relevant experiences are provided by (Sanginga *et al.*, 2012).

**Table 4 An earlier study on returns to public investments in rural areas in China**

| Type of investment | Returns/Impacts | | | |
|---|---|---|---|---|
| | Return to rural GDP | Return to Agricultural GDP | Return to off-farm income | Poverty reduction |
| R&D | 9.59 | 9.59 | – | 6.79 |
| Irrigation | 1.88 | 1.88 | – | 1.33 |
| Roads | 8.83 | 2.12 | 6.71 | 3.22 |
| Education | 8.68 | 3.71 | 4.97 | 8.80 |
| Electricity | 1.26 | 0.54 | 0.72 | 2.27 |
| Communication | 6.98 | 1.91 | 5.07 | 2.21 |
| Poverty loan | – | – | – | 1.13 |

*Note:* Figures in table reflect, for each unit of investment of a certain kind of public services, how many units the return was. *Source:* Fan and Zhang (2003).

### 3.4.2 Investing in research for development

Since the 1980s, research and extension have been neglected and smallholder agriculture has not received adequate priority at international and national levels. There is a need to increase investment in high-quality research and advisory extension services that are coherent with models of productions adapted to farmers' needs. Research must address a more complex set of objectives: the new challenges (climate change, energy, environment, biodiversity and resource management) as well as old ones (productivity and production) and promote diversification and food and nutrition security (HLPE, 2012a). The key message is to break the vicious circle of "poor research and extension for poor farmers".

National research and extension systems need full attention and investments from governments and the donor community. This support should respond to several key orientations: (i) partnership with rural producers' organizations and NGOs; (ii) use of non-proprietary genetic material and research to develop locally adapted genetic material able to produce in difficult conditions; (iii) development of low-cost innovative proposals for investments; (iv) promotion of diversification of the production systems; and (vi) promotion of the development of activities that increase the value added at smallholder level.

Food crops and the nutrition issue should receive the highest priority as far as research orientations choices are concerned. Crops outside the international world market should receive highest priority and research has to focus on the smallholders' situations. Productive partnerships between international and national research centres have to give priority to these food crops. Milk production, protein production through plants and small livestock have to be promoted on a large scale and research has to support and provide assessments of these experiences.

The processing of food, aiming at better adaptation to market transformations for urban use, has to receive support from research in order to improve the efficiency and productivity of the equipment and methods used.

As mentioned in section 3.1.3 above, ecological models of farming that optimize the sustainable management of natural resource and ecosystem services are particularly promising for most smallholders (IAASTD, 2009). The fact that agro-ecological approaches are often knowledge-intensive and need to be adapted to local conditions, implies the need for collective and public investment as the private sector focuses on a limited range of technologies that are profitable for them. Public investment in breeding programmes and support for local seed systems that allow the diffusion of locally adapted genetic material, which farmers would have the right to freely save, exchange and market, is a good example of the need for public investment in research.

Research and extension efforts are needed on the further development of agro-ecology approaches, recognizing at the same time the potential and future of such technologies but also the lack of ready-to-use solutions. Research that promotes the uptake of agro-ecological principles within conventional agriculture is also important, including, for example, soil and water conserving tillage and farming practices, or practices to minimize the use of synthetic fertilizers and pesticides. This observation is valid for developed and developing countries. At the same time, more research is needed on the socio-economic side to better understand smallholder agriculture.

Research that involves smallholders in the definition of research priorities and the design and execution of research according to participatory and empowering methodologies is crucial. This is the best way to ensure that research results respond to the complex social and economic, as well as ecological, contexts of smallholders. In order to achieve this, research systems must be more accountable to smallholders in terms of their institutional priorities, the impact of their work, and their funding.

### 3.4.3 Consolidating the capacities of governments and public services

There is a need to invest in order to re-establish – whenever needed – the authority and capacity of the state through rebuilding and strengthening the capacity of the public sector to act efficiently in the area of smallholder development, including accountability of resources allocated. The state has a key role to play in organizing with private and public stakeholders, including smallholders' representatives, and guaranteeing dialogue conditions to frame and fill the future policy frameworks.

Regarding smallholders' investments, the state and local authorities have also a key responsibility for the recognition and enforcement of rights regarding existing rights on land and resources and, when necessary, providing secure access to land and natural resources through redistributive mechanisms (see below), whenever appropriate.

Specifically, the role of farm-saved seed in the vast majority of smallholder production systems is crucial for their livelihoods and smallholder contribution to *in situ* conservation of biodiversity has to be acknowledged. Therefore farmers' rights to save and exchange seeds need to be protected. The implementation and enforcement of Articles 5 (conservation), 6 (sustainable use) and 9 (farmers' rights) of the International Treaty on Plant Genetic Resources for Food and Agriculture would be one step in this direction.

Specifically, the smallholders' contribution for *in situ* conservation of biodiversity has to be acknowledged and farmers' rights to save and exchange seeds need to be strengthened through the implementation and enforcement of the International Treaty on Plant Genetic Resources for Food and Agriculture and the Convention on Biodiversity.

Most important as far as investment in land is concerned is securing the rights of the smallholders (Brasselle, Gaspart and Platteau, 2002), including all the access rights to common property resources that are strategic assets for a majority of smallholders and mostly for those pastoralists that rely on these resources to secure their livelihoods. The wide diffusion of property rights through titling is not a prerequisite to invest.

If there is a highly skewed distribution of land and water (which critically hinders the unfolding of the productive potential of smallholder farms), then programmes are needed to create equity. Depending on the concrete situation, several alternatives will be possible. These range from, for example, land reform, to irrigation projects, schemes for substantial improvements of soil fertility, new cropping schemes and the (re-)introduction of animals. Within such equity programmes special attention is to be given to women. The rights on common land and resources have to be recognized as valuable rights for different types of communities and social groups that derive part of their livelihoods from collecting biomass, or fishing or hunting. These rights are crucial in many situations where smallholder farming can be maintained through access to common-pool resources.

