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STUDY ON
SMALL-SCALE FAMILY FARMING
IN THE NEAR EAST AND
NORTH AFRICA REGION
SYNTHESIS

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PREFACE

With more than 500 million family farms that constitute over 85 percent of all farms worldwide, family farming is the predominant mode of agricultural production, producing food, preserving traditional food systems, contributing to a balanced diet and safeguarding the world's agro-biodiversity. As such, family farms are inextricably linked to domestic and global food security.

The 2014 International Year of Family Farming (IYFF) focused global attention on the important role of family farming in providing food and nutrition security and enabling sustainable development. The celebration of the IYFF also significantly raised the profile of family farming, which was included in the Second International Conference on Nutrition (ICN2) in 2014, and in the United Nations Post-2015 Development Agenda, adopted in September 2015. In the new Agenda, smallholders and family farmers were placed at the centre of many of the 17 Sustainable Development Goals and 169 targets (notably, the goals of No poverty [SDG1]; Zero hunger [SDG2]; Gender equality [SDG5]; Decent work and economic growth [SDG8]; Responsible consumption and production [SDG12]; Climate action [SDG13] and Peace, justice and strong institutions [SDG16]), thus recognising the central role of smallholders and family farmers in combining economic, social and environmental sustainability and food security.

This holds particularly true for the Near East and North Africa (NENA) region, which has a diverse urbanisation profile (from 15 to 65 percent of the population lives and works in rural areas, depending on the country) and which is experiencing unprecedented climatic, demographic and economic challenges and regional transformations. In the NENA region, the contribution of small-scale family agriculture as a percentage of overall agricultural production varies from low values (in industrial crops) to high values. More than 80 percent of some annual and perennial crops and livestock species is provided by the small-scale family farming, and nearly 75 to 85 percent of agricultural land holdings is held by family farmers.

In the region, political instability, population growth and subsequent land fragmentation, water scarcity and the effects of climate change have significant and increasing impacts on rural areas, which are often affected by repeated crises. This is leading to an increase in the number of refugees and internally displaced persons and to the deterioration of the major economies in the region.

Small and medium-sized family farms have the potential to deal with the complex set of challenges faced by the region, if they are provided the necessary support (such as infrastructure and organisational development) to boost local economies and lift local communities out of poverty. Still, despite the huge potential and although it is a major

source of income in many NENA rural areas, small-scale family farming remains neglected in the region's major policies related to agriculture, food and social security and significant inequalities persist between rural and urban areas, irrigated and primarily rainfed agricultural regions and smallholders and large agricultural producers.

The region is still characterized by the dualism between the market-oriented, irrigated agriculture of a small number of medium to large farms and the rainfed, small-scale farms that produce mainly for consumption and for sale in local, urban and rural markets and that, nowadays, are diversifying into non-agricultural activities, such as providing labour force. (Up to three-quarters of smallholdings declare off-farm income). These small family farms are facing enormous constraints resulting primarily from their exclusion from the benefits and opportunities that could be provided by specific and well-targeted agricultural and rural development policies. Their low productivity also means they are unable to significantly contribute to the creation of profitable jobs, especially for women and youth whose unemployment rate is as high as 40 percent in some countries and is now a major problem for the region and beyond.

This brings to light the urgent need to re-evaluate and strengthen this management model. In order for its potential to be fully deployed, family farming and especially small-scale family farming must be supported by effective political commitment and by the consequent implementation of policies designed to address its specific needs in its various manifestations at the local level and through an approach geared towards inclusive territorial development. This implies a multipronged approach that takes into account both agricultural and social protection policies as fundamental levers to overcome rural poverty. Helping small farmers to improve productivity is one important vehicle, but in most contexts it is not enough to lift all rural poor out of poverty.

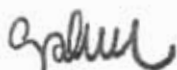
In order to emphasize the major needs, opportunities and priorities involved in strengthening support for family farming and promoting collaboration across regions on common issues, it is fundamental to better assess and systematize existing data and to identify global and regional agrarian transformations and related poverty patterns, policy trends and best bet forms of family farming organization and of partnerships with key players (e.g. in value chains) that influence regional and national processes.

This is the rationale behind the studies carried out under the umbrella of the regional initiative on Small Scale Family Farming, which is that a comprehensive assessment of SSFF in the region is the essential starting point to more effectively target its activities and improve the support given to governments.

In 2015–2016, FAO, CIRAD, CIHEAM-IAMM and the Mamoun Beheiry Center for Economic and Social Studies and Research in Africa (MBC) analysed small-scale family farming in the NENA region and produced one regional and six national reports (Egypt, Lebanon, Mauritania, Morocco, Sudan and Tunisia). The objective was to undertake a state-of-the-art review of Small-Scale Family Farming (SSFF) in the region in order to propose a medium term (5 year) action plan to catalyse work towards sustainable and inclusive development of SSFF.

This regional synthesis constitutes a general overview built on the six national reports, with the addition of some original information describing patterns of structural change in the region and a compendium of potential areas for action. The aim of the report is to guide the implementation of the Regional Initiative. It is based on existing data and documents and on interviews with key informants that helped to identify and analyse successful experiences and understand both current and past policy support provided to SSFF in the region.

We hope that this publication will significantly help FAO and its partners to more directly respond to the needs of small-scale farmers, better target policies, identify research priorities, propose more fitting strategies and activities and suggest ways of bolstering and supporting farmer's associations and other stakeholders, with the ultimate goal of contributing more effectively to reducing rural poverty through the sustainable and inclusive development of the whole NENA region.



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The initiative was coordinated by Alfredo Impiglia (Regional Office for the Near East and North Africa of FAO), who co-authored this regional synthesis together with Jacques Marzin and Pascal Bonnet (CIRAD) and Omar Bessaoud and Christine Ton-Nu (CIHEAM-IAMM). National studies were supervised by CIRAD and CIHEAM-IAMM and implemented by national coordinators and their country teams, with the assistance of FAO national offices.

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EXECUTIVE SUMMARY

This report provides an overview of a study conducted in the NENA region in 2015-2016 in partnership with FAO, CIRAD, CIHEAM-IAMM and six national teams, each of which prepared a national report. The study was supervised by the FAO regional office in Cairo, as part of the regional initiative titled *Small-Scale Family Farming*. This overview focuses on the features and characteristics of small-scale family farming. Additional information is available in national reports that position this type of agriculture within the national agricultural context enabling some of the interactions between various forms of agriculture to be taken into consideration.

In the six countries under review in the NENA region (Egypt, Lebanon, Morocco, Mauritania, Sudan and Tunisia), agriculture is carried out primarily by small-scale family farmers, the majority of whom run the risk of falling into the poverty trap, largely due to the continuous fragmentation of inherited landholdings. As such, the development of small-scale family farming can no longer be based solely on intensifying agriculture, as the farmers are not able to produce sufficient marketable surplus due to the limited size of their landholdings. An approach based strictly on agricultural activity is also insufficient (as small-scale family farms have already diversified their livelihoods with off-farm activities). In fact, developing small-scale farming cannot be achieved by focusing strictly on the dimension of production. Social transfers, especially retirement benefits for older farmers and support for the poorest households, are justified on the basis of equity and intergenerational solidarity. The following points further illustrate this situation:

- As a result of the challenges associated with globalization, assessing national situations in isolation from the international context is impossible. In a globalized environment, the world's farmers compete against one another regardless of their different levels of competitiveness and public support.
- In order to generate foreign trade necessary for imports, governments attempt to leverage agriculture to ensure their participation in the global economy. This leads to a two-pronged evolution of production structures: (i) land concentration with national or foreign capital in the most productive regions and more mechanized, irrigated and specialized forms of production, open to long value chains (driven by exports and the development of large-scale distribution) and; ii) continued fragmentation of smaller holdings, or even the emergence or increase in the number of landless farmers.
- Intensifying land use on small-scale holdings will not be sufficient to generate enough income. As such, smallholders, and generally families, must seek other sources of income in order to supplement what they earn from agriculture.

- As a result, smallholder families develop on- and off-farm strategies, depending to a great extent on family dynamics: migration, family members dedicating their time to multiple activities and stewardship of the holding's assets. Changes in family values regarding gender roles and intergenerational relations and family dynamics within village communities, especially regarding access to common or collective resources such as water, forest and state-owned land, condition both the reasons behind decisions as to how to manage small holdings and the methods used by younger generations to enter the job market (within or outside the agriculture sector, in towns or villages, in or out of the country).

Consequently, defining policies to support small-scale family farming by fighting poverty in agricultural households cannot be reduced to intensifying farming or stockbreeding practices. Policies should also focus on: (i) access to resources (water, land); (ii) sector organization, in order for a substantial portion of added value to remain with the small-farmers, (particularly with regard to diversified food products for which this type of agriculture has become a steward); (iii) collective organization of small-scale family farmers through cooperatives, associations, informal groups and the like, to enable them to access economies of scale for some of their activities (involving mechanization, supply, processing of agricultural produce, access to and management of common resources, and information) and to participate in social and political dialogue. Such policies should also be diversified to include: (iv) social policies (the right to retirement for older farmers, both men and women; access to quality education and healthcare, and other aspects), support for value systems (gender equality, child labour, access to cultural services); and (v) regional development policies (emergence of secondary towns, roads, social and cultural infrastructure in rural areas, safety for people and property). Effective targeting of these area-specific policies requires better information collection on the diversity of small-scale family farms, their sources of income, their performance and the strategies they develop.

Part 1: **Small-scale family farming: definitions for public policies**

The definitions of small-scale family farming used in the statistics of the countries under review are vague and the criteria used vary depending on the type of research, the authors and the country (and sometimes the region). National data are sometimes outdated (the last census in Morocco was in 1996) and do not allow development paths to be identified. They often only focus on the agricultural component of smallholders' activities and overlook multi-activity. It is not uncommon to find agricultural holdings described solely by their main production sector or by the main component in their farming system, while secondary production activities and their attendant functions are disregarded. Such a partial vision makes it difficult to understand the rationalities and strategies of smallholders.

Although the concept of small-scale family farming is widely used, its translation into public policies faces four major obstacles:

- The reduced size of the cultivated area leads to very different rationalities, production methods and varieties of crops and livestock. In the countries under review, definitions and thresholds that address *sensu stricto* small-scale production structures as opposed to other

production structures are either absent (Mauritania and Sudan) or relative (Egypt, which has defined a threshold of three *feddans*¹, with a tax exemption below that size, Morocco, which distinguishes irrigated areas from rain-fed areas, Tunisia, which differentiates them according to the land potential, income and investment capacity). The result is a general approximation: as most farmers are small-scale family farmers, one may consider that almost all production or jobs relate to small-scale family farming.

- The concept of small-scale family farming is contingent upon national or regional production conditions and it is difficult to compare it among international contexts.
- The reduced size of small-scale production structures generally prompts households or extended families, who do not see themselves as being tied to the land, to search for additional livelihoods off-farm: sale of labour in neighbouring farms or towns, processing of farm produce, handicraft production, or pendular, cyclical or longer-term migration. Contributions from several generations are necessary, including from members of the extended family who may have settled in different locations and generate remittances.
- Lastly, small-scale family farming may refer to very different indicators. In the various statistical systems in current use, there are indications of changes in how the size of production structures (utilized agricultural area (UAA), turnover, standard gross production) are defined, which provide more quality information but hamper international comparisons.

The efficiency of a public policy largely depends on the consistency of the tools and operating methods used, the rationale behind the policy and the needs of the economic and social players benefitting from it. It is obvious that implementing a measure that targets smallholdings solely based on the criterion of land size will affect different types of small-scale farming operations: agricultural households with full on-farm consumption, well-to-do multi-activity farmers with little interest in increasing agricultural production, and small-scale farmers established on the market. It is likely, therefore, that such a policy will not be equally efficient for these three types of farms.

Conversely, smallholder-targeted policies that only consider the agricultural dimension will likely not draw on all available levers to help grow the revenues of a population segment that is generally one of the poorest in the countries under study. The living standards of smallholders could also be enhanced by improving the conditions for remittances, instituting government-funded pension mechanisms for older generations, promoting the diversification of farm and off-farm activities, or developing economies of scale through associations or cooperatives.

Therefore, more research is needed if we are to design policies that support small production structures; especially the farm and off-farm dimensions, and the bioclimatic, technological, economic and social environment.

¹ 1 feddan = 0.42 ha

This is why the concept of family farming complements that of small-scale agriculture effectively, since it helps to better understand the rationales governing the economic and social relations in the production systems under review. In fact, since Tchayanov's (1990) work on the family organization of peasant economy and the study of the sustainable rural livelihood framework (Chambers, 1991) up to the work done in preparation for the 2014 International Year of Family Farming (Bélières *et al.*, 2014² and FAO, 2013³), the fundamental role played by family dynamics in the development of production systems has been highlighted. Adding labour characterization to the usual information on the technical dimension (production, output and intermediate consumption level) helps by including an analysis of labour productivity and of autonomy and dependency relations inside and outside family farm holdings, including gender and/or intergenerational relations. The family-based approach also helps to include the property dimension, which is important from an economic standpoint (since it explains a good part of the resilience of this form of production) and from a sociological standpoint, owing to its identity dimension (habitat, native land, etc.).

It is obvious that:

- Although most small-scale holdings are family farms, not all family farms are small. It is therefore important to combine the two approaches if the aim of the policy is to lift small-scale farmers out of poverty: target the smallest among them with a size criterion (utilized agricultural area, turnover or standard gross production) and understand their strategies and rationales in order to design suitable policy tools using the family farm approach criteria. This is why we will refer to **small-scale family farming** throughout this document.
- Small-scale family farming is one of several forms of production, which are not necessarily isolated from others. It is for this reason that Bélières *et al.*, (2013) classify agriculture under diverse forms of production (entrepreneurial or business-like, family business and purely family-sized) whose variations are based on the types of labour force used (e.g. percent of paid employees), the level of legal and financial autonomy (ownership or not of the various production factors), and the level of integration into the market economy (degree of on-farm consumption, level and origin of intermediate inputs consumption, i.e. reliance on upstream and downstream markets).

Such diversity of forms of production within the same territory calls for the territorial dimension to be taken into consideration when designing public policies that support small-scale family farming, and within the same region, there are interactions between the different

² "Family farming refers to one of the forms of organization of agricultural production and includes holdings that are characterized by organic links between the family and the production unit, and by the mobilization of family labour, excluding permanent employees. These links are reflected in the inclusion of productive capital in the family assets and in the combination of domestic and market and non-market operating logics in processes to assign family labour and for its remuneration, as well as in choices for the distribution of products between final consumption, intermediate consumption, investments and accumulation."

³ "Family Farming (which includes all family-based agricultural activities) is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's. The family and the farm are linked, co-evolve and combine economic, environmental, social and cultural functions." FAO, 2013c, 2014 International Year of Family Farming: Master Plan. Rome, FAO.

forms of agriculture. For instance, the labour market facilitates exchanges among people coming from households that are involved in small-scale family farming, resulting in transfers of know-how, financial transfers (wages of day-workers) and technology transfers followed by ownership and adaptation of techniques (innovation).

Similarly, the proximity of consumption markets and possible enhancement of the value of the commodities sold have an impact on land tenure, the choice to diversify agricultural production, market values and the surface area needed to generate satisfactory income from small-scale family farming.

It is therefore necessary to update the knowledge base required to improve policies to support small-scale family farming, such as:

- Selecting a preferred observation unit (the extended family or the agricultural household) based on their place of residence, farm or the village nearby;
- Using a conceptual model of small-scale family farm operations that combines the study of production structures, operating patterns of the on- and off-farm activities of the family and, lastly, the economic, social and environmental performances of the various activities (including those relating to the main factors of production).

The operational definitions for the production and use of statistics in countries may share a common base, but should adapt to the agrarian history and the structural transition dynamics of each country.

Part 2: **Contributions of small-scale family farming**

Existing statistical systems are organized mostly by crop or by crop farming or stockbreeding system (rain-fed, irrigated, pastoral, etc.). They provide little information regarding their combinations within the holding systems, on-farm consumption, capital raised in the production process, time devoted to agricultural and off-farm activities, different sources of income, practices and levels of agriculture intensification or ecosystem services provided. Isolating the contributions of small-scale farming therefore often entails extrapolating partial data, monographic studies or specific calculations.

Although accurate quantitative data is not available for each of the countries under review, one can safely say that small-scale family farming provides a significant share of the food supplies to domestic markets, particularly in urban and suburban areas, but also in marginalized areas with low agronomic potential. Small-scale family farming is particularly active in short value chains where it has a comparative advantage for direct sale or to supply small-scale food processing plants. It is also able to position itself in export-oriented niche markets, as long as there is a favourable environment and adequate supervision (tobacco in Lebanon, mint in Morocco, sheep in Mauritania and gum Arabic in Sudan).

Most jobs in rural areas, irrespective of urban influence, are related to agriculture. Studies agree that the great majority of family labour consists of temporary or permanent work on farms and in pastoral areas. Labour demand depends partly on product combinations that leverage

the variety and seasonality of the production process (agricultural diversification, constraints of some livestock breeding activities such as dairy) and partly on the practices implemented (level of mechanization, crop-livestock integration, intensification through agro-ecological or agro-chemical processes, collective activities, etc.). Where landholdings are small and lack irrigation, agriculture remains a reservoir of labour for other sectors, thus enabling partial integration into the seasonal labour market (in large-scale holdings, irrigated areas, towns). Small-scale family farming provides a significant portion of family on-farm consumption and highly variable monetary surpluses. Although unattractive, it is a pole of stability for active youth who see it as an option to fall back on if they find themselves unemployed. In some studies (notably from Tunisia), we learn of growing reliance on female labour (casual or permanent) which may be determined by increased multi-activity on the part of men and by a reduction in the population of farmers. Given that manual labour is increasingly less attractive to rural youth, women tend to pay the price and take on an even greater workload.

There are very limited quantified data and indicators in national studies to help illustrate the agro-environmental dimension of small-scale family farming and, as such, no detailed conclusion can be drawn in this regard; however, when small-scale family farmers resort less to input markets (pesticides, fertilizers) than specialized or industrial agriculture, they generally maintain sustainable practices that contribute to agro-biodiversity, as they produce diverse crops and require less chemical inputs. As such, it can be asserted that small-scale family farming has a positive effect on the environment. Nonetheless, the combination of the pressure on land and water resources, and the absence of other sources of income and climate shocks may lead to the overuse of natural resources and less sustainable intensification of small-scale family farming.

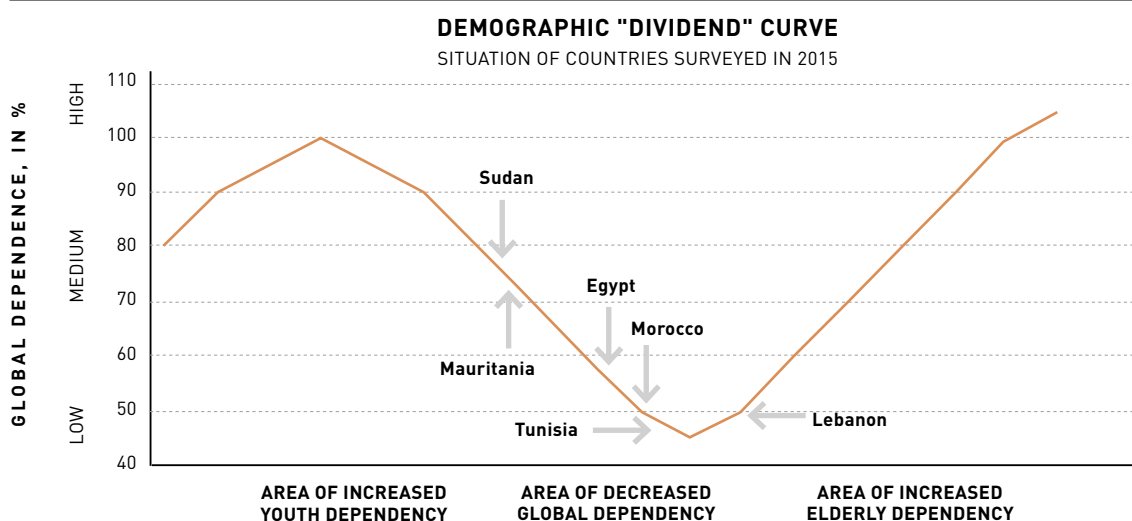
The performance of small-scale family farming largely depends on the environment in which it occurs. Sufficient basic training for the population and agricultural technicians is needed for them to acquire new skills and to encourage professional mobility. Vocational training systems are necessary to enable the farmers to adapt their production and/or food processing practices, or to ensure that young graduates are integrated into the agriculture sector. An advisory-support system is important to renew the technical references and act as a mediator between the various players in the innovation system. Lastly, a pattern of agriculture sectors and food systems well connected to small-scale family farming is indispensable to creating rural jobs in the services sector (supply, marketing, processing, insurance, financing) and to adding value to agricultural and para-agricultural jobs, which will be reinvested in a virtuous dynamic in rural areas. Because of their attachment to the territories, farmers' organizations may play a key role in this dynamic.

Part 3: **The place of agriculture in the demo-economic transition**

A country's agricultural development is closely related to major population trends, as well as to structural changes in the economy and the place of agriculture therein, and to external economic balances. The demographic and economic patterns of the countries under review help to underscore three phenomena:

- Urbanization may be an opportunity as it monetizes food demand. The ability of smaller family holdings to take advantage of this development depends, on the one hand, on their collective organization (to generate economies of scale in marketing) and, on the other hand, on public investments that link local production to urban markets, especially community markets, by providing for transportation infrastructure, physical markets, support for compliance with food safety standards and changes in the supply of processed goods (adapted to changes in eating habits and the services expected by consumers).
- The arrival of youth on the labour market is a massive phenomenon, which each country has its own way of dealing with. In the six countries under review, four million active youth will join the job market in 2025 and five million more will join the job market in 2055. Yet, youth unemployment is already high. Therefore, the issue of decent jobs for youth must be considered an absolute priority. Agriculture can contribute to this through government policies in support of small-scale family farming.

Country positions on the demographic dependence curve (2015)



Source: Authors' calculation, based on Bloom, 2006 and Shediac, 2012

- The performance of these public policies for small-scale family farming is all the more important as most of these countries are already in, or are entering, the demographic dividend (or "bonus") phase, in which the number of non-working-age people who depend on the working-age population is at its lowest (one non-worker to two workers). This period, which is unique in the demographic transition, helps to maximize individual and collective investments in infrastructure and in institutions (notably, retirement schemes and childcare systems that improve the entry of mothers into active life). However, whether a country is entering (Mauritania, Sudan) or exiting (Egypt, Morocco, Tunisia) the demographic dividend phase, public policies should prioritize a number of objectives such as minimising unemployment, labour productivity gains and specialization in innovation. It is therefore necessary to design rural and agricultural development models according to the kind of transition at play. Policies to support small-scale family farming can also contribute to this.

Although agriculture continues to play an important role in the economy of each of the six countries surveyed, its contribution to GDP and employment has dropped. Productivity per hectare of cropland has increased over the past 50 years (particularly in Egypt); but the average number of inhabitants fed by each farmer has not changed much over time despite the increase in the population of these countries; the number of persons fed by each farmer varies significantly between the countries, from 4 persons per farmer in Morocco to 45 in Lebanon.

The greater amount of work required to cultivate a hectare in small-scale holdings, which is characteristic of the Green Revolution, explains why labour productivity did not increase much and why the farmers' remuneration tends to drop compared to in other sectors of the economy, with the notable exception of Lebanon. The decision to focus on high value-added crops made it possible to improve farm income in this country. Agricultural policies may help to guide productivity paths in a different way by prioritising either land or labour productivity.

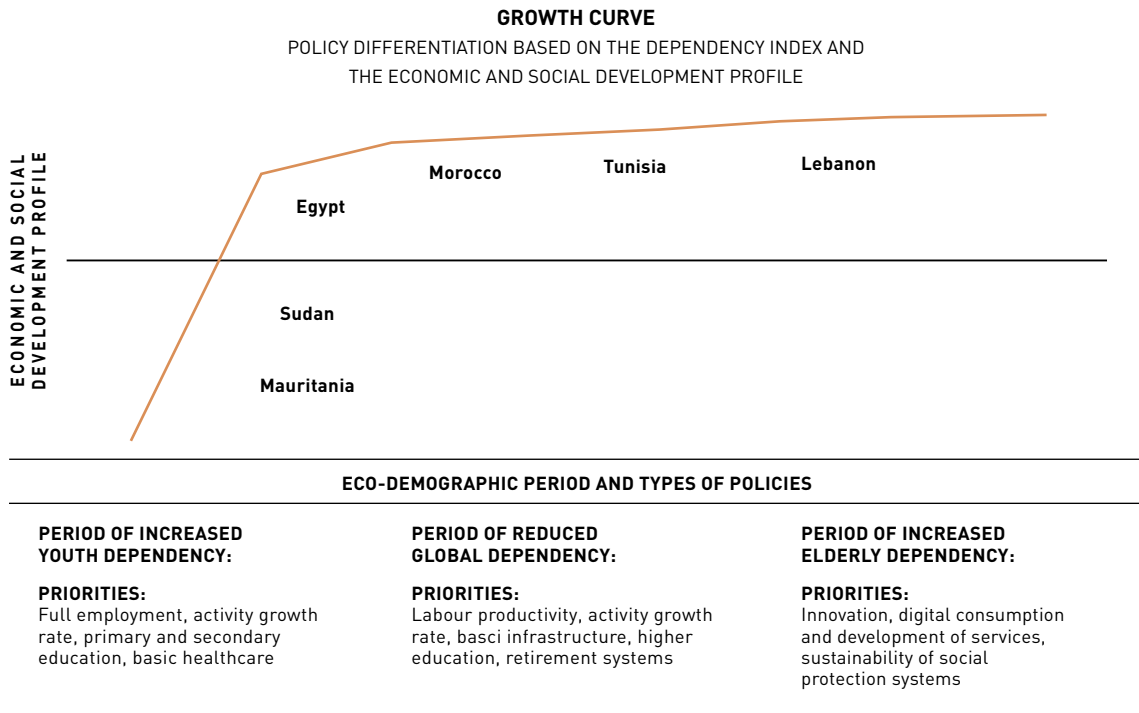
As indicated in the figure on productivity pathways, this issue is paramount if we consider the long-term trend common to the six countries: agriculture's contribution to the added value of the economy falls faster than its share of the labour force; hence, the major challenge of increasing the income of small-scale farmers (which cannot be reduced to merely intensifying land productivity). This challenge becomes even greater as the traditional solution of migration may become more difficult in the decades ahead. Agricultural models should, at least for the time being, encourage multiple sources of income and job diversification in rural areas. To increase the income smallholders earn from their farms, they should explore several avenues, depending on the country: increasing added value by improving marketing conditions for produce (short supply chains, niche markets); using shared mechanization to increase labour productivity; and extensifying, where access to land is not restricted. Territorialization of agricultural policies is no doubt necessary to address the needs of the various forms and areas of production within each country.

Part 4: **Effects of government policies on small-scale family farming**

Because they are quickly being integrated into the global economy, the six countries under review are particularly dependent on the international environment. Changes in production and technical paradigms that accompanied the globalization of economies and trade in the 1960s and 1970s challenged the former political, economic and social order inherited from independence and/or national revolutions. The era of agrarian reforms (in Egypt, Morocco and Tunisia), social reforms and national economic projects was followed by a period of liberal reforms and structural economic adjustments under the leadership of the International Monetary Fund and the World Bank.

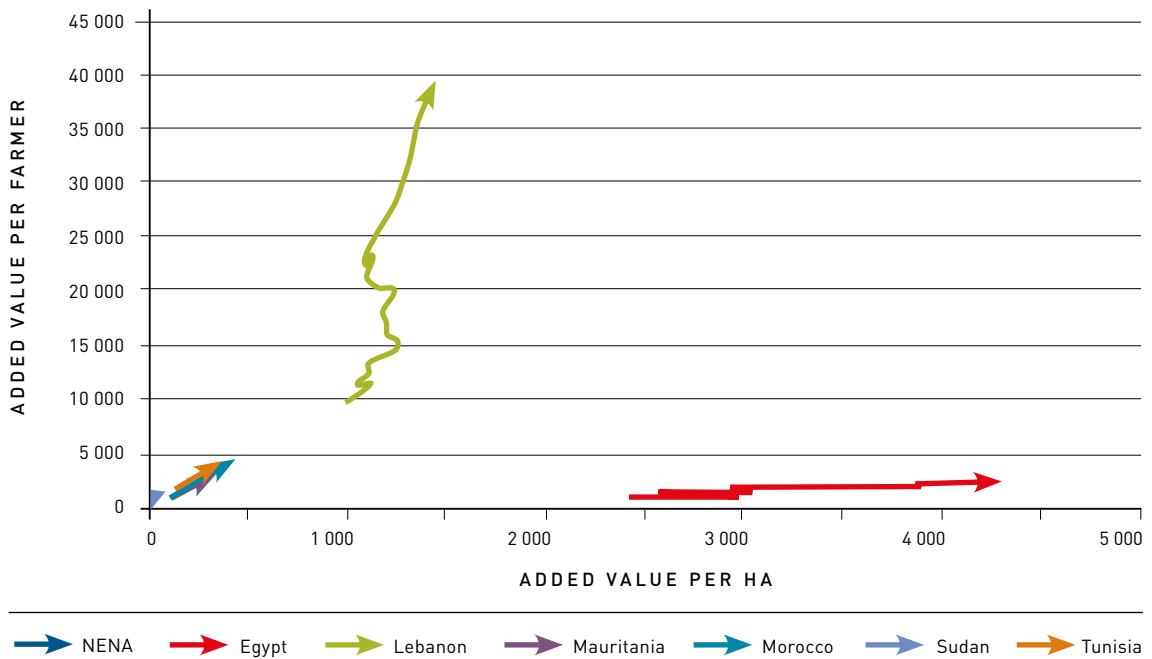
The fragility of macro-economic balances (budget deficits, the balance of trade, the balance of payments, foreign exchange reserves and external debt), which characterized the economies of the majority of the countries under review, forced them to adjust their policies to these new constraints. The global economic and financial crisis of 2007, followed by the food crisis of 2008, compounded the effects of adjustment policies on local economies and societies, which included poverty, food insecurity and deficits in social infrastructure and public services.

Growth Curve: Change in priorities according to the growth curve resulting from the demographic bonus and the level of economic and social development



Source: Authors' adaptation of a concept by Shadiac, 2012

Productivity pathways (1965-2013)



Source: Authors, based on WDI 2015 data



These common characteristics, however, vary according to country-specific constraints and challenges. **Mauritania** and **Sudan** suffer recurrent climatic shocks, especially droughts, which have a significant impact on the relations between nomadic and sedentary people, giving rise to conflicts over resource use (water and rangelands). Climate shocks have also heightened difficulties in small-scale stockbreeding and family farming in rain-fed areas. **Egypt**, **Lebanon** and **Sudan** are facing local and regional community and geopolitical conflicts, which are a source of institutional instability and impact their economies and territories over long periods of time. **Morocco** and **Tunisia** weather economic shocks in their drive to integrate into the trade globalization process. The 2007 economic and financial disruptions and the 2008 food crisis affected the economic growth models put in place in all the countries being studied.

Policies implemented by the governments to address the upheavals resulting from the deterioration of the environmental production framework affected a wide variety of areas (**Mauritania**, **Sudan**). They have had multiple positive effects on family farming through land reform (**Egypt**, **Mauritania**). At the global level, they positively affected agricultural finance (credit), capacity building (vocational training, agricultural extension services), direct public support (agricultural investments) and indirect support (road infrastructure, energy, etc.), the development of crops and livestock, and the introduction of a sector development and farm modernization approach. In **Lebanon**, innovative measures supporting small-scale family farming are diffuse and favour improving the quality of produce. Public policies in **Morocco** and **Tunisia** are based on a revival of investments and the development of strategic alliances with the national and international private sector (public-private partnership). The future of the agricultural and rural sectors is entrusted to private farms and agribusinesses, which are export-oriented, and rural development in the two countries is promoted through social initiatives that aim to improve the living, employment and income-generating conditions of rural households.

Social measures often stem from poverty reduction programmes and aim to improve the livelihoods and living conditions of the population. Public interventions associated with rural development policies (building community infrastructure, improving public services, employment and income-generating programmes, etc.) are another dimension of social policy implemented across the countries. The issue of social protection (social insurance, retirement pensions for small-scale farmers and social assistance) is emerging in a number of countries (Egypt, Lebanon, Morocco, Sudan and Tunisia).

Except for very few differences, the social organization pattern of production identified in the current agricultural policies of the countries under review remains that of the modern agricultural business, which is the target of financial, institutional and technical support. This economic form of agriculture organization receives the bulk of public and private investments, financial support and technical guidance from the governments.

In a context of under-industrialization, low diversification of the economy, technological backwardness and dysfunctional institutions, the continuing concentration of farms, which, on the one hand, further reduces the number of farmers, and, on the other, increases unemployment and rural exodus, entailing major political and social risks. Political conflicts are provoked by agricultural and rural policies that are hardly inclusive and are incapable of addressing the challenges related to issues of social and territorial cohesion. They clearly demonstrate the need to redress the relationship between small-scale family farming and large-scale agriculture.

Part 5: **Main recommendations**

Starting in the 1980s, there was a decline in the interest in agriculture on the part of countries and development partners. However, following the food crisis of 2007-2008, there has been renewed, global interest in the sector driven mainly by concerns regarding food security and supply. During the 2014 International Year of Family Farming, emphasis was placed on this type of agriculture, which mostly involves small-scale farms. It should be noted, however, that most investments and political attention still focus on large-scale capitalistic agriculture. The NENA region is no exception. This study showed that there is a lack of knowledge and little interest in small-scale family farming and that it is poorly supported, except for in some countries where it is addressed from a rural poverty reduction perspective (in Morocco and, partially, in Egypt and Tunisia). Where specific policies are defined, concrete implementation is often problematic due to a lack of resources on the ground.

Yet, almost ten years after the food crisis, not only is food security a major global concern, but also security in general, along with employment, climate change, conflict, and migration caused by deteriorating living conditions, particularly in rural and marginalized areas; the Mediterranean region is particularly beset by these problems. It is, in fact, one of the regions most affected by these phenomena, directly and indirectly, because it hosts migrants from Sahelian Africa and the Middle East whose livelihoods are at risk in their countries.

One of the long-term political responses to these problems is increased support for small-scale family farming and the development of decent livelihoods in rural areas. The idea is no longer only to boost agricultural productivity in order to increase the availability of foodstuffs and foreign exchange through export, but also to provide employment and decent income opportunities to millions in order to avoid internal and external migration, misery, radicalization and conflicts. Reducing rural poverty provides opportunities, not only in terms of food production (on which agricultural policies are most often focussed) but also for creating and maintaining jobs, especially for young people, spatial planning and related environmental services.

National briefing and discussion workshops made it possible to come up with a number of recommendations, which are summarized below in six main areas:

- **Statistical tools, methodologies and evidence to better understand, characterize, measure and represent the contribution of small-scale family farming:** Agricultural policies should be based on regular assessments of the situation and diversity of small-scale family farming in order to define, improve and readjust relevant policies. To do so, it is necessary to better understand small-scale family farming at the national and subnational levels.
- **Institutions (public, private or mixed), governance and public policies:** It is necessary to recognize small-scale farmers and their contributions more fully, including by granting them legal status. A policy mix (agricultural, nutritional, financial, social and tenorial) and measures specifically targeting small-scale family farming should be implemented, building on strong government institutions, stakeholder participation in decision-making, adequate territorial governance and support for small-scale farmers' organizations. The aim is to facilitate small-scale farmers' access to factors of production and to material, natural (namely water and agricultural land), informational, technical and financial resources. Access to resources is a crucial and priority dimension for improving the economic and social status of small-scale farmers. Furthermore, social protection measures in favour of small-scale farmers and their families would reduce poverty and strengthen household resilience. Instruments such as health insurance, workplace insurance, retirement pensions and social safety nets for the most vulnerable (farm owners and their families) should be implemented. Lastly, the emergence and strengthening of small-scale farmer organizations should be supported in order to enhance their competitiveness. They should also be represented in political circles and given a voice. Good territorial governance should involve all local stakeholders in a participatory approach through multi-stakeholder dialogue on decisions concerning their future.
- **Productivity and efficiency of small-scale family farming:** Agricultural productivity issues are generally well covered in agricultural policies, which prioritize this productive function. However, emphasis is placed here on taking into consideration the multi-activity of small-scale family farmers, which will likely distort the figures on their productivity. Therefore, it is recommended that productivity be calculated not by cultivated land area but, rather, by the time spent by small-scale farmers and their families on their holding. A high percentage of small-scale family farmers in the six countries are multi-active. Finally, advisory, research, extension and vocational training systems should be promoted.

- **Sustainable agro-food systems, territoriality, small-scale family farming linkage to markets and sectors (value chains):** Food systems include all players, settings and functions associated with food, from its production to its consumption (agricultural inputs suppliers, farmers, processors, traders, intermediaries, distributors, consumers, etc.). Such systems should be viewed in an integrated manner and supported to enable their sustainable development by adapting to consumer needs and the requirements of markets and distribution systems, and by enhancing their resilience to climate and global changes (urbanization). Territorialized food systems should be promoted as they are likely to maintain a more added value at the local level.
- **Rural employment, professionalization of smallholdings, integration of young farmers and intergenerational transfer of holdings, youth and women's employment, conditions for exiting small-scale family farming:** Rural job creation is key to regional development and poverty alleviation, and also to preventing mass migration. It should be considered from a holistic perspective that targets farm and non-farm employment in order to strengthen the resilience of rural households. The idea is to consider and develop the gamut of small-scale family farmers' livelihoods, given that intensifying agricultural production alone is generally not enough to lift them out of poverty, given the reduced size of their holdings. Job creation should be conducted under conditions that empower youth and women specifically. Policy objectives need to be adapted to the demographic and economic paths of each country and of each region within the country in order to establish the conditions needed to develop small-scale family farming and determine its potential contribution to food security, employment and regional planning. The change in the weight of small-scale family farming should be assessed in light of the structural transition in order to renovate the functions assigned to it by society (source of decent employment; supplier of foreign trade and domestic food security; international competitiveness and land use planning; provider of diversified food and ecosystem services, etc.). Thus, the idea is to design a policy mix adapted to the structural transition phases of the national economy and demography. The productivity of all factors of production (land, capital, and labour) should be taken into account in setting the priorities of agricultural and food policies, with special emphasis on labour productivity, which is a key dimension in the fight against poverty.
- **Strengthening the resilience of small-scale family farming in the face of climate change:** Current food systems should be supported to develop sustainably, first by adapting to consumer needs and market requirements, and second by improving their resilience, particularly with respect to climate change. The objective is two-fold: on the one hand, enhancing the technical and social efficiency of small-scale family farming and, on the other hand, adopting environmentally-friendly practices. Land use methods in areas prone to climate hazards suffer from the effects of erosion, inefficient use of agricultural water, salinization, loss of soil fertility and even desertification.



Introduction

Background, objectives and rationale of the study

The study on small-scale family farming (SSFF) in the Near East and North Africa (NENA) region is part of the FAO regional initiative titled *Sustainable Small-Scale Family Farming in the NENA Region* under strategic objective 3 (SO3) that focuses on reducing rural poverty. It aims to provide a comparative analysis of the definition and place of small-scale family farming in each of the six countries under review (**Egypt, Lebanon, Mauritania, Morocco, Sudan and Tunisia**), their contributions to agricultural economy and rural development, their economic and social roles, as well as the policies and support measures targeting and impacting them.

The end goal of the study is to make recommendations and suggest a policy framework to the FAO to enable it to develop a multi-year (five-year) programme to support and improve the functioning of small-scale family farming, reduce its vulnerability and consolidate its economic, social and environmental functions in the relevant countries.

This study focuses on small-scale family farming (the term ‘small’ is part of debate), extended to encompass the interrelated notion of family farming (which refers to a significant involvement of family members in farm work). Therefore, this report will more generally use the term small-scale family farming.

The study targets smallholders and family farmers engaged in agriculture and livestock breeding. Forest production activities useful to households are also addressed in the study when they relate directly and contribute to the livelihoods of small-scale farmers (agroforestry crops, forest pasturelands, gathering of non-timber forest products such as gum Arabic, etc.).⁴ However, the study does not address aquaculture or fish farming nor does it specifically focus on the forest as a natural resource as these involve a different set of issues altogether (biodiversity, fisheries and timber sectors, bioenergy, etc.). Lastly, where documents and data are available, it introduces the place of off-farm activities⁵ in rural livelihoods.

Initially, the study focussed on five countries (**Egypt, Lebanon, Mauritania, Morocco and Tunisia**). A sixth country, **Sudan**, was subsequently added. Accordingly, the results are presented in the form of six national reports and this overview report, whose authors and contributors are identified in the summary table below.

⁴ Though not the timber sector *sensu stricto*.

⁵ In this report the words “multi-activity” and “off-farm activities” will be used with the same meaning.

In this overview report, reference is regularly made to sections of the national reports and extracts of those reports are incorporated *in extenso* as quotations in italics accompanied by the name of the relevant country.

The study was conducted by CIRAD and CIHEAM-IAMM (research and training organizations⁶ based in Montpellier, France). These organizations coordinated the implementation of the study (see details in Annex 1), in partnership with FAO, which co-financed the study. National teams in each country worked on small-scale family farming under the supervision of national coordinators using the methodology designed by the CIRAD and CIHEAM-IAMM scientific coordinators of the study.

The primary users of the study are FAO offices (national, regional and sub-regional offices and the Headquarters), as well as its member countries (ministries) and their direct partners (development partners, research centres, etc.) in the NENA region. The users of this study may include some of the concluding proposals of the overview in their national action plans, implemented through their usual policy tools. They may initiate additional studies where necessary, reform generic or specific public statistical instruments used in the agriculture sector (general agricultural censuses, surveys, etc.) to better target the recipients of actions and policies, identify research priorities, propose more fitting policies or suggest ways to bolster and support single or collective stakeholders (farmer associations, sector stakeholders, etc.) to contribute to the development of the agriculture sector and the territories. The methodology used may be extended to other countries that were not considered for want of time, given the short duration of the study.

The ultimate beneficiaries of the study are the farmers and their organizations for which new policies will be proposed. These policies will be tailored to their particular characteristics and endogenous transformation dynamics, the structural changes observed in their country or region, and the gamut of policies already under implementation.

Titles and authors of the six national reports and the overview⁷

Title of report	Authors
NENA SSFF study overview, 184 pages (English version report and annexes)	Jacques Marzin, Pascal Bonnet (CIRAD), Omar Bessaoud, Christine Ton Nu (CIHEAM-IAMM), Alfredo Impiglia (FAO)
NENA SSFF national study report, Egypt, 152 pages (report and annexes)	Adel Abounaga (ARC APRI), Ibrahim Siddik (Economist, Menoufia University), Wahed Megahed (Agro-economist, Ain Shams University), Ehab Salah, Sahar Ahmed, Rania M. Nageeb, Dalia Yassin, Mona Abdelzaher, with contributions from Véronique Alary (CIRAD)
NENA SSFF national study report, Lebanon, 96 pages (report and annexes)	Salem Darwich (Agro-economist – Lecturer, Lebanese University), Farah Kanj, Alissar Sayed Ahmad

⁶ CIRAD: The French agricultural research and international cooperation organization working for the sustainable development of tropical and Mediterranean regions. CIHEAM-IAMM: One of four Mediterranean agronomic institutes of the International Centre for Advanced Mediterranean Agronomic Studies.

⁷ In this overview, quotations from the national reports appear in brackets and in italics, followed by the name of the relevant country (e.g. Morocco).