New institutional arrangements and a range of financial services, such as savings, credit, leasing, remittances and insurance, have to be further developed for poverty reduction and food security of smallholders. States and international institutions have responsibilities to observe and regulate financial institutions to realize these objectives. They may give incentives to financial institutions to dedicate a certain percentage of their lending capabilities to funds for smallholders and institutionalize pension and retirement allowance schemes for smallholders in countries that lack those social securities.

Increasingly countries are promoting diverse forms of public/private partnerships in the agricultural and agribusiness sectors to support their development. They generally offer various forms of public support for projects that are expected to have positive societal impacts. Making such schemes work for smallholder agriculture requires a strong involvement of the State and of smallholder organizations, clear identification of the objectives of the project and of the roles and responsibilities of the different actors as well as monitoring procedures. In 2012, FAO initiated a serie of appraisals of PPPs implemented in 15 countries in Africa, Asia and Latin America with the objective to show challenges, draw lessons and identify challenges in implementation.[41]

### 3.4.4 Social protection for investments

Since smallholder domestic and productive budgets on the one hand and patrimony and assets on the other hand are fungible entities, investing in social issues serves productive issues at the same time. This is now widely recognized in recent papers dealing with the effects of social public goods provision on agricultural productivity. Hence, investing in health care can serve two different purposes at smallholder level: (i) improving the quality of labour for better productivity; and (ii) reducing consumption expenditures on health, which can lead to more investment in production by limiting the pressure on the domestic side of budgets. Health insurance schemes as implemented in China are part of the possible investments. Investments in education serve similar purposes: (i) improving human capital with better cognitive skills, which can lead to better productivity (direct effect); and (ii) improving the capacity of knowledge acquisition (technology, marketing information, etc.). Here also, organized groups for collective action in social services are of paramount importance.

The same observation applies to social safety nets or social protection (HLPE, 2012b) that are a key component in the Right to Food entitlement and are part of the means of intervention to improve health and nutrition and therefore allow smallholders to invest in productive activities with potentially better outcomes. These supports when targeted can play a role in helping family farmers to overcome conjectural difficulties and reduce the de-capitalization process, from which it is often difficult to recover.

**Box 19 Vegetable gardens and orchards in rural and urban areas to strengthen the food security of small farmers and vulnerable populations**

Launched in 1990, ProHuerta is a programme of food production in urban and peri-urban areas of Argentina, fully funded by the national government (Ministry of Social Development) and implemented by the National Institute of Agricultural Technology (INTA). 600 000 Home gardens (about 1 ha each, to feed a family of 5), 7 000 school gardens (2 ha) and 4 000 community gardens (10 ha) have helped 3 millions of people to produce their own food. Every dollar invested by ProHuerta generates 20 dollars in terms of food produced, not counting non-monetary benefits linked to the empowerment of vulnerable groups and the building of social capital.

The programme was initially intended to address the food crisis and malnutrition among the poor, but barter and trade fairs in the community have provided additional economic benefits and a way to strengthen social cohesion. This has helped to stimulate local economies and has offered new employment opportunities for the poor.

Through a very dense network of field technicians and volunteers, ProHuerta promotes agro-ecological food production on a small scale, with natural methods to control pests and diseases, and small-scale composting to produce fertilizer. The network facilitates the distribution of the inputs. ProHuerta also trains foreign technical officials in Latin America, and cooperates with the Republic of Haiti since 2005, reaching there 200 000 people.

*Source:* Roberto Cittadini, Coordinador Nacional del ProHuerta (INTA-MDS), see also (Cittadini, 2010) http://www.vocesenelfenix.com.

Money but also assets are fungible between the domestic and the productive side. When shocks or unexpected expenditures are to be dealt with, this often directly affects previous productive investments and substantial resources flow outside the agriculture sector (Holmes, Farrington and Slater, 2007). Social protection is often thought of as non-productive expenditure and treated separately from the productive sector. Indeed, social protection can be better viewed and articulated with the productive side of the holding. Considering both sides of the smallholder as a whole (the

[41] See www.fao.org/ag/ags.

family as a social unit and the family as a productive unit*)* would allow a better targeting and a better efficiency of both social protection and productive policies (Sabates-Wheeler, Devereux and Guenther, 2009).

The use of cash transfers in Mexico after the implementation of the North American Free Trade Agreement (NAFTA) provides some evidence that these transfers under Procampo design generated a multiplier effect ranging between 1.5 and 2.6 – but with a ”premium” for larger holdings (Sadoulet, de Janvry and Davis, 2001). Even if there are debates around the design, the targeting and the direct or indirect effect of such programmes on investments, there seems to be enough evidence to support the implementation of such schemes with a focus on the most vulnerable, which can turn into a constraint when public management is weak.

### 3.4.5 Securing tenure rights to enable investments

Secure rights are key to enabling investments for achieving food security. First, a holding, even if small, is grounded on a portfolio of rights, both formal and informal, which condition its use. Second, investments in agriculture are often long term, whether for the improvement of soil fertility, planting trees, construction of buildings, or the selection of cattle. Finally, security of these rights is a condition for obtaining a loan from a financial institution.

As shown above smallholder farming systems are complex and include a diversity of activities, many of which are grounded on access to various resources. This involves a wide diversity of rights codifying access to land, water, grazing resources, wood, wild foods (Bharucha and Pretty, 2010) and diverse raw products used either on farm or to make products to be sold. Many of these activities are of particular importance for women and for indigenous people as they often are the main direct users. Often these activities, resources and rights are key to the very survival of the holding, either because they provide an additional income or source of food, and often a particularly nutritious one, and/or because they enable smallholders to overcome difficult periods, the hungry season. In the Malian Gourma, when cows have less or no milk and there is no millet left, wild fruits and wild cereals play a crucial role in managing the “period when people are hungry”, in tamachek, the “bad season”, as called in Peul (Berge, Diallo and Hveem, 2005).