Title of report	Authors
NENA SSFF national study report, Morocco, 96 pages (report and annexes)	Mostafa Errahj (ENA Meknès), with contributions from Younes Bekkar, Issam Sellika Zeine El Ghassem, Patrick Dugué, Nicolas Faysse, Marcel Kuper, Caroline Lejars (CIRAD)
NENA SSFF national study report, Mauritania, 144 pages (report and annexes)	Mohamedine Diop (Sociologist), Saadna Ould Baheida (Economic statistician), Chouaib Ould Abdellahi (Specialist, Sustainable human development)
NENA SSFF national study report, Tunisia, 72 pages (report and annexes)	Mustapha Jouili (Economist, FSEG Nabeul, University of Carthage), Safa Mkacher (FSEG Nabeul, University of Carthage), Abdelhalim Guesmi (Ministry of Agriculture)
NENA SSFF national study report, Sudan, 192 pages (report and annexes)	Mamoun Beheiry (Centre for Economic and Social Studies and Research in Africa), with contributions from Ali Abdel Aziz Salih, Amel Mustafa Mubarek, Elnour Abdalla Elsidig, Elrashied Elimam ELKhidir, Salwa Abdelrahman Hassan, Hassan Mohamed Nur, Salah Mohamed Elawad, Elfatih Shaaeldin

Methodology and common analytical framework

CIRAD and CIHEAM-IAMM presented the proposed methodology and the main thematic dimensions of the study during a workshop held in Cairo from 2 to 3 March 2015, organized by the FAO Regional Office (RNE). The workshop afforded the opportunity to compare the proposals with the FAO strategic framework and the approach of the “*Regional Initiative on Small-Scale Family Farming*”. The workshop also made it possible to gather feedback from the many countries in the region that were represented, validate the proposed approach, select the six countries to be included in the study and finalize the terms of reference and the draft schedule.

A common analytical framework was designed based on the three focus areas presented at the Cairo workshop making it possible to enrich the knowledge and information on small-scale family farming. The three focus areas of the study are summarized as follows:

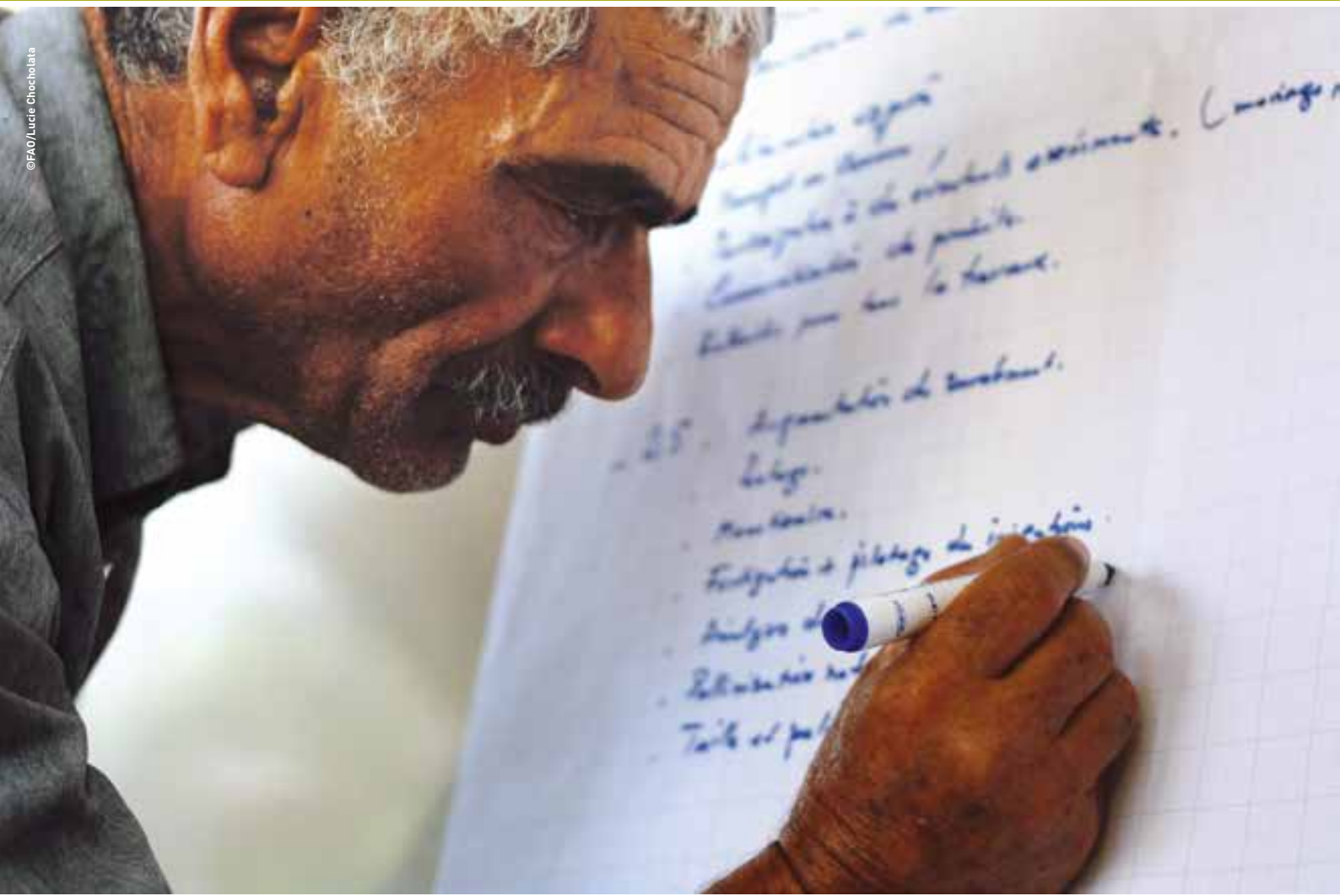
- Review the definitions of small-scale family farming (SSFF); review how the definitions of small-scale family farming are used in policies, the sources of the definitions, recent historical background of the definitions in agricultural studies that were consulted and in public statistics, and review of scientific studies on types and trends of holdings, etc.
- Structural change and its characteristics in the country (macro approach, demographic and employment trends, the place of agriculture in the national economy, etc.).
- Forms and content of policy targeting (or not) small-scale farmers (design, historical background, impact evaluations, if any, etc.).

The data that was gathered was analysed based on these three focus areas and was then used to prepare the national and regional reports. This common framework served as a guide for preparing the national and overview reports following a similar structure. It was also described in the topics discussed during the methodology workshops held in each of the countries with the relevant partners to launch the study.

The resources and the information sources used are detailed in the national reports. These include existing accessible documents as well as interviews with experts on the adaptation of policies targeting small-scale family farming. The information gathered was used to assess the efficiency of this category of farmers and the levels of support they receive, and explore ways of improving the lot of rural youth and women in particular.

Additionally, the national reports contain a few case studies that shed light on the innovations and efficient support mechanisms benefitting small-scale farmers. These case studies are derived from the literature review and from the experiences of the experts consulted. They relate to actions undertaken in projects and programmes implemented by development partners (ministries, NGOs, IFAD, FAO, etc.), and are used to illustrate efforts made to improve the lot of smallholders. Lastly, each country hosted panel and round-table discussions as well as report-back sessions to formally present the study to authorities and national FAO representations.





1

PART ONE

Conceptual framework and typology

NENA country leaders' concerns about small-scale family farming can be explained by various general factors:

- On the one hand, trade liberalization brings the agriculture sectors of different countries with very different levels of productivity and public support into competition with each other, thus making the most fragile of them vulnerable. For instance, a labour productivity ratio of 1:1 000 differentiates rain-fed, fully manual and non-intensive agriculture from the mechanized and production-intensive farms of countries with very favourable agricultural policies (USA, EU, etc.). (Mazoyer, 2001; Bélières *et al.*, 2013).
- On the other hand, current globalization trends do not allow for a carbon-copy replication of the structural transition of national economies, which was marked by a massive shift of workforce from agriculture to industry (such as in England in the nineteenth century and Southern Europe and North America in the twentieth century). The global trend towards urbanization is driven by the growth of the urban informal sector characterized by low labour productivity, poor working conditions and limited remuneration. The pool of labour available for agriculture in a standard structural transition scenario is therefore burdened both by limited agricultural outlet options and constant strong population growth.
- The various factors of production are more or less mobile: whereas capital moves easily, agricultural land cannot be delocalized and migration is more constrained than in the nineteenth century, though demographic challenges are heightened (Murphy, 2012).
- Lastly, globalization in the area of agriculture extends to other sectors (such as trade and transport) and, thus, reduces the farmers' share of the value generated (Rastoin and Gherzi, 2010).

This general framework has a significant impact on the governments that witnessed quite similar developments:

- Income inequalities within countries and ease of capital flows between countries translate into the undercapitalized production structures of small-scale family-based farmers being pitted against national or foreign economic operators capable of leveraging significant private or public funding (Purseigle and Hervieu, 2009). The outcome is a strong divergence of labour productivity, which compounds the difficulties of eradicating poverty among the most underprivileged active population.
- In countries where structural transition is just beginning, industrialization trends that allowed for using unskilled labour are giving way to heavy technological investments involving much automation, thus further reducing opportunities to opt-out for farmers living in poverty. The issue of job creation thus becomes a social and policy emergency that needs to be included in any discussion on the professional training of rural youth.
- Territorial disparities in terms of endowment in natural resources, job opportunities, access to public services and income levels in each country are significant and translate into a great deal of temporary or permanent rural-urban migration and into the emergence of new urban/rural relations, dependent on the geography of each country and on the historical conditions underpinning land development.

Given these contextual shifts, designing policies for small-scale family farming can no longer consist of replicating the agricultural policies of the past century that drove the modernization of agriculture in industrial and emerging countries (Bernstein and Byres 2001). These shifts demand that simultaneous attention be given to: the productivity and substitutability of farm labour, by adapting and adopting technologies (consider the diversity of irrigation technologies); on and off-farm revenue generation, i.e. deriving from other production activities or from services offered on the labour market (Dorin, Hourcade et al., 2013) and, lastly, public investments that allow for improving territorial development (infrastructure), sector competitiveness and the living environment of rural dwellers (amenities) (Fan and Chan-Kang, 2005). Farm types are a key tool in the hands of policymakers to better target specific interventions and improve the desired impact of policies on explicit socio-professional categories and/or on the territories they inhabit as a priority (under the assumption of socio-spatial differentiation, which is most often a reality). Definitions and categories are as numerous and diverse as the methodologies for arriving at them.

Part one of this report attempts to specify (i) the advantages and limits of the concept of small-scale family farming, and (ii) the importance of supplementing this concept with the concept of family farming that best captures the rationalities of smallholders, in order to improve the efficiency of the policies targeting them. It also proposes (i) using an inclusive model that represents the major operational characteristics of small-scale family farming, (ii) enquiring into the capacity of measurement and analytical instruments to capture its complexity, and (iii) providing a complementary vision of the conditions governing land development in the rural and semi-urban regions where small-scale family farming carves out a full and proper role for itself.

1.1 Small-scale family farming: a polysemic concept

1.1.1 Heavy informational path dependence

The definitions of small-scale family farming used in the statistics of the countries under review are vague and the criteria used vary depending on the type of research, the authors and the country (and sometimes the region). National data are sometimes outdated (the last census in Morocco was in 1996) and do not allow development paths to be identified. They often only focus on the agricultural component of smallholders' activities and overlook multi-activity. It is not uncommon to find agricultural holdings described solely by their main production sector or by the main component in their farming system, while secondary production activities and their attendant functions are disregarded. Such a partial vision makes it difficult to understand the rationalities and strategies of smallholders.

There are many reasons for this situation:

- On the one hand, most stakeholders involved in producing statistics and studying agriculture are graduates from agriculture schools. It is therefore logical that production systems and profitability issues should be at the centre of their reflection, to the detriment of more economical or sociological approaches focussing on the functioning of rural households.

There is a path dependency that makes it difficult to produce and analyse new information on agricultural households, their farms, rural territories and agro-food systems. Logically, therefore, most data and statistical indicators available relate to production and yield per unit of surface area or per head of livestock. There is little or no information on the diversity of sources of household incomes, labour productivity is largely unknown, and the levels of final (food) or intermediate on-farm consumption (transfers and internal inputs) or the marketing arrangements are not referenced. As a result, it is very difficult to compare aspects such as labour productivity among different forms of production, the performance of holdings combining different activities or the contribution of small-scale family farming to the country's food security, employment or the development of the territory. We may even say that because of their simplicity, the statistics available introduce a representation bias, as they represent better and thus paradoxically value more highly the specialized monoculture systems over the complex systems of small-scale farmers.

- On the other hand, the structural adjustments made by the countries under review at some point translated into less attention being paid to the production of statistics. The pace of agricultural censuses slowed down, additional annual surveys became rare and the data collected was simplified. Part of the responsibility for generating information was left in the hands of economic operators (exporters, joint-trade organizations, etc.) or administrative officers (management advisors, agricultural extension agents, etc.). As a result, the sources and content of the information collected were fragmented, access to and homogeneity of the information was limited, and, by extension, comparability of the information was also limited.

1.1.2 **The merits of applying the concepts of family farming and inclusive territorial development to maximize the potential of policies to support small-scale family farming**

Although a longstanding practice, the search for global patterns through generic or specific criteria used to differentiate the various forms of agriculture has been taken up again since the International Year of Family Farming in 2014. Based on the premise that it is necessary to target the development policies proposed by the governments and supported by agricultural and rural organizations and institutions, taking into account, as much as possible, the range of different situations and recalling that it is however fanciful or else impossible to provide comprehensive solutions to all types of agricultural holdings (Dobremez *et al.*, 1995), the issue of the “best” definition for some forms of agriculture and their categorization (typology) emerged as an integral part of the policy design and implementation process.

In most countries, it appeared necessary to resort to definitions and differentiations that encompass all or part of the diversity of such holdings (in terms of their structures, their individual or collective operating procedures and their relative performance), and that take account of their environment (context). The diversity of individual situations was therefore addressed based on similarities and relations, and on the main factors explaining such diversity. Besides, the study of the trends and transformations of different forms of agricultural organizations remains key to understanding the changes observed in major regions worldwide

(Van der Ploeg, 2016). What of the Mediterranean region and the Arab world? Whereas most of the recent analytical studies looked at major regions using large datasets (agricultural census, population census, agricultural survey) or did a literature review, the NENA region has lagged behind (Lowder *et al.*, 2016) with studies constrained by the quality (time series), accuracy (criteria and variables, etc.) and relevance (observation unit, variables, etc.) of the data available.

While in some NENA countries, studies have helped to rationalize such elements of inclusive typologies⁸, two-tiered macro-definitions often persist in the region and are used by the majority, even though they do not sufficiently capture the many dynamics and categories in each major type.

In Morocco for instance, we have (i) “*predominantly private and/or public agro-industrial holdings*”; (ii) “*agricultural businesses*” accounting for 875,000 small- and medium-sized holdings, 92 percent of utilized agricultural area (UAA) and 8.1 million people; and (iii) “*social*” agriculture, including 601,000 micro-holdings, that provide very limited farm revenue to the relevant families, accounts for only 8 percent of the utilized agricultural land and 5 percent of the irrigated portion of that land, and about 5.5 million people.”

We were able to identify and use four major sources and related definitions:

- **Conventional macro-definitions** that relate more to the “small-scale family farming” category, and are adopted by government services and financial bodies⁹ within the framework of implementation of agricultural or social policies, in order to reach some targeted categories (number of beneficiaries).
- **Academic definitions**¹⁰ that make reference to stronger conceptualization. A broader scope of study (observation unit), more in-depth study of the operating methods and differentiation factors considered are based on the literature on family farming and place emphasis on the close relationship between the agricultural household (or extended family when several generations are involved), their property and farm business (production system), as well as on the family nature of labour within the holding.
- **Statistical definitions** first promoted by practitioners of agricultural statistics (within ministries and institutes) and based on generic and administrative instruments (censuses and surveys), but also supported by scientists who re-use public data by comparing them with their own research data (*ad hoc* surveys).
- **Definitions furnished by experts**¹¹ working either as freelancers or for institutions, including political institutions.

⁸ Petite Agriculture à Caractère Familial et Social (PACFS), Ministry of Agriculture (2001), Tunisia

⁹ Official categorization specified in government speeches and programmes

¹⁰ By benchmarking academic research

¹¹ In NENA countries under review, through individual interviews with resource persons

1.1.2.1 Which definitions should be used for small-scale family farming and other forms of agriculture?

A definition of family farming should be based on criteria that distinguish this form of agriculture from other forms of organization of agricultural production (definition criteria), as well as criteria that make it possible to describe the diversity of family farms (differentiation criteria). A broad definition was proposed by the FAO during the International Year of Family Farming (IYFF) in 2014¹². 2014 was the motor for new initiatives that continue today (World Rural Forum and IYFF+10¹³, FAO knowledge platform on family farming).

Family farming includes all family-based agricultural activities, and it is linked to several areas of rural development. Family farming is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's.¹⁴

A family farm is generally defined as a production unit where ownership and labour are intimately linked to the family. The interdependence of these three factors, namely land ownership, labour, and the family, engenders even more complex notions related to the transmission of heritage and the reproduction of the farm business. The farm is thus a complex object that embodies various economic, technical, social and cultural realities. We may refer to the book on the topic by Bélières *et al.*, (2014)¹⁵ that proposes a definition involving three major types of holdings (Figure 1):

- **Family Farming** refers to one of the forms of organization of agricultural production and includes holdings that are characterized by organic links between the family and the production unit and by the mobilization of family labour, excluding permanent employees. These links are reflected in the inclusion of the productive capital in the family assets and in the combination of domestic and market and non-market operating logics in processes to assign family labour and for its remuneration, as well as in choices for the distribution of products between final consumption, intermediate inputs consumption, investments and accumulation.
- **Family Business** is made up of holdings that fall within family forms because they have many characteristics in common with them, but what makes it different is the structural use of paid labour. Consequently, the family business refers to forms of organization of agricultural production where the holdings combine family labour and permanent paid

¹² <http://www.fao.org/family-farming-2014/en/>

¹³ <http://www.familyfarmingcampaign.net/en/family-farming/concept>

¹⁴ <http://www.fao.org/family-farming-2014/home/what-is-family-farming/en/>

¹⁵ 2015 for the English version

labour, which introduces the management of wage in the operating of the agricultural holding. The management logic refers to the search for forms of production that allow the remuneration of the permanent employees, the acquisition of inputs in the market sphere, and an overall remuneration of the family labour.

- **Corporate agriculture** refers to forms of organization of agricultural production where the holdings exclusively use paid labour. The operating capital is held by private or public actors who are disconnected from family logics. In this case, there is a disjuncture between family logics and corporate logics, and the corporate side dominates. The payment by salary in the latter is exclusive, with a marked differentiation between the level of skills, hierarchy, and the remuneration between staff.

Figure 1. The three main types of agricultural holdings

	Corporate agriculture	↔	Family farming
	Entrepreneurial forms	Business forms	Family forms
Labour	Exclusively paid employees	Mixed, with permanent employees	Family predominance, no permanent employees
Capital	Shareholders	Family or family association	Family*
Management	Technical	Family/technical	Family
Consumption	N/A	Residual	Informal or status of operator
Legal status	Public limited company or other forms of company	Status of operator, forms of association	Informal or status of operator
Land tenure status	Ownership or indirect formal tenure	Ownership or indirect, formal or informal tenure	

* Including holdings that have very little capital, such as landless holdings

Source: Belières et al., 2014

Various definition and differentiation criteria are proposed in this table. According to this study, it is possible to identify three forms of organization of agriculture, which include agricultural holdings divided up depending on a gradient of situations ranging:

- From the labour criterion: from the exclusive role of family labour in mobilising production factors and their management up to its complete disappearance (no family labour, exclusively salaried workers) in more developed forms of capitalist entrepreneurship.
- From the legal status criterion: from the informal status corresponding to a strictly family or community order to the various formal legal forms (recognized in status through activity thresholds, structure, etc.), through to the recognition of the status of farmer by public policies (subsidies, tax exemptions, retirement pension, etc.).

- From the criterion of use of intermediate inputs or final products deriving from the agricultural holding: from organized autonomy or integrated consumption (intermediate consumption and transfers during the production cycle and final consumption of food and non-food products), to exclusive recourse to the market for supplies of production inputs or foodstuff (that is, passage from a non-commercial order to an exclusively commercial order).

It should be noted that the size (surface area) of holdings is not used as one of the distinctive criteria in this study of Bélières *et al.*, (2015), whereas the “small size” is often wrongly associated with family farming and is too often the source of major comparisons. Indeed, it is considered that *“Mere reference to size as a structural dimension is generally a source of confusion because it masks the functional characteristics and the diversity of practices associated with the development of the same agricultural piece of land. This criterion – used alone – is not discriminatory, as each type of farming includes agricultural holdings with both small and large surface areas, depending on the history of the agrarian systems, the intergenerational methods of transfer, the level of mechanization and the production system”* (Bélières *et al.*, 2015). Conversely, the definitions analysed in the NENA study countries all use the size of the farmland, or of the cattle herd/flock in the case of livestock breeding, as a criterion in the definition of small-scale family farming.

In literature we find definitions of peasantry based on analytical criteria that are quite close to the definitions presented in Figure 1. For Tchayanov (1990), the peasant family is central: *“Our aim is to make an organizational analysis of the economic activity of the peasant family which does not have recourse to hiring an external labour force, which has a certain useable agricultural area, which has its own means of production and which is sometimes obliged to use its labour force for non-agricultural activities.”* [Page 53]. He continues: *“...We understand by economic activity all activities, both agricultural and non-agricultural in their entirety.”*

In some countries studied, such as Lebanon, this social form of agriculture – small-scale family type – is described as *“the very basis of the peasant society which continues to exist in the rural world”*. “Small-scale agricultural holdings” in the NENA region belong exclusively to the last two forms of organization, namely *family farming and family business*, and this dichotomy comes through in most commonly used national definitions. The shared nature of family labour led us to adopt the term small-scale family farming for our study, a term which has henceforth been adopted by a wider community, including FAO.¹⁶ Whether this term is applied to holdings that only use family labour or it is extended to families that employ external temporary labour, the scope of the surveyed population may be restricted or expanded.

1.1.2.2 The merits of defining and differentiating typical profiles of small-scale family holdings based on criteria such as structure, functioning and performance

To go beyond these three major forms of organization of agriculture, we need statistical data and expert knowledge to distinguish between subsets of farm holdings within larger populations. Admittedly, this procedure reveals various types of structures, but most especially

¹⁶ Small-scale family farms <http://www.fao.org/economic/esa/esa-activities/esa-smallholders/smallholders/en/>

various modes of operation, combinations of practices and activities resulting in varying social, economic and environmental performances. An overview of definition criteria used worldwide, resulting from an FAO discussion forum on family farming held in 2014, highlights many dimensions: work, management – organization, size, livelihoods, residence, intergenerational relations, social networks and community, orientation (self-consumption), property, land tenure and land use, family investments, technical and economic efficiency, and the ability to change these, environmental sustainability and forms of transition towards other models (Garner and De la O Campos 2014).

We hold the view that eight major dimensions of the operations of small-scale family farming should be studied to distinguish homogenous subtypes (Sourisseau *et al.*, 2014). Some of these criteria are useful only to differentiate small-scale family farming from other forms of organization (definition criteria), while others are leveraged to describe the diversity of these small-scale family holdings (differentiation criteria) and sub-types. The dimensions are:

1. Access to resources: farmlands and pasturelands, forests, water for irrigation, drinking water for livestock (livestock breeding).
2. Investment capacity.
3. The share and place of on-farm consumption of food in the strategy of the household.
4. The type of integration into upstream and downstream markets and independence from the markets (inputs, outputs), a reflection of transfers within social (households) or technical and economical (production) systems.
5. The level of diversification/specialization of the agricultural activity.
6. Multiple activities and the relative role of agriculture in such systems (farm or non-farm sector).
7. The level of substitution of family labour with physical capital (technology, support mechanization, automation, etc.) and/or paid workers supplementing family labour.
8. The purpose of the activity and strategies for making the agricultural holding perform.

In our study, national reports used the following factors to establish definition and differentiation criteria (see the case of Tunisia in Box 1).

These dimensions are consistent with the proposals made by international initiatives to better define the various forms of agriculture (Cioloş, 2014) and the ongoing transformations in the sector (FAO Data portrait¹⁷, see table 7, and World Agricultural Watch,¹⁸ see Box 2 and Table 8 in Annex 2).

Annex 4 provides a comparison of the main definition and differentiation criteria identified in the national reports related to our study. Thus, based on the results of national studies, some criteria were preferred in certain definitions and typologies.

¹⁷ Data portrait <http://www.fao.org/economic/esa/esa-activities/esa-smallholders/dataportrait/farm-size/en/>

¹⁸ World Agricultural Watch <http://www.worldagricultureswatch.org/>

BOX 1. Definition criteria versus differentiation criteria in Tunisia

“Generally, definition criteria are relatively non-discriminatory within a given category (e.g.: family farming). Hence, these are factors with major points of similarity, such as: the family nature of labour, occasional and temporary recruitment of external labour, the relationship between the household and the farmland (one of heritage rather than commercial), the direct method of use (including of hired land), the management of activities and the approach used for making decisions that fall within the ambit of the family head (identified as the operations manager), in collaboration with his family members (sons, wife, daughters ...).

By contrast differentiation criteria are more discriminatory within a given category (e.g.: small-scale family farming). These are variability factors (in degrees) useful for establishing typical profiles, such as the volume of the other activities of household members whose income contributes to the livelihood and the operation of the holding, the relative importance of on-farm consumption/degree of integration into the market, the contribution of foodstuff to ensuring food security for the household, the transfer and use of agricultural know-how and expertise (generally handed down from generation to generation), the limited integration of households into modern organizations (cooperatives and professional organizations) and the value attached to mutual support, family solidarity and community assistance networks and to confidence-based relations.”

1.2 Limitations of the size-only approach

Recent studies highlight the importance of the “family farms” category (Sourisseau, 2015). However, they also point to the continuity of the size criterion in comparative studies: “*Most of the world’s more than 570 million farms are small and family-run*”, “*small farms (less than 2 ha) operate about 12 percent and family farms about 75 percent of the world’s agricultural land*” (Lowder *et al.*, 2016). In addition, such studies report a general decline of the average size of holdings, thereby raising the question of their survival and of those mechanisms that contribute to building their resilience.

One of the eight characteristics presented in the previous section, namely access to resources, often boils down to access to land (land size criterion). The size reference is historically significant, starting from the dawn of the European Industrial Revolution and the early days of the “Great Transformation” (Polanyi, 1944). Indeed, in the nineteenth century, there was a heated debate on the issue of “small-scale” and “large-scale” agriculture (Augé-Laribé, 1912). Before the Industrial Revolution, labour productivity for both types of agriculture was similar, as the technological gap between them was based only on a more or less intensive use of animal traction. Distinguishing between the two was therefore essentially a matter of politics and of handling the land dimension in terms of land concentration (between aristocrats or ploughmen) and land use methods (direct or indirect - sharecroppers and tenant farmers). Today, this vision continues to structure the debate. Yet, agricultural intensification related to the use of nitrogen fertilizers and, subsequently, motorized mechanization using steam engines, followed by combustion engines, widened the productivity gap between different forms of production. At the time, liberals and socialists defended the salary model and the economies of scale linked to huge capitalist (de Jonnés 1848) or state-owned (Marx 1965; Kautsky *et al.*, 1979) production structures and opposing agrarians that supported the family farming model and self-employment. In the twenty-first century, the issue of access to new

technologies is widening the gap further. However, the fundamental issues of access to resources, notably land, and of the development model, paid or self-employment, remain at the centre stage of the debate.

While the small-scale family farming concept is still predominant, its translation into public policies faces three major obstacles: the small size of the cultivated area leads to very different rationalities and production methods; The concept is contingent upon national or regional production conditions and so it is difficult to compare them with international contexts, and lastly, it may refer to very different indicators depending on whether one is dealing with specialized monoculture or very diversified cropping and livestock breeding systems.

1.2.1 A concept tied to the regional context and ill-suited to determining the scope of small-scale family farming

In some of the countries surveyed, there are minimum criteria for defining an agricultural “holding” that confer recognition and status depending on a certain size, thus already establishing differences in these concepts between countries (Table 1).

Table 1. Minimum criteria associated with the official status of the holding as described in national studies

Country	Farmland (land criterion)	Herd (livestock breeding criterion)
Lebanon	A <i>minimum size</i> criterion is applied to the agricultural holding under Lebanese legislation: “the threshold is 1 000 m ² (1 <i>dn/donum</i>) of fully cultivated surface area (irrigated or dry) or 400 m ² of greenhouse cultivation”. *10 <i>donum</i> [dn] = 1 ha	The minimum <i>number of animals</i> in a livestock farm “includes 1 bovine, 7 sheep, 7 goats and/or 8 beehives”.
Egypt	In 1999-2000, the census stipulated that <i>land-based</i> agricultural holdings must cover a minimum of 87.4 m ² to be considered as such.	In 1999-2000, the census stipulated that <i>landless</i> agricultural holdings are those that include a minimum of one head of cattle, buffalo or camel, or five heads of sheep or goats.

By contrast, definitions that address *sensu stricto* small-scale production structures, as opposed to the others (medium, large), are either absent (Mauritania, Sudan), or proposed at the national level (Egypt, a single land threshold of at least three *feddans*) or based on land structure criteria but tailored to their regional bioclimatic environment and/or technological orientation (Lebanon, Morocco, Tunisia). The additional criterion of the herd size is no longer considered here.

1.2.2 A concept that covers farm holdings with divergent objectives

The reduced size of small-scale production structures generally prompts households or extended families, who do not see themselves as being tied to the land, to search for additional livelihoods off-farm: sale of labour in neighbouring farms or towns, processing of farm produce, handicraft production, or pendular, cyclical or longer-term migration. Contributions from several generations are necessary, including from members of the extended family who may have settled in different locations and generate remittances.

Depending on the size of such families and holdings, the level of off-farm income and existing remittances, various types of rationalities may be identified:

- When remittances or off-farm income are enough to meet minimum monetary needs, the agricultural activity may essentially or exclusively be geared towards self-consumption. The level of income from other activities thus greatly influences the degree of intensification of agricultural production.
- The agricultural dimension of this multi-activity may also be residual or recreational. In urban peripheral areas, it may happen that employment opportunities easily afford sufficient income. In this case, agriculture will be a secondary activity. The small-scale structure therefore becomes a proprietary issue, with any financial investments usually being directed to improving the residence. The rationale here is no longer production but proprietary interests, and aims to generate deferred income for retirement or to build up capital that can be bequeathed to children.
- In situations where off-farm income opportunities are limited (rural areas with low economic diversification), the small-scale structure may be intensive and generate significant agricultural income. Policy-makers and administrative authorities give preference to this type of organization, though it does not represent all small-scale production structures. The main reason is that it corresponds to the ideal-types at the basis of agricultural holdings and historical policies.

Income levels determine investment capacity, a criterion considered in some countries of our study, although most often on the basis of agricultural income alone. In Tunisia,¹⁹ an average annual farm income threshold and an investment capacity threshold were thus used to delineate small-scale family farming in the past. In Morocco, the notion of viability threshold (threshold equivalent to the annual income of two agricultural workers) was enshrined in legislation.²⁰

However, some limits still persist when determining the economic size based exclusively on farm income, but not using a consolidated income that includes the other incomes of agricultural households. It is therefore necessary to supplement these criteria.

¹⁹ “A criterion used to describe the various categories of holdings is based on **investment capacity** and determines the benefits granted to the category. Developed in 1994 by the Support Fund to Agricultural and Fisheries Development (FOSDAP), it was included in the Investment Code to lay down the conditions and modalities governing benefits to farmers and fishermen. [...] *The Investment Code identified three types of farm holdings, including small-scale farms (threshold: 40 000 DT-Tunisian Dinar). The FOSDAP grid also specifies utilized agricultural area ceilings corresponding to required investment levels. [...] The PACFS study by the Ministry of Agriculture uses the average annual income criterion to classify the farms and their capacity to provide guarantees to banks. The study considers as “small-scale” any farm that generated an average annual income not exceeding the 6 000 DT threshold in 2000, [...] and the 10 200 DT threshold in 2014.*”

²⁰ **Viability thresholds**; within irrigated areas, that are extended to rain-fed developed areas (or *Bour*): “The minimum conventional surface area likely to generate annual revenue equal to the salaries of two agricultural workers earning the guaranteed agricultural minimum wage (SMAG) is achieved only by a fraction of the so-called family farms. There are 58 to 99.5 percent of holdings whose surface areas fall below the minimum threshold, depending on the region.” (CGDA (2005). *Situation de l’agriculture marocaine 2005. Dossier: le foncier agricole*, Rabat (Morocco). Ministry of Agriculture, Rural Development and Maritime Fisheries

1.2.3 A concept that may be based on very different indicators and measurement instruments

We note that the statistical systems worldwide have evolved in their characterization of the different “sizes” of production structures:

- Everywhere, the surface area criterion that initially prevailed has now been adopted as allocation criterion (endowment). This easily measurable and controllable criterion has always formed the basis of statistical systems and is built against the general agricultural census, despite the fact that it does not allow for comparing holdings, especially given the degree of fragmentation of lands of equal size.
- As the monetary needs of agricultural households grow, and by extension their market integration, the share of self-consumption tends to drop. Accordingly, the holdings start to be classified into small-scale, medium-scale and large-scale structures based on their turnover, which is a financial performance criterion and requires the adoption of efficient accounting systems. This has been the classification used in the United States for many decades. However, this criterion does not take on-farm consumption into account, which can be significant in small production structures.
- In the European Union, since 2003, holdings are classified based on their size and economic orientation. The latter is assessed using the standard gross production criterion (SGM or ESU in the European Union,²¹ SGP in France²²). This criterion makes it possible to take any on-farm consumption into consideration. The data used for its computation come from monitoring a network of reference farms, which is costly to maintain, but which produces regional accounting standards per production and per level of intensification. Accordingly, it makes it possible to benchmark farms located in different agro-ecological areas with different activities.

RECOMMENDATION

Better document household income and investment capacity. To do this, we need to describe the multi-activity dimension and the relative role of agriculture in various systems of activity (agricultural and complementary incomes) in more depth.

²¹ Standard Gross Margin (SGM) and European Size Units (ESU) are economic size thresholds (in 1 000 EUR) applied by the Commission according to Regulation (EC) 1242/2008 from Year N, http://ec.europa.eu/agriculture/rica/methodology1_en.cfm

²² “SGP standard gross production coefficients represent the value of the potential production per hectare or per head of existing livestock, exclusive of any assistance. They are expressed in Euros. Their value is regionalized when appropriate. Established for Europe, the nomenclature of these coefficients is sometimes quite aggregated. Regarding crop production, SGP coefficients valorize the various crops output per unit of surface area (most often a hectare). In the case of aggregated items, they are calculated at the level of the region as the weighted detailed average coefficient per corresponding surface area. Some highly aggregated coefficients for types of productions that inherently vary greatly, such as fruits and vegetables, should be considered as orders of magnitude. With regard to animal production, the coefficients include the value of secondary production (milk for cows, goats and ewe). The coefficients for livestock do not represent their sales value, but rather their value gain through the year (the increase in stock). In this case, what is valued is the animals present in the farm and not those that shall be effectively sold.” http://www.agreste.agriculture.gouv.fr/IMG/pdf_pbs.pdf

1.3 The importance of stakeholders' motives behind designing and implementing public policies

The efficiency of a public policy depends largely on consistency between the tools used and the *modus operandi*, and the motives and goals of the economic and social stakeholders it is targeted at. It is clear that implementing a measure aimed at small-scale holdings based on the sole criterion of size will affect not only subsistence-based agricultural households but also well-to-do households involved in multiple activities with limited interest in increasing agricultural production, and small-scale farmers integrated into the market. It is also likely that such measures may not be equally efficient for these three types of farms.

Conversely, smallholder-targeted policies that only consider the agricultural dimension will likely not draw on all available levers to help grow the revenues of a population segment that is generally one of the poorest in the countries under study (see Part 2). The living standards of smallholders could also be enhanced by improving the conditions for remittances, instituting government-funded pension mechanisms for older generations, promoting the diversification of farm and off-farm activities, or developing economies of scale through associations or cooperatives. In addition, some policies, such as those relating to pension schemes, may have additional positive effects such as facilitating generational transfer of holdings and land tenure to the children of an ageing generation of farm heads and to rural landless youths.

Therefore, to design policies that support small production structures, we should know them better and define them more accurately, especially in terms of their farm and off-farm dimensions, and their economic and social environment. We should also better integrate their on-going transformations and better represent them at the national level.

We were not able to secure all this information for this study. However, we make thematic recommendations at the end of each major section and summarize the recommendations in Part 5 of this report in order to improve the capacity to analyse the dynamics of these production structures. In addition to the information contained in national reports, the sections that follow analyse some definition and representation biases of small-scale family farming.

1.3.1 Local development and transformation of small-scale family farms in the economic dynamic of territories: what should be taken into account?

It is useful to describe the respective weight and development dynamics of small-scale family farms and their determinants within territories. Apart from the classification of holdings in sub-types based on available statistics, which illustrates the capacity but also the limitations of existing instruments in capturing differences in structure, operations and performance, it is necessary to understand the patterns and development of the holdings.

In fact, small-scale family farms undergo profound changes in the various countries surveyed and some of their characteristics change faster than others. The transitions of the various forms of agriculture are directly related to changes in local and national (and sometimes international) contexts, transformations occurring in these countries (land use planning,

urbanization, migration, structural transition of the economy, conflicts, etc.), the policies implemented and the capacity of small-scale family farms to influence and benefit from these policies through their links to intermediary organizations and their involvement in the policy discussion forums.

Besides, the transformation pathways of small holdings are not independent of the other forms of activity on the territories and so in the same region, there are interactions between the diverse forms of agriculture. For instance, the labour market facilitates exchanges among people coming from small-scale farming households, resulting in transfers of know-how, financial transfers (wages of day-workers) and technology transfers, followed by ownership and adaptation of techniques (innovation). It is therefore necessary not only to characterize agricultural models, but also to describe and understand these transformations, in order to design policies that are consistent with territorial contexts. In Morocco, for example, (see national report): “*Family farming today has undergone structural changes; its functions and its characteristics have evolved greatly. A new paradigm is needed to describe family farming today.*”

In the countries under review, therefore, the trend to localize the concept of small-scale family farming in a way that reflects differences in criteria and thresholds (especially land tenure), depending on the territory considered, is very significant. It is evident that some approximations or limitations relating to land size are not satisfactory for three reasons:

- The agro-ecological potential impacts the assessment of the size and structure of production of an agricultural holding that should constitute the livelihood of a more or less extended family: the same level of income may be generated by cultivating a lesser surface area in an irrigated alluvial plain as can be generated on a larger surface area in a semi-arid steppe. Accordingly, the minimum size needed to generate a given amount of income will vary based on this criterion.
- Similarly, the proximity of consumption markets and possible enhancement of the value of the commodities being sold impacts land tenure, the choice of diversification of agricultural production, market values and the surface areas needed to generate satisfactory income. Frequently, therefore, surface areas around urban centres are generally much smaller than in less populated rural areas.
- Lastly, the activities chosen may require a greater or smaller farming area depending on the duration of the production cycle and the possibility for crop rotation. Market gardening, which permits many crop rotations during the year, requires less acreage to produce the same income as grains. An irrigated area allows for greater productivity than a rain-fed area. (There are three annual harvests of the *Trifolium Alexandrinum* feed crop in the Nile Delta). And, finally, short-cycle off-soil breeding produces much faster than extensive long-cycle transhumance breeding using pastureland.

The relativity of the small size of production structures shows that the complex relationship between size and revenue is non-linear and is influenced by numerous factors, and that comparison (inter-regional and international) may be difficult, thus giving the concept little operational value.

1.3.2 Operational representations weighting the place of small-scale family farms within the territories: accuracy and biases

Once certain definition criteria are established, however imperfect and incomplete they may be, small-scale family farming is generally placed in its national context through representation in national statistics, particularly to capture its geographic extent. In the national reports from the six countries under review, representation of the relative importance of “small holdings” (most often as a percentage of the total number of farms or as a percentage of farmland) that permits their comparison with other forms of agriculture at the national level, is generally expressed through maps and a disaggregation of farm populations based on three factors.

Each country selects these factors from the eight criteria proposed in the previous section and what they consider to be important differs.

- **Factor one:** Allocation of a farm through the partitioning of the country into major homogenous zones/regions from the standpoint of territorial resources.

Table 2 summarizes the forms and qualifiers of regional zoning used in the six studies. The bulk of the zoning is qualitative and based on essentially agronomic (zoo technical) and/or bioclimatic characteristics, thus using the major agrarian systems and the agro-climatic potential as contextual elements of small holdings.

Table 2. **Territorial zoning, geographical attributes of farms and formulae for disaggregating and weighting national statistics**

Lebanon	Tunisia	Morocco	Morocco	Mauritania	Mauritania	Egypt	Sudan
Bioclimatic zoning	Bioclimatic zoning	Zoning into five major “agro-systems” and “favourable and unfavourable zones” dichotomy	Zoning into eight regions of “agro-ecological diversity”	Bioclimatic Zoning	Zoning according to “farming and breeding systems”	Historical zoning to develop the Nile Delta and River and agro-ecological criteria	Zoning of livelihoods (poverty, wellbeing), combining geographic and agrarian criteria

That said, no zoning reflects the potential and economic amenities related, for instance, to market proximity or to employment, although they are key factors of multi-activity. One zoning system (Sudan) makes reference to livelihoods, but remains essentially agrarian.

- **Second factor:** Allocation of a farm depending on categories of access to agricultural water resources.

National studies distinguish three major categories of access to agricultural water, which reflect the type of resource, the access gradient and the production systems attached to them: rainfall system, irrigation system, mixed system including supplemental irrigation. A nomenclature of technological sub-categories may be fine-tuned based mainly on irrigation practices and equipment used.

- **Third factor:** Allocation of a farm depending on categories of access to land resources.

The land criterion widely used in NENA countries and the critical issue of size already discussed come into play here. The countries distinguish classes of surface areas and select a minimum critical size for “small” scale agriculture based on national thresholds that are either fixed (throughout the country) or vary depending on the area and/or the method of accessing water. The landless are variously represented in this case. In **Tunisia**, four classes of fixed surface areas were considered by the authors for the entire territory: M1 (0-5 ha), M2 (5-10 ha), M3 (10-50 ha) and M4 (above 50 ha).

In **Morocco**,²³ there are differences in the size thresholds proposed for different zones and agro-systems divided into three major types and six sub-types: large farms of more than 50 ha in the rain-fed area (*bour*) and more than 20 ha in the irrigated area; small and medium-sized holdings (SMEs) of 3 to 50 ha *bour* and 1 to 20 ha in irrigated areas and micro-holdings of less than 3 ha *bour* and 1 ha in irrigated areas.

In **Lebanon**, only one class is considered to be “small-scale family farming” (less than 10 *donum* [dn]), an intermediate class (10 to 200 dn) and large holdings (over 200 dn).

Egypt accepts only one generic and administratively-defined threshold for small-scale family farming (less than 3 *feddans*), which was determined in reference to an exemption from land tax below this limit.²⁴ However, experts in this country also admit that, depending on the region, there are differences in average land characteristics between holdings located in historical old reclaimed lands (ORLs) at the centre of the Delta (considered small when covering less than 5 *feddans*), new reclaimed lands (NRLs) on the fringes of the Delta (considered small when covering less than 20 *feddans*), farmlands of the Nile Valley, and steppes and deserts endowed with oases.²⁵

These representations based on weighting the place of small-scale family farming are detailed in national agricultural statistics and they greatly influence public policies and policy-makers in their strategic choices to support one region or another, or target groups of beneficiaries. They are a direct corollary of the more or less extended definition criteria used upstream.

In **Tunisia** (see Table 3), based on a relatively significant number of definition factors (size and access to water as well as criteria of agricultural income, investment capacity, family labour and purpose), we arrive at quite an operational disaggregation of the holdings covered by the census, which distinguishes a subset of “small-scale family farming” within the national agricultural population per sub-region.

²³ Between 1974 and 1996, when the last census was conducted, the number of very large farms in Morocco nearly tripled while the number of landless farmers dropped by a factor of three.

²⁴ This allows for a general approximation that leads one to think that since the majority of farmers are smallholders, almost all the production or agricultural jobs in the country would relate to small-scale family farming.

²⁵ The share of rain-fed agriculture in arid and oasis areas is not elaborated upon, as most of the diagnosis is focused on the Nile Delta and Nile Valley systems.

Table 3. Area of “small-scale family farms” (shaded in grey) in Tunisia based on a mix of factors

BIOCLIMATIC STATE	RAIN-FED				MIXED				IRRIGATED				TOTAL
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	
HSH	■	■			■				■				
SAS	■	■			■				■	■			
SAI	■	■	■		■	■			■				
AS	■	■	■		■	■			■	■			
AI	■	■	■	■	■	■	■		■	■			
SAH									■				
TOTAL													

Note: Numerical aspects have been erased to leave just the structure effect.
(See the quantified originals in the Tunisia report.)