Pastoral systems exploit, and adaptively manage dry zones particularly efficiently by migrating animals seasonally according to pasture and water availability. In many areas, pastoralism is threatened by changes in land use and land tenure which reduce the available area, reduce mobility, and reduce areas which are indispensable for the viability of the system during the dry season (MA 2005b). More generally, grazing systems generally exploit diverse plots, used in different periods. Viability of the system depends on this diversity and flexibility in accessing these land plots. Losing access to one of them can endanger the viability of the holding. This is also true of numerous systems relying on diverse plots and also, often, on various use rights, including for instance the “right of trespassing” which can be essential. The importance and complexity of these customary land use rights is such that they are recognized and institutionalized even in some countries with a strong tradition of property and written law like France.

Investments in agriculture are often long term, which calls for systems of long-term tenure, and appropriate registration of tenure rights (e.g. Colin, Le Meur and Léonard, 2009), where tenants have incentives to make such investments. It also requires types of “contracts” enabling the tenant to invest, giving him or her the right to do so and includes provisions for compensation for the residual value of investments made by the tenant, whether financial and/or labour at the end of the contract. Planting trees, for example, often involves complex negotiations. In Eastern Zambia, after crops have been harvested, cattle are left to roam and graze freely on the crop residues and other vegetation in the field, making the field a common property in the dry season. During this period, the bush may also be set on fire by rodent hunters. These practices destroy young trees and are the main reason why farmers do not plant them. Negotiations between the three categories of actors have enabled farmers to invest in planting legume trees, considerably improving soil fertility and providing additional fodder for animals (Chaudhury *et al.* 2011).

Both formal and informal tenure systems tend to have a gender bias and even the remedies for unequitable distribution of land can be ineffective. For example, agrarian reform programs and laws have lacked a gender approach (Agarwal 1994, 2003; Deere and León, 2000; Razavi 2003) with many titling programs favoring men as the ‘family head’. So did both land administration and court systems (Monsalve Suarez *et al.,* 2009). Women’s unequal access to and control over land - for example through inheritance rules (Rao, 2008) - leads to strong inequalities, together with material

deprivation, as land is not just a productive asset and a source of material wealth, but also a source of security, status and recognition (Rao, 2011).

### 3.4.6 Investing to build effective and representative smallholders' organizations

**Strengthening the collective voice** of smallholders at various levels remains high on the agenda to improve investment capacities; the organizations themselves have to consider investments to serve their members within a market-led economy. They will need support. Multipurpose organizations are often the preferred pathway for smallholders since, like at household level, productive needs and social needs are interconnected, although governments and agencies will argue for specialization (Bosc *et al.*, 2001). In all cases, support in the long run is a key factor to build a strong smallholder collective voice (Bingen, 1998).

**Strengthening the institutional structure of the smallholders at collective levels** in order to promote their capacity to invest, to improve their productivity and to strengthen their voice to negotiate related investments that increase their returns from their own investments is needed. This strengthening capacity process is a long-term investment that requires public support added to the contributions of the members (often in-kind or in time devoted to collective tasks). This includes:

**Social, legal and political recognition** – **empowerment** – for smallholders as a business and social sector of society opening rights and duties, both for individuals, social groups and their organizations.

**The social and political recognition of smallholders** as a "professional status" – and the multipurpose activity nature of the holdings – is to be officially recognized and to be specified in sets of corresponding rights. Here there is an important role for UN organizations. These rights should include the possibility to increase access to redistributed land to increase their natural assets, when possible (see below).

Specific social characteristics that generate unequal status that limits access to investments need deeper consideration, such as classes, castes, women, minority ethnic groups and activity-oriented groups such as pastoralist groups. MS Swaminathan introduced a Private Member's Bill to the Rajya Sabha aiming at legal recognition of extensive rights for women farmers in all domains related to agricultural activities[42] (Swaminathan, 2011). They represent more than fifty per cent of Indian farmers and about sixty per cent of the workforce in the farming sector.

**Strengthening the collective capacities** of the various organizations that represent smallholders at various levels, including enterprise-type organizations (primary collection, grading, packaging, processing, marketing), whatever their legal or organization pattern is (cooperatives, associations, private companies), to organize specific segments – if not all – of the supply chain, from local to national levels. Here, the articulation between technical, economic and policy-oriented collective action is a key issue.

Given the importance of collective action and of enabling investments to facilitate smallholder investments, coordination, either along a food chain, in a sector or at territorial level is crucial. To be more effective, actions need to be integrated in the sense that each one supports (rather than hinders) the other. This is the reason why this report proposes (Chapter 4) the adoption of a strategic, coordinated approach at different levels.

[42] The Bill is introduced by MS Swaminathan as Private Member's Bill as such "to provide for the gender specific needs of women farmers, to protect their legitimate needs and entitlements and to empower them with rights over agricultural land, water resources and other related right and for other functions relating thereto and for matters connected therewith" (Swaminathan, 2011) .

# 4 SMALLHOLDER AGRICULTURE: A STRATEGIC APPROACH FOR INVESTMENTS

Smallholder agriculture is crucial for food security and nutrition. In many countries, food security will not be achieved without giving attention to the role of smallholders, especially because they are the first affected by hunger and malnutrition. Considerations of structural transformation and the dynamics of change at play in many parts of the world where agriculture, and especially the smallholder sector, is the main source of employment and livelihoods, justifies enhancing the investments by, in and for smallholder agriculture. Investments are needed at different levels, taking different forms and involving a range of actors. These investments are not to be made only by smallholders themselves but also by others, notably the state, private sector firms and banks. Coordination of actions and policies is crucial, going beyond agricultural policies to also include in particular investments in public goods and social protection, among others.

Therefore, investing in smallholder agriculture requires a *coordinated strategy* across sectors, time and space. As a consequence, this report proposes the development of a National Smallholder Investment Strategy which would be country-specific, comprehensive and broadly owned. Its implementation will require political support with participation and representation of smallholders. Such a strategy cannot be isolated but has to be an element of a wider agricultural and economic development strategy. It needs a strengthened public sector to achieve its core mandate.

## 4.1 A National Smallholder Investment Strategy based on a vision for smallholder agriculture

At the national level, this report recommends that every country should engage in the elaboration of a *National Smallholder Investment strategy*, based on a vision for smallholder agriculture, and the accompanying set of policies and budgets to support the transformation of the smallholder sector.

This National Smallholder Investment Strategy needs to be consistent with the structural transformation that the country has chosen to pursue (as seen in section 2.2 of the report). This makes it part of the current agricultural and food security national strategic planning processes regarding agriculture such as those in CAADP for Africa or ECADERT in Central America, and should take full account of the economic and institutional regional environments that shape the national scene (such as ECOWAS for West Africa or Mercosur for Southern America). There are also arguments to include agriculture in a broader perspective at the territorial level through a strong national policy orientation (as, for instance, *Territorios de ciudadania* in Brazil demonstrates). But in all cases, we strongly recommend that smallholder agriculture needs to have a public space for policy debate and policy formulation at the national and regional levels. These processes will need full support from the international community for the voice of smallholder organizations to be heard.

This National Smallholder Investment Strategy should rely on the following:

- Recognition of the diversity of smallholder agriculture as a core step to define adequate and adapted policy orientations, which means pulling smallholder agriculture out of its invisibility; and acknowledging the fact that it is almost impossible to have a clear picture of the strengths and weaknesses of such diverse productive sectors relying only on the size indicator. There is an urgent need to better document the diversity of smallholder agriculture taking into consideration the whole range of activities that contribute to the livelihoods of the rural population. In both developing and developed countries, these other activities are often a means for smallholders to stay in agriculture – and even to invest.
- This recognition needs to be supported by a relevant information system to give an adequate picture of the smallholder sector's characteristics and diversity. Basic statistical data based on the current WCA program should be collected in any country engaging in a National Vision process. This picture would need to give evidence of the main features (multiple sources of income, non-monetary dimensions, access to common pool resources and the main functions of smallholder livelihoods). For a comprehensive representation of the smallholder sector, adequate funding is to be secured to implement WCA accurately at the national level: only good pictures can lead to adequate policy-making.

- The National Smallholder Investment Strategy has to consider the different ways in which agriculture is structured and the different types of holdings in existence, ranging from smallholder agriculture to more structured and consolidated family-farming structures up to corporations and agro-industries. This may result in a bimodal structure in countries such as Brazil and Mexico, or in a unimodal type as in Viet Nam or Mali, for instance, or to more homogeneous agricultural structures (but close investigation tends to reveal diversity inside even what appears as "unimodal types". See for example Jayne, Mather and Mghenyi, 2010).
- Determination of the national strategy should not be a top-down, centrally commanded process, but rather a multi-stakeholder exercise, inclusive of all levels of organizations, starting from the local communities, and including territorial[43] and higher levels. Giving an important role to the intermediate "territorial" level derives from a pragmatic recognition of this level being pertinent to take into account the diversity of natural endowments between more and less favourable settings, the infrastructures, structures and institutions including forms of collective action that differ geographically (Berdegué *et al.,* 2012).

The different forms of investments are expected to have better results and impacts if they are coordinated in a national strategy rather than each being designed and supported as a self-standing and independent policy.

## 4.2 Elements of a renewed policy agenda

The National Smallholder Investment Strategy with smallholders at centre stage should help elaborate policy proposals.

An effective policy agenda would address the diversity of smallholders' situations and identify the main constraints on investment in terms of institutions, markets and assets. Examples are given in Appendix 3.

This brings upfront the necessity of coordinated policies across sectors. In this, institutions are to play a major role both to improve the operation of markets and their regulation, and to enlarge the possibility for smallholders to increase their assets qualitatively and quantitatively. Institutions concern private and public stakeholders. But institutions alone cannot make the difference if the level of assets remains unchanged or is threatened by the current level of risk faced by smallholders. And institutions are by no means a substitute to well-functioning markets; they can help regulate markets, but stakeholders make the market function if they can achieve their goals. The specific recommendations we make follow these categories – assets, markets and institutions. They are intended as general orientations for investments in smallholder agriculture, to be further adapted to each particular national context.

### 4.2.1 Improving access to assets

In order to increase their contribution to food security and continue to deliver diverse related goods and services, smallholders need to invest in order to improve their asset base (including physical, human, social, financial and natural capital) and to strengthen their individual and collective capacities (social capital through organizations for empowerment, collective action and institution building). As Sen (2013) explains: "*Different ways of raising food production are not exactly similar in terms of their effects on the potentially hungry population of a country. If the focus is entirely on how to raise food production, independently of the income and employment correlates of the process, then the resulting impact on hunger, caused by entitlement deficiency, would not be as well addressed as it could have been with an economic approach that looks at entitlements generated, even as it pursues the general goal of expanding agricultural and food production*".

These assets are not only related to individual investments; they also need collective, private and

[43] The territory is an area of land occupied and appropriated by a social group. It usually depends on a political and administrative authority. The territory is a functional unit usually comprising several districts or municipalities, which contains a high frequency of the social and economic interactions of those that live there. Very often it does not coincide with an administrative unit but is rather a functional aggregate of several of them. A territory has been defined as a rural space with a socially constructed identity. It can be considered as an acceptable compromise to design and implement interventions to improve food and nutrition security.

public linked investments to achieve the desired outcomes in food security and nutrition. Increasing access to these assets is the first among the three recommended policy axes: access to assets, market improvements and institutional reforms.

**Natural assets**

Limited access to land and other natural assets (especially water) is one of the most binding constraints on smallholder farming investment, especially for women. This can be remedied through redistributive land reform, market-assisted land reform, tenancy reforms, reduced insecurity of property and tenure rights, and improved cooperation and governance in using common property resources, including forestry and fisheries. Depending on the type of production system, small land area may not be a limiting factor if adequate investments are provided to increase total factor productivity in using the land.