Source: Tunisia report, positioning of the family farms subset considered as small on the basis of such criteria as main technologies and access to water, four classes of land potential (M1, M2, M3 and M4), investment capacity (40,000 DT threshold) and annual average revenue (10,200 DT threshold in 2014) in the country’s Humid and Sub-humid (HSH), Upper Semi-Arid (SAS), Lower Semi-Arid (SAI), Upper Arid (AS), Lower Arid (AI) and Saharan (SAH) bioclimatic strata.

Such mapping highlights a contribution to land occupancy. It makes it possible to weight small-scale family farming areas and to envisage different site-specific policies. In fact, by using these charts, policies may be targeted at either a bioclimatic set (rows) or an agro-technical subset (columns), while ensuring that a high percentage of small-scale family farming (socio-economic subset) is represented therein. Or, a combination of both can be targeted through decentralized actions. Indeed, depending on the zone, determining the form of support for agricultural risk management and actions to reduce socioeconomic vulnerability (in the face of climate change in arid areas for instance) takes precedence over the issue of production potential, while in other territories, it is the development of such potential (through irrigation, etc.) that is at stake; both entail different types of support.

By contrast, any representation bias for this type of chart may derail policy from its target and undermine its efficiency. Definitions and representations of small-scale family farming are therefore intimately related. In the sections that follow, we will recommend supplementing these representations so as to better target policies that transcend bioclimatic areas.

1.4 The importance of scale, models, instruments and more appropriate methods of analysis for understanding and supporting the dynamics of small-scale family farming

National reports underscore the importance of “*Having a better overview (appropriate census and qualification) of this type of agriculture through a better characterization and more appropriate terminology. The challenge is not solely semantic, but also denotes a requirement of accuracy that makes it possible to better target public policies.*” (Morocco report).

1.4.1 Choosing a suitable observation unit: the extended family or the agricultural household

As previously highlighted, in terms of policy and operational efficiency, the information captured will differ whether we consider the extended family, the agricultural household (nuclear family) and its “system of activity” or the technical system of agricultural production *sensu stricto* (including stockbreeding). When discussing small-scale family farming or family businesses, most authors recommend taking the household unit into account as a reflection of family logic and the gamut of activities and revenue generated by members of the family.

Indeed, in a context where multi-activity is highly developed, it would be advisable to take into account the operation of the household system when estimating overall revenue deriving from farm and off-farm activities. This somehow represents an investment capacity and better situates households as regards the poverty line than mere agricultural revenue does. This proposal requires a profound knowledge and better appreciation of the relative amount of time allocated to the activities and labour productivity in light of the double time spent working on and off the farm. Indeed, a great share of these activities is often temporary (service or paid part-time work) and cyclical (seasonality), and their distribution within households varies greatly.

1.4.2 Design the knowledge system on the basis of a “structure-functioning-performance” conceptual model so as to better distinguish small-scale family farming sub-types

Providing greater clarity to diagnose and understand types of agriculture and on-going transformations also raises the question of suitable models to represent and present the *modus operandi* of small holdings as well as on-going transformations to policy-makers. Such models are the pillars of a “system of indicators”²⁶ that makes it easier to design statistical instruments to diagnose and evaluate policy impacts (to support transformation processes and reduce vulnerability).

It is useful to propose a unifying model that can guide the establishment or validation of new measurement instruments and promote new (multi-dimensional) methods of analysis as the basis for improving agricultural statistics. It will also be necessary to conduct specific studies that can better capture on-going transitions and innovations. Such a conceptual framework should pinpoint major analytical dimensions and the sets of variables to be taken on board through a systemic vision of agricultural households (microeconomic level) and of the territories surveyed (geographical level). Such an inclusive model should also address the key dimensions of the operations of agricultural households, i.e. components of structure, practices (activities, functioning) and performance at the social, economic and environmental levels.

Once these components are translated into qualitative and quantitative variables, it will be possible to determine their degree of homogeneity or heterogeneity (statistical variability) within a population of agricultural holdings or within a territory. A statistical dispersion of some variables illustrates diversity and is a source of differentiation between various subsets, which may differ from those contemplated in policies.

²⁶ A system of indicators, i.e. one that contains indicators designed through a combination of qualitative variables and quantitative metrics capable of representing the components thereof.

Accordingly, national studies reveal that in light of the working conditions on small-scale family farms, the majority of respondents are engaged in family labour (the dominant, homogenous mode). By contrast, criteria aiming to further describe time spent working in agricultural and its distribution between men and women, or the respective time devoted to farm work and off-farm activities (namely attending to the family in the case of women), tend to show marked differences and should be paid greater attention. Yet, such data is currently unavailable, which is a key issue for the reform of agricultural statistical instruments and the gender disaggregation of certain statistics (FAO WCA, 2015).

Table 4. **Structure-functioning-performance (SFP) model, a detailed conceptual framework**

	STRUCTURE (scale, household and territory)		Activities / FUNCTIONING / Strategies		PERFORMANCE Sustainability
Context, trends and determinants	Capabilities Access permitted by ... Livelihoods framework (capital)		Result of the combination of the different factors...		Impacts on sustainability
National & international context and trends	Social relations	Five tangible and intangible forms of capital: natural, financial, physical, human, social	Natural resource-based activities	Livelihoods Strategies	Social and human sustainability
Local context & trends	Institutions		Non natural resource-based activities		Economic sustainability
Shocks	Organizations		Environmental sustainability		

Source: Sourisseau *et al.*, 2012, from Chambers R., Conway G. [1991] and Scoones I. [2009]

Details of the conceptual model presented above in Table 4 are provided in Annex 3. The model draws from the framework for livelihood analysis (*Sustainable Rural Livelihood*, Chambers *et al.*, 1991) which it supplements by introducing the notions of capability and sustainability and by incorporating aspects of contextual (territorial, policy) analysis (Sourisseau *et al.*, 2012). It enables an underlying system of indicators and variables to be developed based on the SFP components, (namely structure, functioning and performance) that can sustain a knowledge system and be used to design measurement and qualification instruments. As regards the NENA national studies, some of the proposed SFP model can already be prepared using available expertise and data. However, in order to gather information for some of the components it will be necessary to adapt or modify data collection methods and/or analytical instruments, as well as compare even more diversified sources of information.

This model is in line with the FAO objective to design a system of indicators (Rural Livelihood Monitor [RLM] initiative) based on the dimensions of social capital (community organizations), natural capital (access to land, water, etc.), information and knowledge capital (know-how, including marketing, techniques, inputs, etc.), physical capital (access to infrastructure, services and loans), human capital (access to employment, multi-activity), and access to social protection (assistance) and to risk management and reduction arrangements (insurance, etc.).

RECOMMENDATIONS

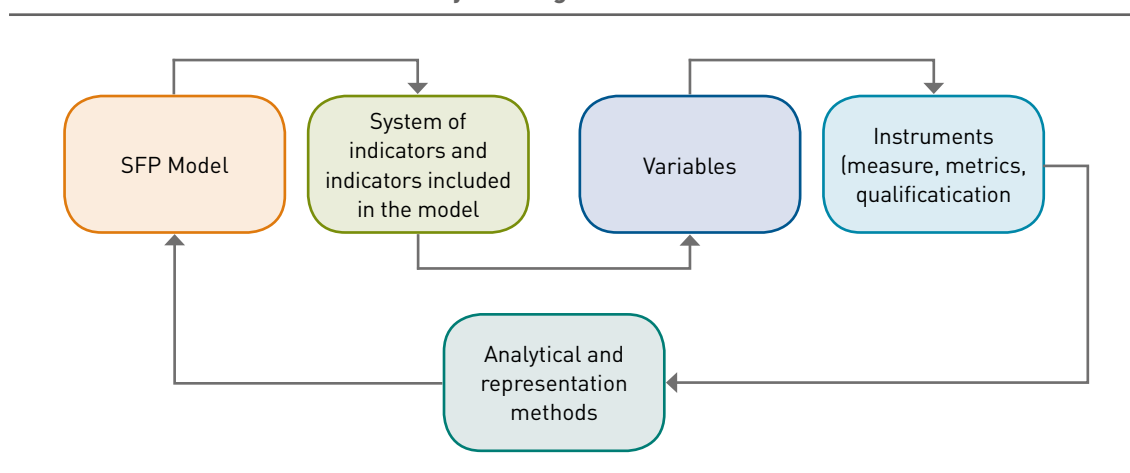
1. Use an SFP-type conceptual model to derive a system of indicators for the operations of small-scale family farming and agricultural families.
2. Boost the production of certain SFP model indicators on agricultural labour and employment: the duration of agricultural labour (one of the keys to calculating labour productivity) and its distribution within the family, between men and women, and depending on the various crop and breeding categories; and the duration and level of remuneration of off-farm temporary labour associated with multi-activity (one of the keys to calculating consolidated household revenue and labour productivity).

1.4.3 Adapting measurement and qualification instruments, analytical and representation methods in information chains

1.4.3.1 Adapting data collection instruments, measured indicators

In order to do a proper description and analysis of agricultural households involves looking at the information chain (Figure 2) and efficient, multifaceted and complementary statistical instruments for collecting the range of data necessary to better understand these units, their structure, their *modus operandi* and their economic and social (employment and revenue) as well as environmental performance (agro-environmental practices, impact on resources, etc.); all these come together to form a representation in the relevant categories that can then be used to formulate policies targeting specific small-scale family farming types, territories or commodity chains. In this regard, the reforms rolled out to further integrate the various tools into a coherent statistical system are laudable (FAO 2015, *World Programme for the Census of Agriculture 2020*, page 4 and Pillar 2 of the *Global Strategy to Improve Agricultural and Rural Statistics*, The World Bank, 2010).

Figure 2. **Information chain (workflow) designed based on the SFP conceptual operating model of small-scale family farming**



The range of instruments that are useful for the region being surveyed is broad and covers both purely agricultural domains (agricultural censuses, intercensal surveys, monitoring of reference farms, etc.) and social domains (household, consumption and health surveys, etc.). The challenge for small-scale family farming today is to be considered a category that includes these systems of analysis and management tools. In our study on the NENA region, national experts mainly used statistical sources of agricultural censuses or major agricultural surveys (see Table 5). In so doing, however, they had to address various issues: lack of primary data and difficult access to and use of secondary data and indicators available on certain themes (social and gender aspects, employment, etc.), limited availability of long time-series data and difficult access to other sources in the short time available for the study (research, public statistics, data of farmer organizations and subsectors, etc.). Yet, access to diversified sources of information is necessary to address the complexity of this type of agriculture. It is therefore key to continue to develop national and regional portals for accessing data and indicators pertaining to small-scale family farming (FAO data portrait²⁷ for instance).

Actions taken under the *Global strategy on agricultural and rural statistics (GSARS)*²⁸ aim to enhance existing tools and promote new instruments. Recently, adapted household surveys referred to as *Living standard monitoring studies (LSMS-ISA)*²⁹ to integrate several topics into the survey to describe the functioning of family holdings more efficiently, by linking their agricultural and social logics thereby producing more effective tools to capture the peculiarity of households engaged in family agriculture and other activities off-farm. The *FAO Rural Livelihood Monitor (RLM)*³⁰ initiative aims to provide, within the framework of a knowledge platform and a micro-data warehouse, standardized indicators derived from primary data from major statistical instruments (household surveys, censuses, etc.). In addition, the *Agricultural Integrated Survey (AGRIS)* initiative, which deals with annual intercensal agricultural surveys, maintains the LSMS-ISA approach and should make it possible to complete those agricultural censuses that are too widely spaced in time by using micro-data generated from annual thematic survey modules. Other initiatives were rolled out in a bid to further understand the livestock sector, which is key to small-scale family farming (LDI)³¹. These initiatives are headed in the right direction, as most meta-analyses in this area are hindered by the lack of diversified sources (Lowder *et al.*, 2016), and the availability of the latter would allow for further studies.

²⁷ <http://www.fao.org/economic/esa/esa-activities/esa-smallholders/dataportrait/en/>

²⁸ <http://www.fao.org/economic/ess/ess-wca/en/>

²⁹ Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)
<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTLSMS/0,,contentMDK:23633503~pagePK:64168445~piPK:64168309~theSitePK:3358997,00.html>

³⁰ RLM suggests developing nine groups of indicators: employment, health and education, land tenure and natural resources, livestock breeding, infrastructure and services, inputs and technology, revenue, productivity and inequalities, social protection, community patterns, household patterns.

³¹ LDI - Livestock Data Initiative

Table 5. Statistical instruments and methods used in the NENA region

Processes and statistical instruments	Lebanon	Morocco	Egypt	Sudan	Tunisia	Mauritania
General agricultural censuses	1999-2010	2 nd general agricultural census 1996	1990-2000-2010	2008		
Censuses of agricultural commodity chains		Vineyards citrus fruits & fruit tree plantations		1975 last livestock census		General livestock census (pending) Oasis census in 2012-2013 Survey of date palms
General population census				2008	RGPH Recensement Général sur la Population et l'Emploi 2014, INS Institut National Statistique 2012 population	2013
Other surveys	2001-2009		2004-2005 Household Income, Expenditure, and Consumption Survey	2009 National Baseline Household Survey		Permanent survey on household living conditions 2014
Agricultural surveys (research, intercensal, etc.)				1979 Agriculture sector Survey	Survey on the structure of agricultural holdings (ESEA) 1994-1995 /2004-2005	
Stratification of the national territory (various criteria)	X	X	X	X	X	X
Sampling including stratified based on categories (types) (in case of surveys)	NS	NS	NS	NS	NS	NS
Land register, digital graphical land parcels registration (land information system, GIS)	NS	NS	NS	NS	NS	NS
Sampling lists (baseline), random sampling in case of surveys	NS	NS	NS	NS	NS	NS
Results aggregated based on aggregation criteria (major types, zones, commodity chains, etc.)	X	X	X	X	X	X

NS: not specified in NENA national studies

X: Yes

The investment required varies greatly depending on the data collected and the complexity of the indicators being used. Beyond the deployment of new instruments, which illustrates the need to study the functioning of the extended family (family community) and the agricultural household (nuclear family), it is clear that focusing on the size of the holding is no longer sufficient to design public policies but also that estimating the economic size of a holding or of a household will be far more expensive and complex.

Thematic and systematic monitoring of holdings through a network of reference farms, trajectories (path) studies using qualitative interviews and intercensal surveys make it possible to better appreciate the multi-year pathways of holdings and changes to them, although the emphasis is still placed on production economics and less on their variables and social functions. Hence the need to document changes in profile and type within a given timeframe through intensification/extensification and diversification/specialization processes, as well as increased recourse to off-farm income, etc. There is a wealth of scientific research in this area (Ryschawy *et al.*, 2013), although these approaches seem to be less developed in the NENA region.

1.4.3.1.1 Alternative or complementary approaches based on case studies

As mentioned in some of the national reports, even improved and integrated national statistics do not suffice to describe all the hybrid settings of the various forms of agriculture and to keep track of on-going innovations.

In Morocco, “*The categorisation and formalization of national statistics does not make it possible to capture all the forms of arrangements and “tinkering” deployed by small-scale family farming to build its sustainability and access various forms of resources (water, land, innovation, etc.). Case studies on such arrangements and innovation systems aptly prove our case and remind us of the need to redefine our instruments and rescale our statistical surveys and analyses.*”

1.4.3.1.2 Developing sampling strategies that are more suited to farmers and territorial resources

General agricultural censuses used in the majority of national studies cover the whole sector and territory, but are costly and repeated after long time intervals (every 10 years), and do not capture the subtle dynamic and rapid transformations occurring in small-scale family farming. Other instruments (intercensal surveys, household surveys, research surveys, etc.) are more flexible but require representativeness of the main forms of agriculture in use at that time, or the capacity to detect innovating processes (transformations)³². These instruments are far cheaper than censuses as an appropriate level of sampling may enable representation of the phenomena surveyed. However, in order to improve these other instruments and ensure proper use of the results they yield (interpretation), the local context of agricultural households should be adequately accounted for and sampling processes may be adapted to represent the

³² Some approaches attempt to capture the diversity of systems and are not interested in representative sampling. Instead, they aim to detect such diversity in order to identify and pinpoint innovative systems, which illustrate a shift in the forms of production or decision (transition theory).

range of small-scale family farming, which is often unevenly distributed across the national territory. In fact, to make good use of the statistics and information needed to design more appropriate policies, how does one target the various types of agricultural holdings and their sub-types, as well as the diversity of territories (proximity issue) that contribute to their endowments and where they interact with each other and with other economic sectors? Various improvement options are feasible.

With up-to-date lists of holdings (sampling frame) and geographic information systems for graphical land parcel registration (land registers), it is possible to proceed with random and equiprobable sampling. One may also wish to represent particular strata of the territory or specific population groups and carry out a proportional selection depending on these zones or groups.³³ In fact, some national studies show that small-scale family farming is rooted in some particular bioclimatic territories. This makes it possible to avoid a selection bias when territories or systems are highly differentiated and require, for instance, pastoral zones and holdings to be represented. Opting to stratify or not based on such criteria is left in the hands of the statistician and depends on the country, but its outcome is not neutral.

In any case, geographical patterns should be captured as attributes in small-scale family farming survey protocols.

We have little information about the survey and census protocols used as information sources for national studies but we can make some methodological recommendations. To better represent small agricultural households, a sampling strategy tailored to small-scale family farming should be explained and the choices justified. The institution of parcel registers associated with lists of farms should first and foremost provide a statistical basis and a “parent population” of agricultural households for random sampling. In addition, we may develop stratified sampling plans on the basis of relevant territories (agro-ecological and mostly economic zoning). Indeed, to integrate this dimension of available and accessible territorial resources, observation units (farms, households) may be selected during the surveys based on contextual factors that predetermine their functioning and structure, as well as the activities they implement. Such factors may be bioclimatic, socioeconomic (existence of markets and commodity chains) social (presence of intermediation organization)³⁴ and geographical (rural, urban). Annex 6 describes more suitable types of zoning for integrating these territorial resources and allocations when working on multi-active households and on off-farm employment.

³³ The stratified sample would therefore have the same farms-inhabitants ratio in the areas/groups under consideration as the total population.

³⁴ See Box 2 of Morocco report: “Arrangements for harnessing groundwater in Tadla”

RECOMMENDATIONS

1. Diversify sources of information and formulate an open data policy for socioeconomic and agronomic data (open data OD)³⁵ to grant access to different survey data and indicators of farm operation, and promote fertile³⁶ re-use of such data sets.
2. Prioritize surveys over expensive censuses and give more value to stratified survey sampling protocols based on zoning that highlights the socioeconomic (employment base), agronomic and bioclimatic (agro-ecological zoning) potential of territories, especially in highly urbanized countries and where multi-activity seems to be increasing.
3. Propose that the NENA countries that are the focus of the regional initiative be candidates for piloting the new protocols and survey questionnaires prepared by FAO (especially new generation agricultural census, Agris surveys) and inform data and indicator access portals (RLM, data portrait)³⁷ in order to benefit from on-going investments.
4. Supplement the agricultural statistics tool-kit with case studies and monitoring of reference farm networks, especially to obtain some accounting references (economic size) and to analyse the change curve of small-scale family farming.

1.4.3.1.3 Mainstream multivariate analysis methods as well as typologies to better differentiate sub-categories of small-scale family farming

In the sources used for national studies, very simple categories of agricultural holdings are derived from mono or bivariate analyses, most often using structural criteria as discussed in previous sections. This places significant constraints on the capacity to analyse the various and often very diverse types of small-scale family farming studied, as opposed to the standardized forms of agri-business and industrial agriculture, and introduces a representation bias. Yet, without a clear representation of small-scale family farming and its subsets, few countries are in a position to develop a specific policy-making approach or a “precision³⁸ agricultural and social policy”, since agricultural support policies are general in their scope and at best two-pronged as in Morocco, where two differentiated portfolios co-exist (following the example of Brazil). The determination of types will enable the state or intermediary organizations to deploy targeted specific support.

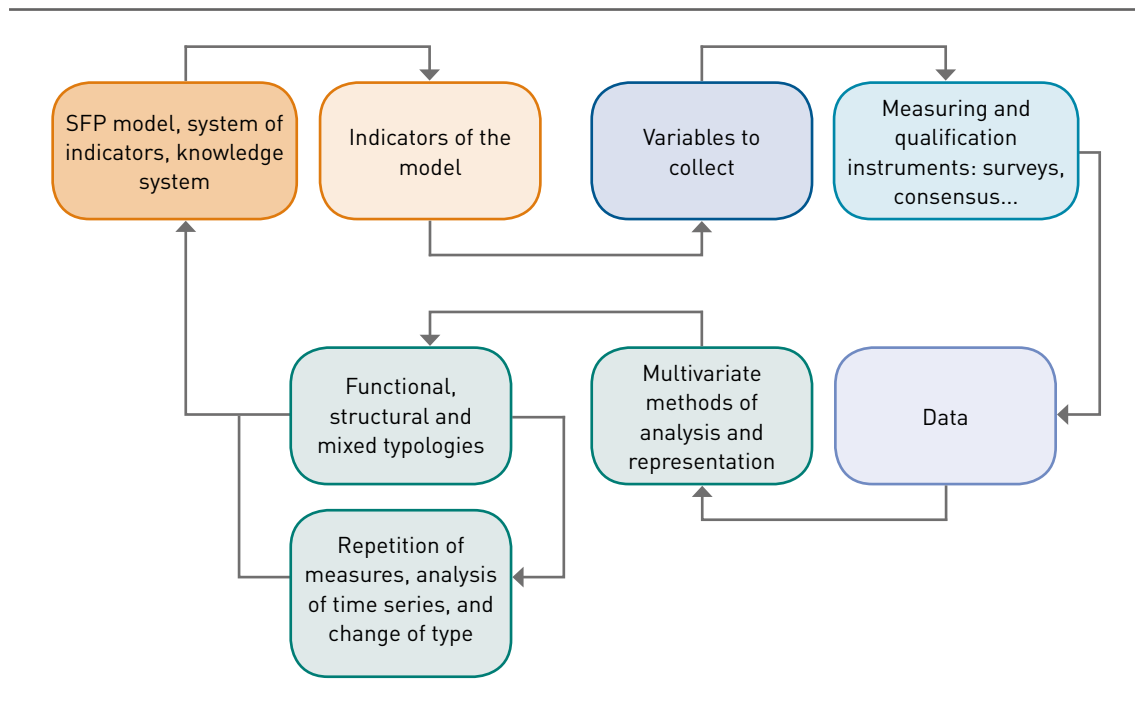
³⁵ In the NENA region, some countries like Egypt and Morocco have developed an Open Data policy for public data: <http://adp.ihsn.org/country-activities>, <http://www.erfdataportal.com/index.php/catalog>, <http://adp.ihsn.org/node/1494>, <http://www.censusinfo.capmas.gov.eg/Metadata-ar-v4.2/index.php/catalog>, <http://www.data.gov.ma/en>

³⁶ The Ruralstruct Programme, for instance, affords the possibility to re-use research data <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:21079721~pagePK:146736~piPK:146830~theSitePK:258644,00.html>

³⁷ <http://www.fao.org/economic/esa/esa-activities/esa-smallholders/dataportrait/en/>

³⁸ To paraphrase precision agriculture

Figure 3. **Information supply chain representing small-scale family farming sub-types and pathways**



In order to expand the information chain and develop policies that are more specifically tailored to subsets of small-scale family farming, several elements are key, including some already discussed in the preceding sections (Figure 3). First, the choice of the right scale, that is, the observation unit (the statistical individual) that should delimit the system of activity (agricultural household or extended family) where the technical agricultural sub-system is nested. Second, assessment of the critical role of some very discriminating variables and indicators that differentiate small-scale family farming sub-types. Better understanding of the diversity of small-scale family farming will also require collecting additional data in order to cover the entire SFP model. Some variables are considered as key to differentiation, but are not sufficiently measured. It is important to place greater emphasis on collecting them and two fields should be especially developed in this regard: agricultural labour and temporary or permanent labour associated with multi-activity.