Governments must guarantee tenure security for smallholder farmers over land and natural resources, by implementing the *Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries, and Forests.* They must also take relevant measures to improve cooperation and governance in the management of common property resources, including open-range pastoral resources, biodiversity, water, forestry and fisheries. Women's rights to land and natural resources use must be developed and strengthened. Governments should improve access to land by various means including land reform processes, making use of the lessons learned from other countries' experiences.

**Human assets**

The tendency to reduce spending on public goods in agriculture must be reversed, and several countries have been effective in doing so, following in particular the directives of CAADP in sub-Saharan Africa. Investments in public goods enhance and enlarge smallholders' capacities to invest in their own holdings and at collective level. These public goods are needed to improve human capital. Here public expenditures are crucial. The state cannot relinquish this fundamental responsibility, even though we consider that the role of civil society can be very important, for example, in the development of innovative ways of delivering basic public services to smallholder families and individuals. Public health, the provision of basic public goods (e.g. safe drinking water, sanitation, electricity and education), collective goods such as school feeding programs with innovative procurement schemes (e.g. P4P, WFP 2011), and social protection instruments (e.g. cash transfers, food-for-work), insurances and retirement schemes can indirectly have important effects on investment by smallholders, by improving their everyday well-being (health, improved diets). There is also a need to ensure appropriate provision of education and training to all smallholders and particularly women.

**Financial assets**

There is an urgent need to improve financial services and the banking system so that they work more effectively for smallholder agriculture. The vast majority of smallholders in the world have no access to capital other than in informal ways, which tend to be extremely expensive and also very limited. Until now microfinance has not proven to be an effective tool to support investment in smallholder agriculture. This situation particularly affects capital for medium- and long-term investments, although working capital is also a problem. Financial services other than loans are also needed, insurance being a prominent one to create incentives for smallholders to invest more. Novel solutions are needed that reduce financial risks, allow for risk-sharing and reduce transaction costs. Sustaining such novel solutions requires public–private partnerships between states, banks and smallholders' organizations at different levels.

Public policies should be put into place so that funding on a long-term basis, with a reduced interest rate, is made available to smallholders. This would facilitate investment in the resource base to improve water and nutrient management at the landscape level and to support the establishment of trees around the living place and in the fields. Investing in landscape management and planting trees are investments that cannot bear fruit immediately. The same recommendation applies to support funding diversified livestock. Here again, coordination with social protection instruments such as cash transfers and food-for-work programs is important to avoid inability of loan repayment in the event of negative shocks. To be implemented, such policy instruments need strong institutional leadership backed by political support and require coordination between national development banks, regional banks and private/collective organizations of the sector in order to reach rural areas.

### 4.2.2 Improving access to existing and new markets

Smallholders are disproportionally affected by market failures. Markets do not self-repair in the absence of public action. Smallholders need markets to buy inputs and sell products, and to have access to finance and other services. Markets also provide the channels by which most of the investments by and for smallholders (by various actors, public and private) can be financed and realized. Supporting the development of markets is therefore needed and governments have a key role to play in regulating existing markets as well as to support the development of new markets. Trade policies and wise regulation of imports may be needed for the temporary protection of national markets in order to insure competitiveness through improved productivity and greater market efficiency within value chains.

In supporting the development of markets, governments need to acknowledge that markets and competition come together, and that the benefits of well-functioning markets are inseparable from the dangers of competition for smallholders – one cannot have one without the other – but if markets are well-regulated and fair to all participants then benefits will outweigh costs for the smallholder sector as a whole.

Greater access to existing and new markets is key to both competitiveness and food security. Market failures specific to smallholder agriculture, lack of access to markets and shallow local markets are a main cause of lack of investment in smallholder farming, with many opportunities for remediation.

It must be considered that the vast majority of smallholders today operate in domestic markets and will continue to do so in the foreseeable future. There is a need to recognize that market access is not resolved only by roads and that multiple and combined investments both by public and private agents are required. Domestic markets in many developing countries are very poorly developed and continue to allow for a range of practices that would be considered completely unfair and even illegal in developed countries; investing in the development of better, more transparent and competitive domestic markets is critical. The very strong emphasis on export and niche markets by many developing international and national agencies has to be carefully assessed if it risks crowding out support for the improvement of domestic markets and for smallholder participation to them.

Wherever possible, local and subnational markets where producers and consumers meet directly (short circuit markets) have to be encouraged and strengthened. These dynamics are emerging in Northern countries but they remain limited in volume; they are also reported in emerging or developing countries through women's associations and networks, for instance directly linking rural producers or processors to urban consumers. They should receive higher priority, including support from public policies.

Strengthening new markets, which emerge in response to changes in consumer demand, can create considerable opportunities for smallholder farming. For this, new infrastructure, adequate regulation, producer organizations and capacity building are important. Public procurement based on provision by smallholders might function as an adequate and legitimate instrument to reach a wider range of objectives.

Food processing and other value-adding activities such as grading, sorting and packaging at the level of farms or small and medium enterprises need to be strengthened as a component of smallholders' livelihood strategies, increasing their autonomy and capacity to have better access to markets. Investment in processing to allow long-term conservation of products is a way to overcome inadequate market infrastructure and the seasonality of production, and an important mechanism to keep value added at the smallholder and territorial levels.

Contract farming can be a way of establishing long-term relationships with buyers. Governments should strive to establish the necessary regulatory instruments to bridge the significant gap in economic and political power that exists between smallholders and their organizations on the one side, and contracting organizations on the other.

Smallholders' organizations should receive adequate support to be in stronger negotiation positions to engage in contracting (over price, quality) under conditions that ensure remunerative and stable conditions and prices. Smallholder organizations have to be able to access independent expertise when needed, in particular to settle disputes with buyers, for instance on quality or standard conditions.

Governments are to supervise the commercial rules and regulations that ensure a fair share of smallholders' products in large retail circuits and to enforce, when needed, the contractual

arrangements. Markets need to be transparent and competitive, and market agents must abide by law in their relations with all producers, including smallholders who are very often in a disadvantageous situation.

There are many potential frictions and contradictions between smallholder agriculture and other forms of agriculture (corporate, entrepreneurial, large holdings, etc.), just as different forms of synergy are also possible. Wherever frictions and contradictions emerge, the state should intervene in order to assess the forms of relationships and cooperation that could allow smallholder agriculture to prosper and develop.

### 4.2.3 Strengthening institutions: from smallholder organizations to the public sector

A rebuilding and strengthening of the capacity of the public sector is needed in order to act efficiently in the area of smallholder development. This includes the capacity to supervise the social, economic and political process to elaborate the National Smallholder Investment Strategy for smallholder agriculture.

This requires better coordination and a profound change to work across sectors, avoiding "fragmented policies". Improving food and nutrition security at the national level requires bringing together ministries of social affairs, agriculture, trade and industries, as well as decentralization and territorial development.

Because smallholders can rarely succeed alone as they lack economies of scale and market power, social capital under the form of organizations and effective social networks is also an essential part of increased access to assets in support of investment in smallholder agriculture.

Collective management of resources is of crucial importance. Large numbers of smallholders rely on the use of common property resources (land, water, forests, seeds, etc.) which are managed by well-functioning institutions in many developed and developing countries. These institutions deserve the full recognition and support of the state and of public policies.

Engaging with the whole range of actors is crucial for the development of smallholder agriculture. The experience of countries that have had successful smallholder development in the midst of rapid societal change shows that critical actors include: (a) downstream processors, traders and retailers; (b) suppliers of technology and knowledge-based services; and (c) financial institutions.

Institutional innovation in support of investment in smallholder agriculture is needed. Recent progress with such institutional innovations, such as the Zero Hunger Program in Brazil (Graziano da Silva, Del Grossi and Galvão de França, 2010) offer promises that need to be better understood, adapted to the heterogeneity of conditions of smallholder farming, and scaled up where proven effective. The required institutional changes concern the following:

- increased political representation;
- organization for collective action;
- security of access to land and property rights;
- public sector capacity in support of investment in smallholder farming.

Social protection has to be part of the policy framework needed to promote investments by smallholders: it is, among others, a key to strengthen the human assets through improved well-being for the whole family. It is all the more important in the smallholder context due to the close links between family and productive activities. Social protection is by no means a mere expenditure or a burden; for smallholder agriculture it has to be considered as an enabling investment.

Smallholders' organizations have a key role to play at the national and international levels for the recognition and enforcement of rights to land and to individual and common resources – including biodiversity in seeds, animal breeds and common lands. The recent *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests* (CFS, 2012) have to be fully implemented in the interests of the most vulnerable in order to enable them to invest in their own farm operations.

The coordination across sectors and the capacity to mobilize various agents at different levels of decision-making, from national to local, will be a challenge and a key element of future success.

Access to assets requires coordination among financial institutions, research and extension and with the private sector that deliver inputs, seeds, machinery and equipment. Improved market access will only be effective if physical infrastructure, market agents' responses to incentives, market information systems and price regulation work in the same direction so as to provide fair market opportunities to smallholders. For the provision of public goods, which is not equivalent to a state-based system, strong coordination is again needed between the different types of stakeholders, ranging from local authorities, smallholders' organizations and private companies to users' associations.

As Sen (2013) states: "*Do one thing at a time" is never a particularly good advice when it comes to economic and social policy, and it is particularly misleading in tackling the massive challenge of the huge prevalence of hunger in the modern world. We have to do many different things – together*.

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# ACKNOWLEDGEMENTS

The HLPE warmly thanks all the participants having contributed with very valuable inputs and comments to the two open electronic consultations, first on a proposed scope of the study, and second, on an advanced draft (V0) of this report. The list of contributors, as well as the full proceedings of these consultations, are available online at the HLPE website: http://www.fao.org/cfs/cfs-hlpe.

The HLPE also acknowledges the important feedback received from the peer-reviewers on a pre-final draft of this report. The global list of peer-reviewers is available at the HLPE website.

The Project Team would like to thank the following individuals: Jean-François Bélières, Manuel Chiriboga, Benoît Daviron, Bart de Steenhuijsen Piters, Franck Galtier, Nora Mc Keon, Bruno Losch, José Muchnik, Ye Jingzhong, Jean-Michel Sourisseau, Edith van Walsum, Philippe Bonnal, Fumihiro Kabuta, Jacques Marzin, Alexander Schejtman, Tomás Rosada, Alexandre Martin, Sergio Schneider, Marie-Sophie Dedieu, Frédéric Courleux, Isabelle Perez, Marie-Christine Duchamp and Harriet Friedman.

# EDITORIAL NOTE

The present report has been edited following its original presentation on the 26th of June 2013, to correct remaining misspellings, references and sectioning in Chapter 4 (11th of July 2013).