Lastly, understanding and representing this diversity requires adapting data processing methods. National studies show that there is a short supply of multivariate methods for processing censuses and surveys. Most results barely take into account both differing dimensions and variables.

Countries should enhance their know-how so as to scale up multivariate statistical methods (factor analysis, Lebart *et al.*, 1995) applied to major data sets with N individuals (observation units, households) and P quantitative or qualitative variables (ordinal or not) describing certain aspects of structure, functioning and performance. Multivariate methods constitute part of the appropriate statistical know-how and should be used more often, which in turn raises the issue of developing training for analysts on these methods.

In addition, it would be necessary to develop functional typologies. Indeed, most standard profiles and/or sub-categories are designed based on different sets of variables (descriptors) depending on whether one prefers a structural typology including robust though very static variables (little change in the short term), or operational variables that prioritize a functional and dynamic typology and address the activities of households and their production systems in a combined manner. Annex 7 describes in greater detail these methodological issues and illustrates forms of mixed typologies (Figure 30).

RECOMMENDATIONS

1. Encourage, in the analysis of agricultural and socioeconomic data, the use of multivariate methods for producing mostly functional typology profiles that describe subsets of small-scale family farming based on such variables as structure, functioning and, where available, performance.
2. Develop training in these statistical methods.

1.4.4 Representing the diversity of small-scale agricultural profiles in atlases for territorial management

As specified in one panel discussion held in Morocco, “*There is a need to better mainstream change factors (mobility of working family members / flow of money) and the territorial dimension. A typology of holdings should better articulate the scale of the holdings and their territorial environment*”. One challenge is therefore to combine representations of small-scale family farms and those of territories.

In general, the countries surveyed develop representations in the form of national and regional Atlases, including statistical summaries of major characteristics of agriculture in the regions, namely small-scale family farming. The Morocco³⁹ Atlas and the Lebanon⁴⁰ Atlas are examples of this rural geography approach using agro-ecological and/or administrative zoning to represent an area or certain characteristics of agriculture in the territories (for instance, the rate of multi-activity per region in Lebanon). Summary tables derived from national statistics such as Table 3 presented above, are also a form of summarized mapping.

As multivariate farm typologies develop, more refined forms of information and representation systems may be proposed with the aid of GIS and new technologies. Accordingly, once thematic typologies are established, the aggregated representation of the different standard profiles of small-scale family farming in relevant zones (the percent of profiles per zone) and the characterization of small regions will be useful to capture and convey a picture of the agricultural and social dynamics to decision-makers (cognitive objective) and pilot territorial projects. These contextual elements are essential at three stages:

³⁹ Atlas of Moroccan Agriculture CGDA (2008). Atlas de L'Agriculture Marocaine. Ministry of Agriculture. Rabat.

⁴⁰ Atlas of Lebanon 2007.

- *Ex-ante* in stratified statistical survey strategies for homogenous areas in designing a sampling plan, (see sections above, *representativeness* objective).
- *Ex-post* in the design and use of agricultural or socioeconomic atlases and the representation of agricultural household types in trend charts, using *administrative* zoning for implementation of *decentralized policies* (*governance* objective) or *ad-hoc* zoning used for the evaluation and monitoring of the *thematic* sector policies implemented; food, territorial development⁴¹, migration monitoring (*evaluation* objective). Accordingly, a food policy should use the representation of a *food territory* (city supply area, an employment and multi-activity support policy should use the representation of an *employment territory* (employment area, living area, urban area), which would enable transcending the dual statistical representation of urban and rural employment established depending on the *area of residence* (rural or urban areas producing rural or urban jobs) or depending on the *area of employment* (urban job if in an urban area) and would be subject to the rural or urban normative qualifications of such areas.
- *In itinere* designing the territory project and establishing territorial information systems (observatories) with the aim of *enhancing territorial coherence* (cross-sectoral policy *steering* objective). In France, for instance, there are many such territorial planning arrangements: *Territorial Coherence Scheme* (SCoT),⁴² mountain areas, inter-communality, small agricultural region or *géoterroirs*⁴³ and *géopays* in some mixed mountain agriculture regions.

The NENA region is no exception to this reflection. It is necessary to diversify zoning and geographical representations in countries of the region to ensure a better assessment of both small-scale family farming and the local development process in territories. Sudan, for instance, uses livelihood zones to represent this key dimension of small-scale family farming (Holt *et al.*, 2011). Other NENA countries are developing regional analysis for mountain territories and oases (Morocco) that are drivers of crucial forms of small-scale family farming. In addition, studies on developing localized production systems have started, with some focussing on agriculture, as in the case of Morocco (Courlet and Hollard, 2005).

RECOMMENDATIONS

1. Develop a more diversified representation of regions and categories of agriculture in order to identify the various types of agricultural holdings in territories and better capture the importance of small-scale family farming in its diversity (sub-types) in relevant territories and ad hoc zones which are representative of specific levels of governance and adapted to thematic or cross-sectorial policies.
2. Introduce land planning arrangements as a local governance tool, including through the use of participatory forward-looking methods.

⁴¹ In Morocco, one notes the critical role of small-scale family farming in the spatial distribution of the population, including land use.

⁴² SCOT <http://www.territoires.gouv.fr/re/schema-de-coherence-territoriale-scot>

⁴³ Geoterroirs <http://draaf.paca.agriculture.gouv.fr/Region-PACA-par-Geoterroirs-et-par>





2

PART TWO

The contributions of small-scale family farming

The characteristics of small-scale family farming as defined and described in the sections above directly influence their demographic, socio-economic and environmental functions and contributions in the countries of the region. However, in most cases, general censuses do not directly provide a means by which to disaggregate national statistics in this category (and sub-types) because there is no adequate definition in the law or statistics to isolate it from other categories based on the differentiation criteria discussed in Part One.

2.1 The multifunctional performances of small-scale family farming

The six national studies helped to better establish the outlines, and, by inference, some contributions of small-scale family farming, particularly at the level of production systems (there is very little on households/family *per se*) and partially at the level of territories and commodity chains. The studies suggest guidelines to better account for functions other than just agricultural production, use other scales of analysis rather than the agricultural holding alone, and place emphasis on the multi-functionality of such agriculture.

The global dynamics of agriculture is described by comparing the various forms of agriculture, including small-scale family farming, as much as possible. Once defined, this type of agriculture either follows the same trends (decline, stability or growth) or stands apart. Its contribution is especially visible through weighting its relative significance within the sector using two indicators: (i) the number and/or percentage of holdings of this category in territories and, (ii) the percentage of its UAA devoted to small-scale family farming or the share and composition of its herd as against livestock at national level.

Annex 5 proposes a summarized comparison of the 6 countries in terms of the significance of small-scale family farming in national agriculture based on information extracted from national reports.

The contribution of small-scale family farming to creating wealth (income, investment capacity) is variously documented. In **Tunisia**, for example, a large sub-population immersed in rain-fed agriculture and breeding has been identified based on a four-criterion definition (see Table 3). *“From 454,551 family farms accounting for 88 percent of all agricultural holdings counted, we isolate a sub-population of 404,104 small-scale family farms representing 89 percent of family farms and 78 percent of all agricultural holdings counted under the Agricultural Farm Structure Survey (ESEA) from 2004 to 2005” [...] “Though it accounts for 78 percent of all agricultural holdings, small-scale family farming covers just about 2.297 million hectares, i.e. 43 percent of total agricultural surface area (UAA), including 91.2 percent for rain-fed, 6.7 percent for mixed and 2.1 percent for irrigated agriculture. Pasturelands occupy nearly 28 percent of the total UAA for small-scale family farming.*

It is difficult to assess the socioeconomic, ecological and cultural contributions of small-scale family farming qualitatively because, as the **Morocco** report highlights: *“The general agricultural census (RGA) is based on structural statistical entries (land size) and hardly reflects the performance and multiple roles of agriculture.”*

Ultimately, some information in the national studies does help to illustrate the various forms of contributions and relative performance of small-scale family farming in reference to the three pillars of sustainable development.

2.2 Support for different sectors and productions, stakeholder networks and the economy of the territories

National surveys have sought to determine why and how family farming may be considered to be a stakeholder in territorial social networks, markets (inputs, products, land market, etc.) and agricultural commodity chains (local or distant, informal, structured), and which forms of production have specifically contributed to integrating this form of agriculture into territories and markets, and under what conditions.

2.2.1 A major contribution to the national agricultural market but less so to the international market

A first indication is the choice and composition of the predominant crops grown by small-scale family farmers according to different categories of farming (permanent, greenhouse, seasonal (annual), fodder or livestock), and their detailed subcategories. These indicators (by percentages of UAA) vary from country to country and especially from one area to another. However, some features are similar. Although most of the crops are for food, non-food products are not insignificant (tobacco in Lebanon, wood and gum Arabic in Sudan, fibre, etc.) even if not discussed in this overview.

First of all, the technical approach of small-scale family farming is highly focused on diversified production of food and fodder crops, and livestock, the surplus of which is sold on local markets. Most small-scale family farm production systems combine diverse crops and livestock, as opposed to “industrial” agriculture that focuses on the large-scale production of a single crop. When the geographic and economic location of small-scale family farming is close to consumer markets (especially urban areas), there is a higher trend towards specialization (suburban gardening, small livestock, dairy products, etc.) and stronger market integration. The small-scale family farm is hardly interested in high value crops where its comparative advantage remains low. However, where its geographic and institutional situation (collective action) makes it possible to adopt a form of production tailored to the bioclimatic conditions and demand from the national and sometimes international markets. This approach then covers a converging technical and economic scope; as is the case for perennial crops, and particularly apples, in Lebanon, or olives, figs, fruits, etc. in Egypt.

Such diversification primarily reflects a strategy to adapt to the bioclimatic and economic context, to manage risks in accordance with the conditions in the territories where they operate (arid, rain-fed, irrigated, rural, urban, etc.) and further allows sustainable maintenance of robust functions (food, money, etc.).



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Regarding the downstream sectors, it has been demonstrated that direct and short marketing channels (sale of unprocessed or raw fresh products, and particularly, traditional products sold on local markets) are more accessible to small-scale farms than integrated and longer marketing channels that are more demanding in terms of standardisation of practices and products. But when other determinants are favourable, such as the location of the small-scale farm close to a consumer pool (especially urban as in Egypt and Lebanon), the proportion of surplus sold in more elaborate (and processed) forms is greater because collection can be organized. Thus, in Lebanon, *“The processing of dairy products allows small-scale farmers to process raw material into butter, cheese, yoghurt, kishkek, arich and other traditional Lebanese products. The sale of these products is mainly done through short channels and provides the farmers with additional revenue”*. Promotional food policies targeting such products would therefore be favourable to small-scale family farming.

Lastly, small-scale family farming does not supply significant amounts of exportable goods to the international market. International standards are such that the requirements for specialization and standardisation of production and processing can only be met for a few crops for which health standards are less strict (some grains, sorghum, etc.) or require low tech (olive trees and oil, citrus fruits, gum Arabic, etc.), and some highly valued niche produce. However, in Mauritania and Sudan, stockbreeding is a high-export sector run almost entirely by small-scale family farmers (Sudan in 2014, US\$856.3 million for sheep, camels and goats). Table 6 provides a summary overview of the small-scale family farming production portfolio in the countries under review.

Table 6. Some examples of the contribution of small-scale family farming to different types of production and markets

Family farming: % production or UAA	Annual crops (seasonal) including food crops, fodder crops	Perennial crops, Forest products	Livestock
Mauritania	System of food crops in extensive rain-fed, sandy or "dieri" area, produces sorghum, millet, maize, and vegetables		Key sector in small-scale family farming, export
Tunisia	33% of UAA for grains, 2.2% for market gardening and 3.8% for vegetables, 28% of UAA for grazing systems, 1.9% UAA for fodder crops	59% UAA for arboriculture	Small livestock: 83.5% of the total livestock, 67% of cattle, 52% of sheep and 59% of goats
Lebanon	Basic food production (grains and vegetables, potatoes), fruit and vegetables 20% of UAA for seasonal crops and 2% for greenhouse crops 5.3% of UAA for annual industrial crops and 5.1% for cereals, 3.8% for flower vegetables and 2.1% legumes, 1.9% for tubers and 1.5% for leafy vegetables	Olive oil 78% of UAA for permanent crops, 43.6% for olive trees, 10% for pome fruits and stone fruits, then 3.9% fruit trees, 2.9% vineyard and citrus	Marketed production of meat, eggs and milk provide income to family farmers
Morocco	Food and fodder crops (alfalfa..) combined with small-scale stockbreeding Grains: (durum wheat, soft wheat and barley) and legumes (lentils, chickpeas, beans, etc.)		All livestock
Egypt	Increased contribution to the production of cereals, legumes, oilseeds and fibres: increase from 34.2% in 1990 to 47.2% in 2010 Drop in vegetables from 24.2% to 23%	Drop in its contribution to the production of fruits from 14.3% to 11.1%	Increase in livestock production from 52.6% to 61.3% for cattle and buffaloes, 50.2% to 59.3% for sheep and goats
Sudan	Food production: 5 main food crops: sorghum, sesame, millet, peanuts and wheat Traditional rain-fed sector covering 95% of the production of millet, 38% of sorghum, 67% of peanut and 38% of sesame	Export of gum Arabic, (alongside peanuts, sesame, sorghum: US\$663.5 million) mainly from small-scale family farming	Key sector of small-scale family farming. Export of sheep, camels and goats (US\$856.3 million)

2.2.2 Varied involvement in intermediary organizations that need to be supported and adapt to new challenges

Understanding the relative role of small-scale family farming for the socioeconomic viability of the different regions around the world is vital as its contributions are weighted according to their relative importance in the different areas of the national territory. Yet, in some areas (mountainous, purely rural areas), it is predominant and essential for the community's survival, and constitutes a source of employment and rural development, while in others (suburban areas), alternative or complementary economic sectors are growing.

The contribution of small-scale family farming to the economy of the territories is heavily dependent on the existence and operations of intermediary organizations (associations, cooperatives), social and economic networks and rural infrastructure (including digital ones), i.e. territorial "capital". It is essential to study existing organization types and networks and the scope of their activities and functions (social and economic, etc.) on the one hand and the participation of small-scale family farming in these entities on the other. Through an analysis of the programmes in place, which was supplemented by interviews, national reports describe the place of small-scale family farming in the economic functions developed by professional farmers' organizations, the governments and some business networks for sector and territorial development (supply or marketing cooperatives, mechanization cooperatives, credit unions, insurance, etc.), as well as in capacity building (training, agricultural extension, etc.), political dialogue and representation, and lastly advocacy functions. The latter component appears to be the least developed in the region.

In **Morocco**, social networks (farmers, local installers, welders, retailers) helped drive innovation and, in a favourable territorial environment, were able to transform and adapt irrigation drip kits (see Box 3 of the national report). In **Lebanon**, the importance of women's cooperatives providing additional employment opportunities (food processing, etc.) and access to other sources of income (subsidies) was established.

Such cooperatives may be the target of enhanced rural services in order to address the access bias against women as individuals isolated from services. Indeed, according to research, developing rural extension services that are more tailored and targeted to women's groups should be the adequate approach to enhancing its recognition in rural society (Petrics *et al.*, FAO, 2015) and reducing inequalities in access to knowledge and information, to agricultural technologies and know-how. In addition, these women's groups may supply captive markets with food products (schools, government services) if public procurement rules allow or prioritize them (tenders prioritising such organizations, or some community territories as provider areas).

However, successful intermediation needs to be accepted by the community of smallholders. Two scenarios are observed here: membership rate of government organizations (cooperatives in **Egypt**) that does not necessarily reflect their efficiency, and membership of private or blend organizations, which is not sufficient, as in **Tunisia** where there is a "low level of unionisation, low diversity of trade unions, structural fragility, low membership rate (6 percent in mutual agricultural services companies (SMSA))". Strong membership depends on the type and variety

of services offered by the professional farmers' organizations because some of them are lacking in this regard and fundamental issues such as financing and credit are not addressed, *“Most credit operations are outside the scope of professional farmers' organizations and self-financing remains the rule apart from access to seasonal credits from the Banque Tunisienne de Solidarité”*.

Such intermediation should result in small-scale family farming being represented in national and regional political dialogue forums (Darnhofer *et al.*, 2016). On this note, the experience of institutions from other major regions worldwide (Brazil, West Africa) should be leveraged, such as ROPPA⁴⁴ in Africa, and participation in relevant global initiatives and gatherings (World Rural Forum, World Farmers' Organization, Via Campesina⁴⁵) may be a source of inspiration for organizations in the NENA region. Regional economic communities (RECs, Arab Maghreb Union⁴⁶ and the African Union) and development banks should also spearhead initiatives of this nature within the region.

Lastly, from a methodological viewpoint, apart from being represented in political assemblies, developing territorial outlook studies in the regions, implementing participatory approaches in projects developed at the level of the territories, including the design of shared representations⁴⁷ and the use of role-play, future studies and other serious games, should be prioritized in order to involve such organizations and communities in the dialogue.

2.2.3 Train agricultural technicians and the general population to support economic transition and diversification to industry and services

In an increasingly challenging environmental or economic context, the transformation of small-scale family farming requires both a renewal of the skills of the relevant workers and supervisors, and sustenance of traditional know-how. However, this raises the issues of training and learning (apprenticeship).

The vocational training arrangements and agricultural extension and advisory activities described in the national studies are country-specific and difficult to compare with each other. All these arrangements are usually made up of state or semi-public mechanisms, professional organizations and private consultants associated with input suppliers or sub-sector operators, all to varying degrees. Public institutions provide basic graduate training for managers of public organizations at various levels and further training for various categories of stakeholders, including executives from professional farmers' organizations. However, these executives are now ageing as in Mauritania where, *“In spite of the existence of training institutions that have placed dozens of technicians on the job market, skilled labour shortage*

⁴⁴ ROPPA is an initiative led by farmers' and agricultural producers' organizations of West Africa. The Network brings together 13 national member farmers' organizations (Benin, Burkina Faso, Ivory Coast, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Senegal, Sierra Leone, Togo) <http://roppa-afrique.org/>

⁴⁵ <http://viacampesina.org/en/>

⁴⁶ <http://www.maghrebarabe.org/en/>

⁴⁷ Participatory mapping approaches, visit <http://www.ppgis.net/>

is lingering in the areas of livestock and farming. The lack of skilled staff has a significant impact on the performance of the rural sector, which is plagued by massive retirement of leaders who supported the rural development process for decades and whose replacement appears to be difficult.”

The respective importance of extension services offered to smallholders in the rural areas can sometimes be asymmetrical and the influence of different stakeholders may appear discordant. But, as observed in Tunisia, *“The limited farmer supervision⁴⁸ may penalize small- and medium-scale farmers who cannot resort to private agricultural advisors and have to rely on professional organizations that are less attractive or ill-prepared to play this role.”*

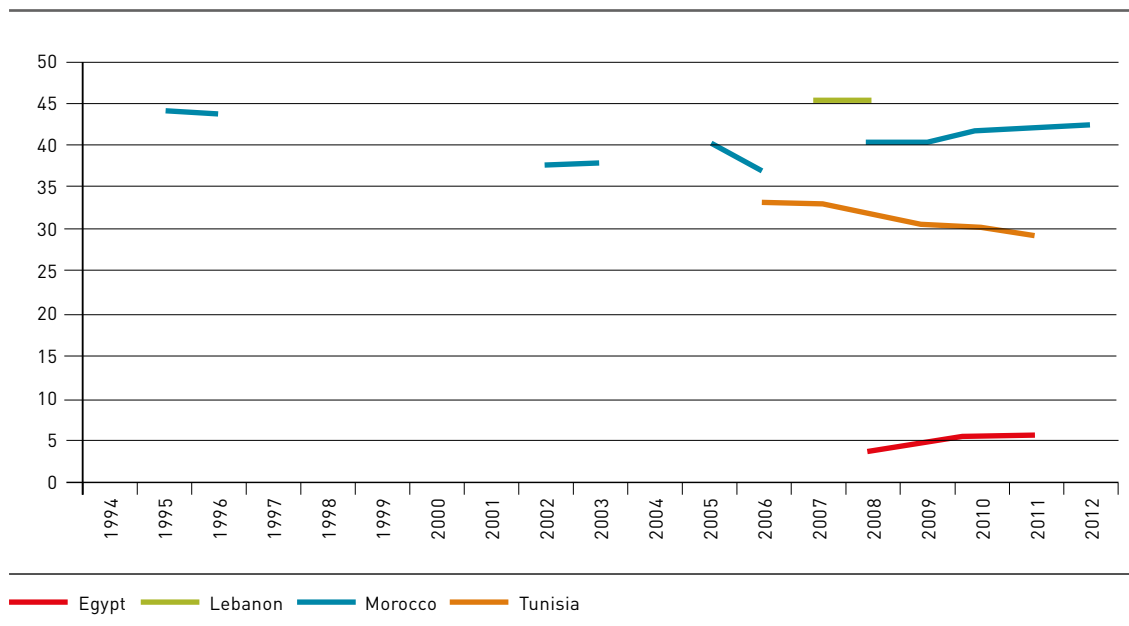
It is therefore necessary to update and ponder (i) the diversity of public and private agricultural extension services, and (ii) training and extension subjects that need to be expanded to meet more ambitious extension goals (agricultural consultancy, agro-food and agro-processing). Another important issue relates to the leverage effect made possible by (i) general education and basic and further training provided to rural youth and women with a view to replacing ageing extension workers and staff in collective organizations; (ii) replacing farm heads as part of the intergenerational transfer, which is a source of change; and (iii) recruiting staff from the different professionals working in agriculture-based value chains, which have incorporated advisory services. Indeed, demand for support labour, such as private technicians in the development of structured sectors, offers significant employment opportunities for rural youth.

Further and beyond vocational training and extension services, the ability of an economy to boost the productivity of its labour force, particularly the transition of small-scale family farming, largely depends on the level of education of smallholders. National studies show that smallholders are less educated and trained than the other categories, a gap that widens depending on the age and gender of the farm head. The figures for the countries under review are incomplete, as shown in Figure 4. Furthermore, these are national figures that largely conceal the gaps between rural situations - where the active labour force is generally less educated, especially in agriculture - and urban situations. Two groups of countries can be identified: **Lebanon, Morocco and Tunisia**, where about 50 percent of the active labour force has completed primary school on the one hand, and **Egypt and Mauritania** (11 percent in 2013) on the other.

The two countries therefore face a real challenge to improve their training policies, especially in rural areas. Nevertheless, there is a noticeable improvement from one census to another, as seen in Egypt where *“In 2010, 43 percent of smallholders had a basic education (as against 30 percent in 1990), 20 percent had a college-level education (as against 5 percent in 1990), and 5 percent held a university degree, although the level of education of the women running agricultural holdings remains lower.”*

⁴⁸ In Tunisia, the supervision ratio is 1 extension officer for 1 246 farmers.

Figure 4. Labour force with primary education (% of total) in four NENA countries



Source: Authors, based on WDI 2015 data

In some national studies, strong emphasis is placed on: (i) the need to train young agricultural labourers, (ii) the necessary renewal of leadership by rural youth⁴⁹; (iii) enhancing the value of farm jobs, and (iv) improving the skills of the much-needed workforce. If these conditions are met, smallholders and their families will make a significant contribution to rural employment, including by diversifying beyond productive agriculture. In addition, making agricultural practices more environment-friendly requires a renewal of knowledge through vocational training, research⁵⁰ and extension services, beyond the preservation of traditional know-how in this area.

Consequently, several countries in the region have decided to support young graduates as agents of change (Egypt and Morocco). Although it is too early to assess the effect of such policies, there are some promising signs. The advantage of young graduates is that they have acquired new knowledge and use digital technologies and social networks to enable them, after studying in the city and building networks (social capital), to return to rural areas with a business plan (including for cooperatives). To this end, all other obstacles to the development of both agriculture and rural areas need to be removed, and services such as including digital development and Internet connectivity increased. In Morocco, young graduates have come up with outstanding organizational innovations: “*Collective projects by young unemployed graduates show their entrepreneurial potential and their ability to initiate and sustain rural development processes*” (Box 5, “*The Plum-Drying Cooperative*” in the Morocco report). With its land distribution programme for “graduates” in the New Reclaimed Lands, Egypt showcases another method of employing young graduates.

⁴⁹ See the thematic edition of “Cahiers Agricultures” devoted to rural youth, CahAgric, Vol. 24, No. 86, November-December 2015

⁵⁰ Read about the renewal of agronomist pools in France, at <http://www.supagro.fr/web/pages/?idl=19&page=425>

One last point concerns the capacity of small-scale family farming to create indirect jobs. There is very little information available on the contribution of small-scale family farming to indirect employment in the commodity chains and associated service trades (maintenance, marketing, inputs, etc.) because few national surveys have been conducted on the subject, and the informal nature of these activities makes it difficult to measure such contribution. Nevertheless, detailed research on the commodity chains shows that they constitute an important source of jobs as is the case of onions in Morocco: “Marketing and supply networks create many production jobs downstream, including for collection, storage, transportation or sale, and upstream for the supply of irrigation equipment and inputs.” (Box 6 of the national report)

This point needs to be addressed more thoroughly in the coming years, especially in view of the dual challenge of rural employment and the transfer of employment from productive activity to the value chain downstream. This is fairly crucial as many authors and agencies consider that the development of food chains will be an important source of jobs, and so preparing young generations for these trades is a must.

In France for example, “140 activities are indirectly linked to stockbreeding; such production-related activities as collection, processing and trade, which include slaughter and cutting, the dairy industry and the wholesale industry, account for 46 percent of indirect jobs. The number of indirect jobs also varies greatly from one commodity chain to the other.”⁵¹

RECOMMENDATIONS

1. Promote intermediary organizations, diversify their services and functions to meet the specific needs of small-scale family farming, renew their managers by tapping from the pool of young rural graduates and women.
2. Build social capital in small-scale family farming and promote indirect job-creation by providing assistance and services to existing short value chains and develop new commodity chains involving intermediary organizations.
3. Develop rural infrastructure (including digital) to provide an environment that (i) enables the commodity chains to be organized in such a way as to link rural small-scale family farming to the markets, and (ii) that is attractive for young graduates who are agents of organizational and technical innovation in rural areas.
4. Adapt the basic vocational education and further training of stakeholders involved in small-scale family farming, focus training programmes on developing commercial activities, food processing, agro-ecology and agricultural service practices, and target local human resources, especially rural youth.
5. Encourage the inclusion of representatives of small-scale family farming in the various dialogue forums (in-person and virtual) through their organizations at the national, regional (RECs) and international levels.

⁵¹ Based on INRA research <http://www.web-agri.fr/actualite-agricole/economie-social/article/les-eleveurs-francais-generent-pres-de-470-000-emplois-indirects-1142-110853.html>

2.3 A major contribution to food and nutritional security and food systems

The contribution of small-scale family farming to food and nutritional security is now better documented and better analysed in scientific literature (Van Vliet *et al.*, 2015). While, owing to agro-climatic characteristics, it is utopian to seek complete national food self-sufficiency in NENA countries without resorting to imports, reducing dependence on external food supplies is a huge challenge in all the countries under review. Throughout the NENA region, small-scale family farming and stockbreeding systems contribute significantly to providing food supplies to rural households, including farmers (on-farm consumption) and supplying urban households with foods adapted to their local tastes and different purchasing powers. Lastly, in all of the NENA countries surveyed, in addition to supplying food through the market process, the intra-family and intergenerational solidarity that prevails in agricultural households (donations, congregate meals) is an effective way of reducing food insecurity and collective social vulnerability among rural communities.

In national studies, the link between food security in rural areas and the presence of small-scale family farming as a counterpoint to necessary imports is clearly addressed. In 2010 in Lebanon, “About 85 percent of farm produce consumed was imported and more than one-third (37 percent) of farmers used their produce mainly for on-farm consumption and food security.” In Morocco and Tunisia, small-scale family farms supply fruit and vegetables to rural community *souks*, raw milk to dairy cooperatives and collectors, and contribute to the food security of agricultural households and local populations, through on-farm consumption (wheat, potato, egg, milk, meat, etc.) or supply domestic markets.

However, there is a perception bias between several statistical indicators if they are used independently; (i) percentage of UAA covered by small-scale family farming across the territory and (ii) small/scale agriculture’s actual contribution to national food production (percentage of production) and household food consumption (food balance and therefore national food security). In Egypt, a country with highly intensive small-scale family farming, there is a contrast between the agricultural area covered by these farmers and their contribution to production. Thus, with a “UAA representing about 35 percent of the national UAA, they contribute about 47 percent of the national production of field crops (grains, etc.), 61.3 percent of the production of large ruminants, 59.3 percent of the production of small ruminants, and a smaller proportion of the production of horticultural crops.” (Table 6)

Small-scale family farming further constitutes the main local resource that supplies the basic products used in the local communities’ diet, thereby increasing nutritional security (Hazell *et al.*, 2010). Foodstuffs produced by small-scale family farming are most suited to the countries’ food habits and traditions (grains, olive oil, dairy products, etc.). Hence, the study of flows and marketing methods (short chains and direct sales) of products from small-scale family farming reveals the strong links between farm households and the non-farm communities they serve. As such, the socioeconomic actors and networks involved in short value chains are another component of the social capital of small-scale family

farming which supplements the family system and social solidarity of farmers in their habitats. Recent studies into the resilience of family farms in Europe show that social and ecological processes are interrelated and that leveraging the social capital associated with local networks, farmers' organizations and sector stakeholders seem to be a key component of farmers' resilience in a very liberal context (Darnofer *et al.*, 2016). In some suburban areas, where the erosion of farmer solidarity and hence of social capital on those disintegrating territories (suburbanization) can be observed, it is crucial to rely on new forms of social relation between farmers, intermediaries and consumers. Therefore, short value chains have the potential to contribute greatly to inclusive development. They are not a mere innovation like in North America or in Europe (Chiffolleau *et al.*, 2009, 2013) but are also the basis of a social network which supports the resilience and development of small-scale family farming in the NENA region as in others (Heinisch *et al.*, 2014).

In Egypt, small-scale farm produce feeds some disadvantaged neighbourhoods in cities where purchasing power is low and consumption is based on corresponding street trading methods and also supplies niche commodity chains (buffalo milk) and wealthy households that purchase their products. In Morocco, three-quarters of agricultural land is devoted to the cultivation of grains (durum wheat, soft wheat and barley) and legumes (lentils, chickpeas, beans and others), in combination with small-scale stockbreeding. In mountain regions, family farmers prefer fruit plantations and mixed farming combined with small livestock. Elsewhere, in irrigated plains, in valleys and oases, farming systems combine food crops (grains, fruits, vegetables) and produce for export (citrus, vegetables, dates). In Tunisia, where olive tree farming is significant (40 percent of the area is devoted to it), food crops and livestock are also important in family holdings. In Mauritania, *“There were no significant changes towards the modernization of agriculture, which remained traditional except in irrigated areas. However, it contributes significantly to the food security of households it supplies daily, while providing marketable surpluses. Small-scale family farming systems are fundamentally based on the production of traditional grains (sorghum, millet, corn) and associated crops (cowpeas, watermelons, squash, Guinea sorrel and others).”*

Part of the discussion that the countries under review should engage in, with support from FAO, concerns the ability of small-scale family farming to continue to contribute directly to their national food security, i.e. that of rural and urban households, in a context of a growing population and climate change that are having a huge impact on the region (drought in Egypt and Mauritania). This obviously depends on the decline, stability or growth of this type of agriculture, but also on the ability of the governments to design relevant food and land policies. Questions persist about the future of this contribution to food supply in the countries surveyed, in view of new factors such as the low-level of renewal of farm holders, and difficulties for the intergenerational transfer of farming activities and lands. In addition, most countries of the region are already using the land available to the maximum and climate conditions are difficult. Only Egypt continues to increase its UAA by extending agricultural lands.

Increasing food contribution in a context doubly constrained by agro climatic conditions and growing national populations (demographic transition) together with constrained agro-climatic conditions could exacerbate the impact of family farmers abandoning small-scale family farming. This would require greater recourse to the international market, which will threaten food sovereignty. It would also require abandoned farmlands to be handed over to other stakeholders, which will be problematic because small-scale family farming is generally geographically segregated and mainly practised in rain-fed areas' least productive/ha. Transforming small-scale family farming based on intensification technologies and rational irrigation, and maintaining the food functions of community small-scale family farming are a major challenge for NENA countries.

Lastly, if the role of women in managing the diet of Mediterranean households is acknowledged, and if enhancing farming practices and production may lead to improving the nutrition of family members, including children, the causal path is not systematically virtuous today (Dury *et al.*, 2015). Here, prioritising the role of women in nutritional education is recommended: *“It is important that women be involved as they are at the root of the Mediterranean family unit, reason why they are the best teachers in matters of food and health.”* (Agropolis Foundation, 2011). Food policies aiming at food and nutritional security for children by linking the school to female farmers' organizations, given the dual role of women as farmers and housewives, should be experimented with as they may bring about change.

RECOMMENDATIONS

1. Develop food policies that better integrate small-scale family farming (suburban and rural), farmers' and women's organizations into supplying public markets, and promote the educational role of women in matters of nutrition, develop main distribution channels to continue to offer a range of products suitable for the varying purchasing powers and consumption baskets of the urban food system.
2. Promote traditional products that are mainly produced by small-scale holdings and that include high-value niche products, in order to sustain and develop demand.
3. Assess the loss of farmland, the bedrock of small-scale family farming, due to climate change or other factors (expansion of cities) and combat the conversion of farmland to non-agricultural uses, especially in suburban areas through food and town planning policies, including land issues.
4. Carry out future studies on the contribution of small-scale family farming to feeding urban and rural areas.

2.4 Understanding the contribution of small-scale agriculture to the agricultural labour market, local employment and the regulation of migratory flows

The contribution of small-scale family farming to the NENA countries should be analysed not only by looking at its production function, but also at the social and economic functions expressed at other levels, as mentioned in the Morocco study report: “*Employment opportunities in agriculture contribute to regulating migration flows, and agriculture contributes to maintaining community solidarity and to building social capital.*”

National reports provide quantified data on farm work and employment, even though the statistics used do not cover all the rich international nomenclature (ICSE - International Classification of Status in Employment⁵²), including its descriptive dimensions (employment rate, employment status, working time, salaries, participation of different age and gender categories, etc.).

2.4.1 A predominantly family activity, but with insufficient information on ongoing transformations and the role of women

Agriculture is responsible for the bulk of rural employment. Agricultural work is carried out in accordance with calendars that determine the intensity of cyclical needs for permanent or seasonal labour, and small-scale family farming differs from other categories for many reasons (diversity of crop rotation, etc.).

There is a consensus in literature about the predominant use of family labour for temporary or permanent work in farms and grazing areas. However, what about small-scale family farming as a provider of paid employment or supplier of labour to neighbouring agricultural businesses? Depending on the criteria and categorization thresholds used in each national report, this section shows some contributions to employment and characteristics of farm work.

In Mauritania, the agriculture sector is the second source of employment after trade (25.9 percent); government and social services (22.2 percent) hold third position. Those employed in stockbreeding as their main activity account for 58.8 percent of the total population involved in agriculture, which includes part of paid jobs: “*The development of agro-pastoral systems requires the use of family shepherds often supplemented by paid herdsmen when herds are grouped for transhumance.*” In Tunisia, “*In 2004-2005, the share of family labour in the agricultural workforce was high, standing at 90 percent. 77.5 percent of agricultural work days are provided by the family labour, as against 9 percent for temporary employees and 13.5 percent for permanent employees.*”

Labour demand depends partly on product combinations that leverage the variety and seasonality of the production process and partly on the practices (level of mechanization, crop-livestock integration, intensification through agro-ecological or agro-chemical processes, collective activities, agricultural diversification, constraints of some breeding activities such

⁵² United Nations Statistical Commission: <http://laborsta.ilo.org/applv8/data/icsef.html>

as milking) implemented. In Lebanon, “*Smallholdings employ 90 percent of the permanent workforce and 80 percent of the seasonal workforce in the form of family labour and paid employees; the available labour used permanently or seasonally is proportionately higher than in larger holdings that are more highly mechanized and equipped for farming.*”

The gradual mechanization of small-scale family farming in some countries reduces manual work and the arduousness of farm work, and improves productivity per hectare. The level of equipment on holdings is identified in agricultural censuses and the type nomenclature is aligned with the recommendations of the World Programme for the Census of Agriculture 2020.⁵³ Mechanization and the use of modern technologies are determinants of how attractive the sector is to youth. However, land issues in small-scale family farming (small plots and land fragmentation) are not conducive to any form of mechanization. Nonetheless, it is possible to share irrigation equipment (pumps) and follow collective farming schedules that are more appropriate for mechanization (as in Egypt).

In Sudan, 90 percent of smallholders use mechanized equipment to prepare the land (ploughing, harrowing, levelling), but only 50 percent for planting. However, mechanization and automation are not similar and although economies of scale related to robotics are possible in large holdings using paid labour, small-scale family farming seems to rationalize its mechanization by ensuring some kind of balance between family employment and machines, a situation to be considered in the policies on job maintenance in rural areas. In Tunisia therefore, in a context where farmers increasingly cultivate their own land: “*The stabilization of social structures and the increased mechanization of agricultural work seem to have been geared towards the same goal and lead to a reduction in the number of permanent paid workers.*” In Lebanon, “*With regard to the equipment of smallholdings, 60 percent of farm holders use machines. Those used by smallholdings are in descending order as follows: sprayers (33 percent), tractors (19.5 percent) and tillers (12 percent).*”

What about the distribution of agricultural activities and of responsibilities within family farming households? Indeed, in order to better understand the role of women in family farming, it would be necessary to ensure that their place and functions (in farm and off-farm) be identifiable and measured using certain indicators of social and agricultural statistical profiles.⁵⁴ Yet, in the NENA study countries, the place of women and young people in agricultural employment and work is inconsistently and inadequately described. Although few national indicators are available to describe the relative share of women and men with regards to access to land or access to the labour market (percentage of female farm heads, percentage of women in agricultural labour, etc.), there is still insufficient information available to describe the time they respectively devote to farm work and the time reserved for social and family activities (education, feeding).

Regarding women’s access to land ownership and to the status of farm head, the picture is mixed. In Lebanon, “*Women account for 9 percent of all farm heads.*” In Egypt, “*There is a lingering bias to issue land titles only to men, which hinders access by women to land ownership.*”

⁵³ <http://www.fao.org/economic/ess/ess-wca/en/>

⁵⁴ See the Gender and Lands Rights Database, specific data on land and agricultural ownership by men and women http://www.fao.org/gender-landrights-database/data-map/statistics/en/?sta_id=982&country=EG

The percentage ownership of land titles by women decreased from 9.8 percent in 1990 to 4.3 percent in 2010, whereas women represent over 50 percent of the Egyptian population.”

Reportedly, in Tunisia, there is a growing trend to rely on women’s labour (temporary or permanent) for agricultural work. This may be due to an increasing number of men being involved in multiple jobs (and spending less time on the holding) and to a declining agricultural workforce. Since manual labour is becoming less attractive for rural youth, women seem to pay the price and bear an increasing workload. Hence, in Tunisia: “63 percent of working days - family labour - are provided by men, as against 37 percent for women,” although “there is a trend towards increased female employment. According to the population census conducted by the National Institute of Statistics (INS), female employment in agriculture rose from 13.56 percent of the total agricultural employment in 1975 to 20.1 percent in 1985, 29 percent in 2005, and 36 percent in 2012.”

2.4.2 A seasonal or permanent contribution to, and dependence on, other employment sectors

The contribution of small-scale family farmers to the agricultural job market, agriculture sector activities or off-farm jobs has become a key dimension of regional development. This is reflected by the high rate of multiple jobs (in the private or public sector) held by households in the countries under review and by the share of these activities in the consolidated income of households involved in small-scale family farming. In Lebanon, 66 percent of smallholdings have multiple activities (as against a national average of 50 percent). In 2004-2005, average multi-activity stood at 48.6 percent in Tunisia, and at 55.4 percent, thus higher, for holdings of less than 5 hectares: “PACFS study indicates that in 2001, three-quarters (75 percent) of smallholdings declared off-farm income: exercising off-farm gainful activity, especially as temporary workers in urban areas, [...] off-farm income represents close to 66 percent of the total income on irrigated holdings and up to 90 percent of total income in rain-fed holdings in the South.” In Morocco, more than one in five farmers practised multiple activities (General Agricultural Census, 1996).

Indeed, many agricultural workers commute daily to towns and villages close to where they live to work and earn additional income. Paid jobs in enterprises, petty trade and services, handicraft, construction and public works, fishing in coastal areas or even the informal sector enable agricultural families to earn “external” revenue that is vital to improving their living standards or to acquire farm equipment. Such transfer income (from the city or even from abroad) ensures the reproduction of holdings, if not the survival of many households. The table in Appendix 4 includes a comparison of the countries surveyed based on the criterion of multi-activity. Where urban areas offer permanent jobs (services or industry) as in Egypt and Lebanon, multi-activity becomes the rule and is deeply rooted. But in other countries such as Mauritania, the process has followed the urbanization process of new economic centres: “[...] the urbanization rate increased from nearly 3 percent at independence to 23 percent in 1977 and 48.3 percent in 2013, with a heavy concentration in Nouakchott, home to 51.6 percent of city dwellers in 2013. The resident population, whose share was very low, represented nearly half of the population in 2013, with a rapid increase in the number of localities: 2 341 localities in 1977; 3 381 in 1988 and 5 561 in 2000. The city also holds an employment potential for rural dwellers in the dry season. Therefore, creating jobs in the city is a way of providing employment to rural youth.”

There are generally three options for diversification of employment:

- The participation of family members in temporary or permanent activities on other productive holdings such as in Morocco,⁵⁵ which can be a source of improved know-how and technology adoption, but is subject to competition for labour supply, especially in countries with significant conflict-related migration (Lebanese and Syrian refugees).
- Opportunities for marketing activities that do not require land development in the agriculture sector either through company-led aggregation or through a revamped cooperative network that offers employment opportunities to youth⁵⁶.
- Participation in service activities in other economic sectors, based on conditions that are highly dependent on territorial dynamics and the proximity of an employment market (service or industry).

These supplementary activities are poorly evaluated in labour statistics (particularly informal work in town). Substantive work by FAO, in association with ILO (International Labour Organization), could reduce the gap in methodology and information.

2.4.3 An assessment of smallholding income in relation to the poverty line

The results of national studies show that poverty rates generally remain higher in rural areas where agriculture is predominant than in major towns. A comparison of socio-professional categories shows that (i) farm workers and farm holders are still among the poorest in the communities; (ii) poverty rates differ broadly from one region to another within countries; and (iii) it would be better to assess the link between poverty, unemployment rate and the level of remuneration of labour and jobs that depend on the characteristics of rural or urban employment. Thus, in Egypt, although the rural unemployment rate is lower than the urban rate (7 percent as against 11.7 percent), poverty in rural areas remains higher, on average, than in urban areas (28.9 percent against 11.6 percent).