# APPENDICES

## A1 List of 81 countries used in the calculations for figures in Chapter 1

| | |
|---|---|
| **Africa** | Algeria, Cape Verde, Côte d'Ivoire, Ethiopia, Guinea, Lesotho, Mali, Morocco, Mozambique, Namibia, Réunion (Fr), Senegal, Togo |
| **LAC** | Guatemala, Jamaica, Nicaragua, Panama, Puerto Rico (USA), Saint Lucia, Saint Vincent, Trinidad and Tobago, United States, Virgin Islands (USA), Brazil, Chile, Colombia, Ecuador, French Guiana (Fr), Uruguay, Venezuela. |
| **Asia** | China, India, Indonesia, Iran, Jordan, Kyrgyz Rep, Laos Peoples Democratic Rep, Lebanon, Myanmar, Nepal, Pakistan, Philippines, Qatar, Thailand, Turkey, Vietnam. |
| **Europe** | Austria, Belgium, Cyprus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Spain, Sweden, United Kingdom. |
| **Pacific** | American Samoa (USA), Cook Islands, Guam (USA), New Zealand, North. Mariana Isl. (USA), Samoa |

## A2 Abbreviations for countries used in Figure 8

| | |
|---|---|
| Argentina | ARG |
| Azerbaijan | AZE |
| Brazil | BRA |
| China | CHN |
| Egypt | EGY |
| Ethiopia | ETH |
| Ghana | GHA |
| India | IND |
| Malaysia | MYS |
| Mexico | MEX |
| Nigeria | NGA |
| the Philippines | PHL |
| Turkey | TUR |
| Uganda | UGA |

## A3 Examples of policy instruments available to address the different elements that influence food security at household level

| Recommendations | | Public investment and policies | Private investments | Expected outcomes for smallholder farmer household and livelihood strategies |
|---|---|---|---|---|
| **National strategy and political will** | *National Smallholder Investment Strategy* | Participatory process to build a National Strategy | Ongoing private sector participation | More appropriate and effective strategies and programmes<br>Recognition of the role of smallholder agriculture and definition of policy packages |
| | *Citizenship and rights* | Legal environment for individuals and organizations<br>Capacity building for smallholders' organizations at different levels (from grassroots to apex leaders) | | Social and political recognition to access public goods and create political will<br>Improved status for smallholders<br>Improved status for women, youth and marginal social groups |
| | *Achieving the right to food* | Support services for self-provision of food and diversification (credit, technical recommendations, access to inputs)<br>Programmes supporting individual and collective gardens/orchards<br>Social protection programmes including school feeding, nutrition supplementation for mothers<br>Early childhood development programmes<br>Cultural investments to promote local food procurement schemes | Development of private production services | Increased self-provision and improved nutrition (quantity and quality)<br>National pride in local foods and appreciation of their value to economic growth, sustainable livelihoods and human health and nutrition |
| **Gaining access to natural assets** | | Land reforms to increase land access<br>Policies to secure ownership rights including common property<br>Public works programmes to improve the natural resource base for better resilience and increased productivity (water management, terracing) | Possible private investments through a smallholders' lens supported by government regulations, under the voluntary guidelines on land tenure | Improved food security. Improved natural capital and resource base to increase productivity and resilience.<br>Improved food security through work programmes (cash, in kind, vouchers, etc.) |

| Recommendations | | Public investment and policies | Private investments | Expected outcomes for smallholder farmer household and livelihood strategies |
|---|---|---|---|---|
| **Providing a favourable investment climate** | *Access to public goods* | Education (basic and specific programmes targeted for food security and nutrition)<br>Basic infrastructure works (water, sanitation, health centres, etc.) with local labour<br>Social pensions<br>School feeding programmes | Private funds to support collective social goods (clean water, renewable energy, health care centres, etc.) | Improvement of family well-being (health and nutrition)<br>Better labour productivity<br>Increased knowledge of agro-ecology through education and youth support programmes |
| | *Access to markets* | Transport and market infrastructures<br>Market information systems<br>Supportive mechanisms for cooperative and collective action.<br>Regulatory instruments for contract farming<br>Public food procurement schemes (schools, hospitals and public catering)<br>Trade policy, price policy, smart subsidies | Investments to improve market agents' efficiency<br>Support to private agents to increase access to inputs (seeds, fertilizer, etc.), machinery and equipment (adapted to smallholder agriculture)<br>Market information systems<br>Investments to develop service provision for input access<br>Private food procurement schemes (catering) | Increased market opportunities<br>Cash transfer programmes (conditional or unconditional)<br>Reduced price volatility<br>Stable and fair contractual arrangements<br>Increased access to productive assets<br>Increased income (and food security through access) |
| | *Access to financial Services* | Regulatory and incentive policies to reconnect financial institutions and Smallholders | Investments in mobile phone cash transfer<br>Development of savings and lending services with smallholders' organizations participation in governance)<br>Support to investments through Subsidies<br>Insurance<br>Grain reserves and warehouse receipt systems<br>Credit system for small- and medium-scale traders and food processors | Improved access to financial services and financial assets<br>Increased access to productive assets |
| **Improving productivity through research and extension** | | Research programmes targeted at smallholders' needs and aligned with the strategies for agriculture, food security and nutrition<br>Support to seed production free of rights | Farmers' field schools<br>Participatory research programmes including smallholders' organizations<br>Corporations' investments in technical and managerial capacity building for smallholders and their organizations | Better access to knowledge, technology and productive assets |

| Recommendations | | Public investment and policies | Private investments | Expected outcomes for smallholder farmer household and livelihood strategies |
|---|---|---|---|---|
| **Investing beyond the farm: RNFE and territorial development** | *Diversification of sources of income* | Public policies to guide private investments in rural areas<br>Vocational training<br>Education | Investments in non-farm enterprises | Increased income opportunities and diversification of sources of income |
| | *Governance for agriculture* | Decentralization processes<br>Coordinated investments strategies across administrative boundaries<br>Cultural investments | | Increased investment opportunities for smallholders |
| | *Up-dating and improving data on smallholder Agriculture* | Strengthening data production to Support to investment strategies | | Better targeted investments |

## A4 The HLPE project cycle

The HLPE has been created in 2009 as part of the reform of the Committee on World Food Security (CFS) to assess and analyse the current state of food security and nutrition and its underlying causes; provide scientific and knowledge-based analysis and advice on specific policy-relevant issues, utilizing existing high quality research, data and technical studies; Identify emerging issues, and help members prioritize future actions and attentions on key focal areas.

The HLPE receives its mandate from CFS and reports to it. It produces its reports, recommendations and advice independently from governmental positions, in order to inform and nourish the debate with comprehensive analysis and advice.

The HLPE has a two-tier structure:

- A Steering Committee composed of 15 internationally recognized experts in a variety of food security and nutrition related fields, appointed by the Bureau of CFS. HLPE Steering Committee members participate in their individual capacities, and not as representatives of their respective governments, institutions or organizations.
- Project Teams acting on a project specific basis, selected and managed by the Steering Committee to analyse/report on specific issues.

To ensure the scientific legitimacy and credibility of the process, as well as its transparency and openness to all forms of knowledge, the HLPE operates with very specific rules, agreed by the CFS.

The reports are produced by time-bound and topic-bound Project Teams, selected and appointed by the Steering Committee, following its guidance and under its oversight.

The project cycle for the reports, in spite of its being extremely time constrained, includes clearly defined stages separating the elaboration of the political question and request by the CFS, its scientific formulation by the Steering Committee, the work of a time bound and topic bound project team, external open consultations to enrich the knowledge base, an external scientific review (Figure 13).

The process promotes a scientific dialogue between the Steering Committee and the Project Team throughout the project cycle, with the experts in the HLPE Roster, and all concerned and interested knowledge-holders worldwide, thriving for the involvement of diverse scientific points of view.

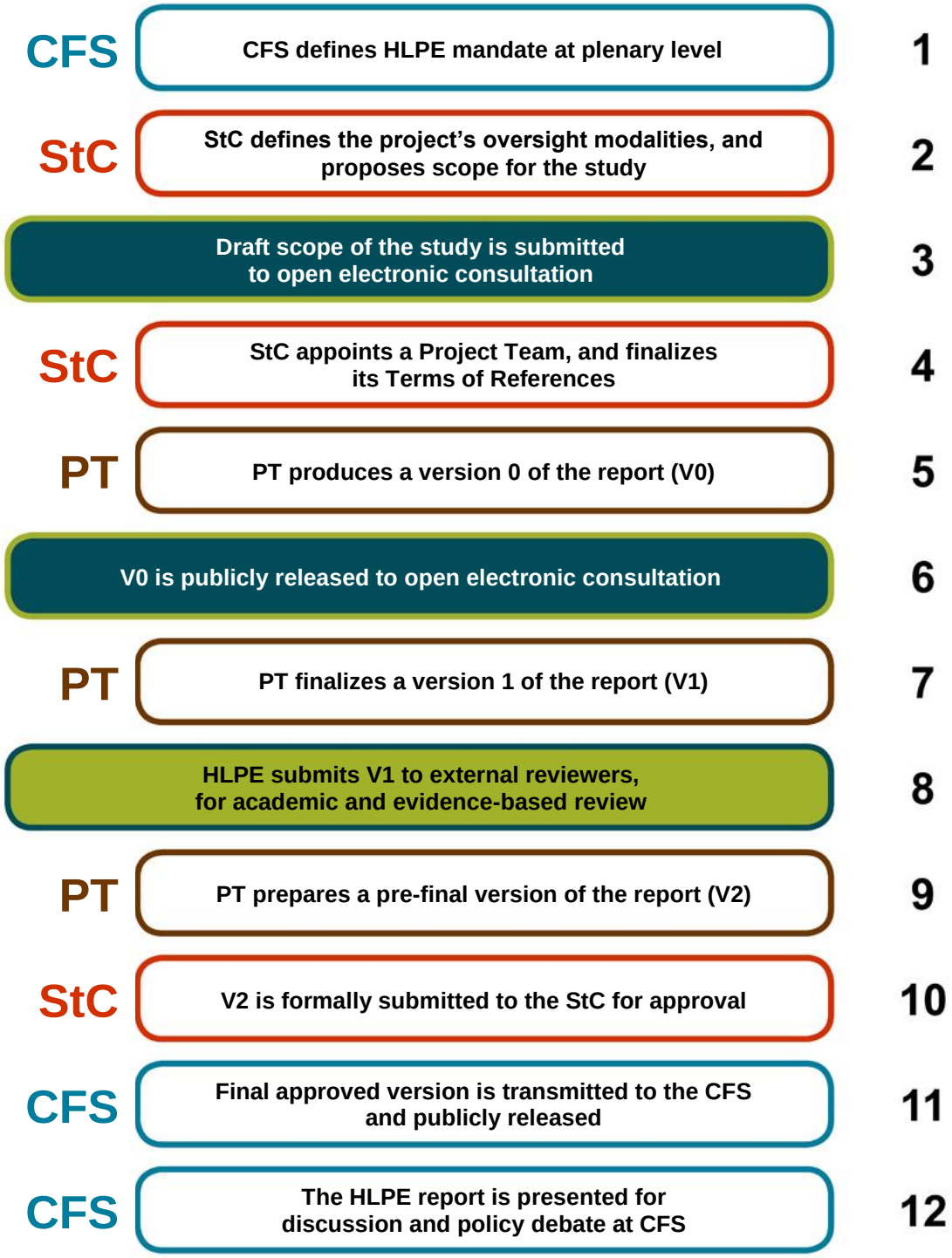
This is why the HLPE runs two external consultations per report: first, on the scope of the study; second, on a first draft (V0). This provides an opportunity to open the process to the input of all experts interested and towards the experts HLPE roster (there are currently 1200 of them), as well as to all concerned stakeholders. The input provided, including social knowledge, is then considered by the Project Team and enriches the knowledge base.

The draft report is submitted to independent evidence-based review. It is then finalized and discussed, leading to its approval by the Steering Committee during a face-to-face meeting.

The report approved by the Steering Committee is transmitted to the CFS, made public, and serves to inform discussions and debates in CFS.

All information regarding the HLPE, its process, former reports is available at the HLPE website: www.fao.org/cfs/cfs-hlpe.

**Figure 13 HLPE project cycle**




**CFS** Committee on World Food Security
**HLPE** High Level Panel of Experts on Food Security and Nutrition
**StC** HLPE Steering Committee
**PT** HLPE Project Team

*Source:* HLPE, 2012.

**Cover photo:** ©FAO/Thomas Hug

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