The evolution of the national poverty rate over a long period shows a declining trend in three of the region's countries (Figure 5), but Egypt, Lebanon and Sudan have no longitudinal data. For the other three countries (Mauritania, Morocco, Tunisia), there has been a significant reduction in poverty during the last 30 years, from 30 percent to 15 percent in Morocco and Tunisia, while poverty in Mauritania remains significant. Poverty reduction plans launched in most of these countries (in Mauritania⁵⁷ the Poverty Reduction Strategic Framework and in Sudan the Interim Poverty Reduction Strategy PRSP-I,) took the small-scale family farming sector into account.

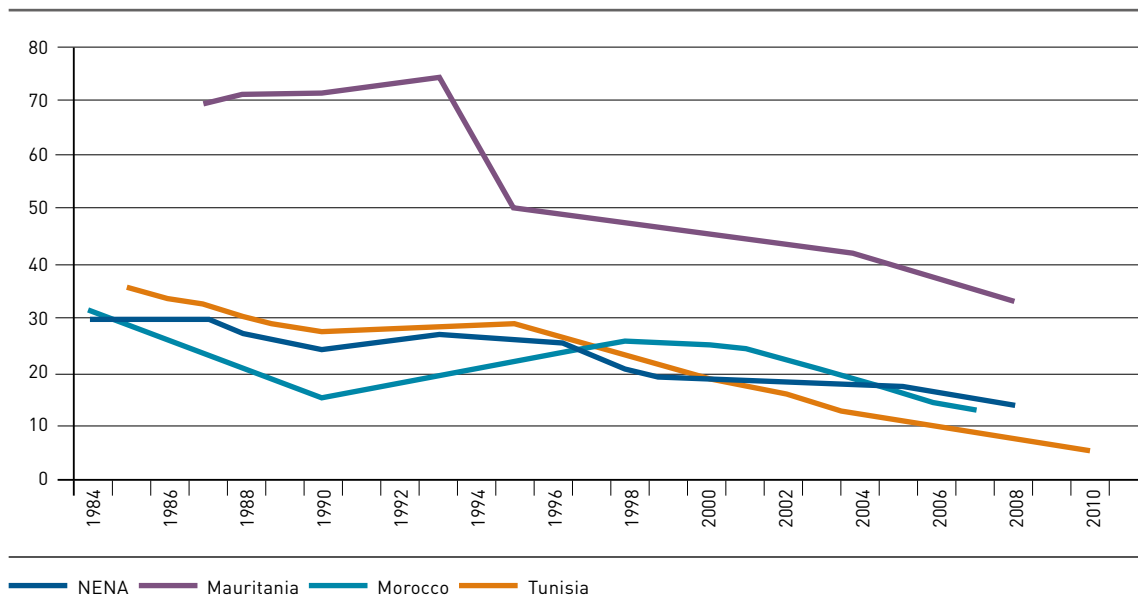
However, there are still methodological limitations on three fronts.

⁵⁵ In Morocco, "Young people seeking autonomy and fulfilment increasingly opt for seasonal migration or else permanent jobs in big neighbouring agricultural areas."

⁵⁶ See the young graduates plum-drying cooperative in Morocco (Box 5 of Morocco report)

⁵⁷ Poverty Reduction Strategic Paper (PRSP), Volume 1: PRSP 2006-2010 Post Implementation Review. Volume 2: Action plan 2011-2015, Washington, D.C., IMF, 2011.

Figure 5. Poverty headcount ratio at \$3.10 a day (2011 PPP) (% of population) in three NENA countries



Source: Authors, based on WDI 2015 data

First, the limited capacity of current studies to consolidate rural household incomes (excluding social transfers) from agricultural activities (including aquaculture and forest activities that were not included in this study) and from multi-activity in order to answer the following question: In the activity system, what percentage of available income comes sustainably from agriculture, from financial products (land rental), from financial transfers, from off-farm jobs? This is fundamental in the NENA region where multi-activity is widespread, with almost 50 percent of farm households involved in multiple activities (see Annex 4). Therefore, where only farm income is available, regardless of how accurately it is calculated, it becomes difficult to assess the situation of at least half of the family farming households in relation to national poverty lines precisely. As such, RIGA (*Rural income generating activities*) studies at the FAO should serve as a standardized framework.⁵⁸

Second, the current inability to integrate the income-equivalent (fewer charges for the household) representing on-farm consumption, especially of food, into agricultural revenues for lack of reference and studies on the subject, even if the national percentage of households involved in on-farm consumption is partially known.

Third, accurate calculation of agricultural income and of production added-value (see the “economic size” criterion in Part 1) has still not been achieved due to the lack or weakness of agricultural accounting systems tailored to small-scale family farming to assess the financial performance of these systems. In fact, in specialized holdings, it is easier to calculate production costs and margins than in the multi-functional and highly diversified small-scale

⁵⁸ <http://www.fao.org/economic/riga/riga-database/en/>

family holdings that also operate many internal transfers. In this case, agricultural accounting information network (RICA, Farm Accountancy Data Network FADN) systems in Europe⁵⁹ apply “to agricultural holdings operated by farmers who keep their books and have a certain economic orientation,” and its thresholds differ from one country to another.

However, some smallholdings have adopted an income-generating diversification approach that tends to get them out of the poverty trap. On average, net farm income generated by a holding of less than three *feddans* in Egypt does not lift them above the average poverty threshold of US\$1.25 per day per person. But case studies have shown that landowning or landless smallholdings involved in livestock-rearing, particularly dairy farming, stand above the poverty line and are comparable to specialized horticultural farms (see Annex 8 and Table 10).

RECOMMENDATIONS

1. Develop rural and agricultural employment observatories (regional, national). FAO is expected to establish a methodological partnership with ILO for that purpose.
2. Develop “territorial coherence plans” and “rural plans” that address the development of medium-sized towns (and villages) for multi-polar territorial development that ensures a diversification of job opportunities for multi-activity players.
3. Develop methodologies and encourage the use of agricultural working time measurement guides to better understand the agricultural working time, the level of mechanization and the respective involvement of different family members on small-scale farms and their paid employees at each production stage in the agricultural schedule.
4. Characterize the arduousness of farm work to inform mechanization plans, given the importance of attracting younger generations to agriculture.
5. Develop methodologies and working time measurement guides for marketing and processing farm produce (direct sale), in addition to agricultural work.
6. Develop methodologies and guides to better characterize and measure secondary activities and jobs (multi-activity).
7. Disaggregate family farm labour statistics per gender, given the important role that women play in this form of agriculture, so as to contribute to the statistical objective of having gender disaggregated indicators.
8. Disaggregate family multi-activity statistics (secondary employment of farm households) per activity based on recognized economic activity classification, given the important role of multi-activity.
9. Develop agricultural accounting systems tailored to small-scale family farming in order to better define and calculate farm income and economic size.

⁵⁹ <http://www.agreste.agriculture.gouv.fr/enquetes/reseau-d-information-comptable/a-propos-du-rica-978/> and Farm Accountancy Data Network, FADN, http://ec.europa.eu/agriculture/rica/methodology1_en.cfm

2.5 Better document the contribution to the environmental component of sustainable development

There is very little information and quantified indicators in the national studies to illustrate this research area and no detailed conclusion can be drawn about the agro-environmental performance of small-scale family farming. In fact, the sources used only marginally address it, the assessments are qualitative and indicators are neither available at the farm level nor disaggregated per type of holding.

The following **three** factors should be considered when addressing the contribution of small-scale family farming to sustainable development in the region: (i) the agro-bioclimate characteristics (irrigated and rain-fed agriculture) and the level of natural resource vulnerability (water, forest & soils); (ii) agro-environmental practices and environmental services provided; and (iii) the level of collective or private management of natural resources, involvement of the state and professional organizations in governance, and the level of policy-based promotion and supervision of agro-environmental practices (see Part Four).

First, environmental issues and concerns, and the impact of climate change on agriculture are particularly acute in the NENA region, due to its generally arid nature, and the development of irrigation largely depends on the quality and quantity of two vital natural resources, soil and water. As such, contribution to sustainable development, adaptation and resilience of small-scale family farming go hand in hand. Depending on the agro-bioclimate areas, many soil types exist with varying degrees of vulnerability and damage.⁶⁰

Second, we need to assess the level of adoption by small-scale family farming and the impact of favourable practices on the environmental pillar of sustainability, which requires its multiple components and levels (plot, territory) to be identified and indicators developed. Moreover, (i) issues relating to the impact of small-scale family farming should be analysed in relation to two types of externalities; the positive (the ecosystem functions they generate and sustain, climate change adaptation practices and strategies) and the negative (pollution, overuse of natural resources), and (ii) the performance of small-scale family farming should be compared to that of other forms of agriculture in similar contexts.

To make progress in this area and benefit from metrics and outcomes like for other performances (social and economic), many studies are underway to develop conceptual and operational frameworks, assess different agricultural practices and design relevant indicators. There is consensual recognition of the virtues of agro-environmental and agro-ecological⁶¹ practices, i.e., greater use of environment-friendly agricultural practices to replace the chemical processes applied since the green revolution. Figure 31 in Annex 9 provides a first

⁶⁰ The reduction of arable land is linked primarily to climate change and drought, such as in Mauritania and Egypt (in arid areas).

⁶¹ "Agro-ecology is the science of managing natural resources to benefit the most needy facing a hostile environment," Miguel Altieri.

set of indicators to position farming practices and Table 11 of the same Annex identifies the 24 agri-environmental indicators distributed into eight areas⁶² that FAO⁶³ currently proposes.

Despite the lack of significant facts, an indirect assessment may be done using some generic characteristics of small-scale family farming in the region, as mentioned in Part Two of this report, particularly the strong diversification, the high level of intermediate consumption and recycling on the farm, and a stronger integration of stockbreeding and agriculture.

We also note that when the natural resources and population ratio is preserved, and physical conditions so permit, small-scale family farming in the NENA countries contributes significantly to natural resource preservation. It is in these holdings that locally produced seeds are still used, genetic and agro-biodiversity heritage is preserved, secular knowledge and technical practices (replicable information capital) adapted to harsh soil and climate conditions are maintained, along with the ability to develop adaptive processes under already difficult conditions (see in Egypt, Bonnet *et al.*, 2014).

In marginal rural areas where land supply is limited and where the economic context is not favourable, overcrowding and other determinants have led smallholdings to overuse fragile natural resources, and thereby contribute to irreversible degradation processes.

Regarding water resources specifically, there is an upsurge in the use of groundwater. Such use seems less controlled by collective action and by management and user associations (unlike water used for irrigation). In Mauritania, warnings are issued regarding the oases: *“Water resources are crucial to the survival of the oasis. That is why it is necessary to manage the resource rigorously. In order to have sufficient quantities and avoid fatal shortage in the farms, farmers have dug many shallow or deep wells, and for some time now, have installed high pressure motor pumps therein to irrigate the crops, a situation that poses a huge risk of groundwater depletion.”*

In the territories suitable for irrigated agriculture, the situation is varied and relates to the efficiency of technical forms of irrigation and soil quality. Collective water governance is already institutionalized (associations). In Morocco, examples of successful adoption of suitable and efficient drip irrigation are mentioned (see Box 3 of the National Report). In Egypt, *“94.8 percent of small-scale family farming depend on water from the Nile for irrigation, with only 5 percent using groundwater, as against 20 percent by medium-sized and large holdings”* that are certainly more present on the banks of the Nile Delta, in the reclaimed lands. But *“smallholders primarily use the traditional gravity-flood system which is not very efficient (50 percent loss).”*

With regard to forest resources, it is important to maintain a forest that provides ecosystem services because its production is often directly derived from small-scale family farming (argan forest in Morocco, and, gum Arabic and Acacia in Sudan). In Mauritania, *“Woody*

⁶² <http://www.fao.org/economic/ess/environment/en/>

⁶³ FAO Strategic Programme 2 addresses these issues through its “Sustainable Food and Agriculture framework (SFA)”, <http://www.fao.org/sustainability/en/>, five principles of “the common vision for sustainable food and agriculture”.

plants are used as firewood, building materials, and for the production of fruits, to improve soil fertility, as fodder for animals, etc. as quickset hedges to delineate residences and farms, and for environmental protection (windbreaks, dune fixation)."

The contribution of small-scale family farming to soil quality conservation depends on the region and the political and historical contexts. In Egypt, it is observed that *"Small-scale family farming seems to be less interested in preserving the soil and practising conservation techniques."* In Mauritania, *"The main reasons for the abandonment of some irrigated areas include poor management, soil degradation and the inability of the beneficiaries to get good yields."*

Third, in the NENA region, environmental standards included in relevant national policies and appropriate indicators are incomplete and still sorely lacking in the studies reviewed and the main sources referred to. Only natural risk and agricultural water management seem to be covered in the policies. Water stewardship and development of effective technologies is entrusted to institutions such as the water users' associations in Egypt, but there is no mention of land users' associations. Moreover, agricultural practices are overseen by public authorities to reduce vulnerability to certain natural hazards (desertification and wind erosion of plain soil, erosion of mountain soils), and the effects of severe weather conditions (floods). Lastly, as specified in the Morocco report: *"Despite the fact that environmental concerns are not systematically mainstreamed in agricultural policies, agriculture continues to produce positive externalities."*

RECOMMENDATIONS

1. Develop the collection of agro-environmental indicators and measure the efficiency of agronomic practices of different forms of agriculture, including small-scale family farming, at the level of farms (plots and areas) and territories using existing analytical frameworks.
2. Disaggregate these global statistics and indicators for different types of agricultural holdings, to be able to compare agricultural models based on agro-environmental criteria, through the use of multi-criteria evaluation methods that will complement those already in place for the commodity chains and holdings (life cycle analysis).
3. Develop appropriate guides, standards and incentives (including subsidies and testing of payments for environmental services) so as to promote the adoption of environmental best practices along a gradient of opportunities (sustainable, integrated, organic, agriculture, etc.), and through policies supported by intermediary organizations.
4. Link these policies with those on climate change adaptation focusing on small-scale family farming as it is possible to decentralize them depending on the regional context as opposed to mitigation policies that should be holistic.
5. Pay more attention to soil management so as to optimize some of its functions (carbon) and develop participatory land and soil governance.
6. Promote the adoption of low-cost and efficient water use techniques for small-scale family farming, including by supporting the adaptation of standard technical packages in local contexts.
7. Pay keener attention to and develop better governance and collective action to tackle the emergence of groundwater overuse.



3

PART THREE⁶⁴

The structural change pathway

The first parts of this report showed the diversity of agriculture in each of the countries surveyed, as well as the special role of small-scale family farming. However, this diversity of agriculture increases along with the diversity of environments. Indeed, the development of a country's agriculture is closely related to major population trends (Part I), as well as structural changes in the economy and the place of agriculture therein (Losch *et al.*, 2013), or to external economic balances (Part II).

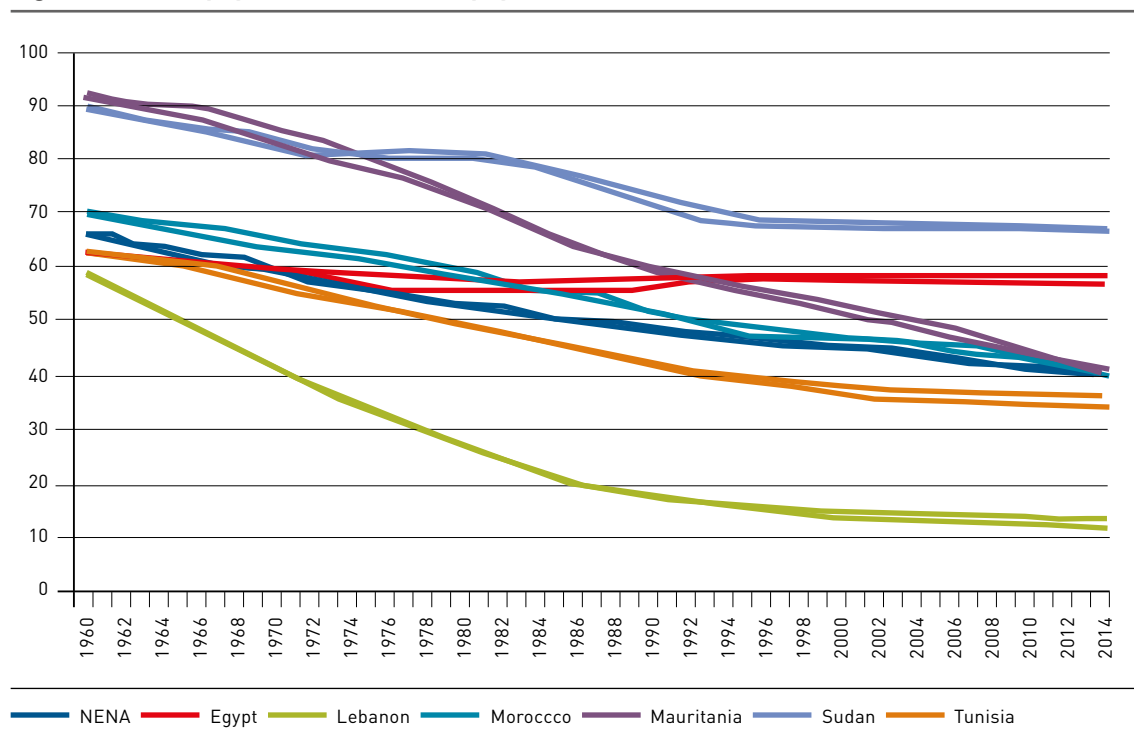
3.1 Population dynamics

The countries under review are characterized by three major phenomena of varying intensity and time-frame: urbanization, the influx of young people into the labour market, and demographic dividend challenges.

3.1.1 Urbanization may be an opportunity for those who remain in agriculture

The six countries under review are not all at the same stage of demographic transition (Figure 6).

Figure 6. Rural population (% of total population) 1950-2050



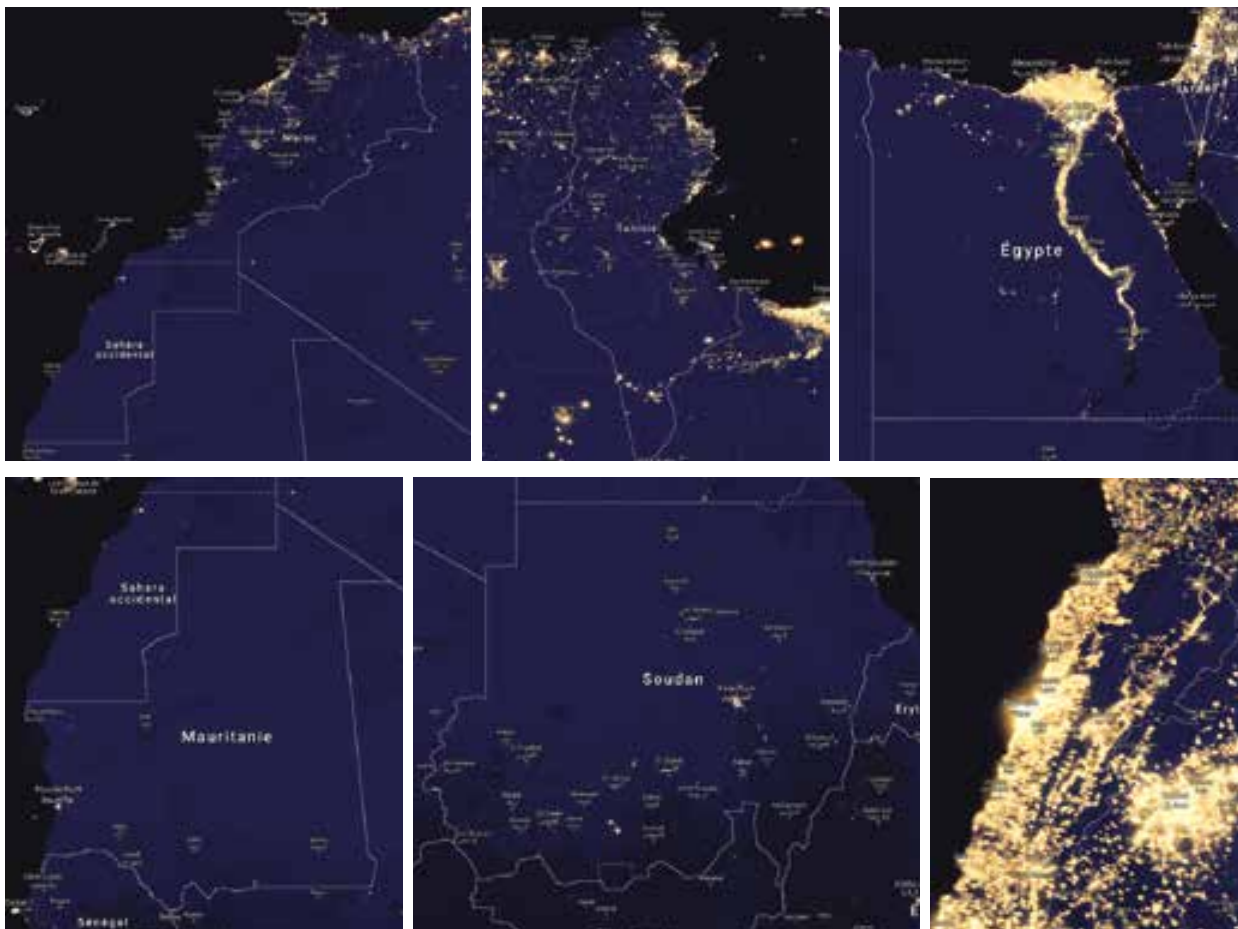
Source: Authors' calculations based on World Urbanization Prospects 2014 data

⁶⁴ FAO Strategic Programme 2 addresses these issues through its "Sustainable Food and Agriculture framework (SFA)", <http://www.fao.org/sustainability/en/>, five principles of "the common vision for sustainable food and agriculture".

Three situations can be observed: (i) in 1965, **Lebanon** became predominantly urban; it has experienced rapid urbanization with its urban population standing at 87.5 percent today, and projected to reach 90 percent by 2050; (ii) conversely, slow transitions operate in **Sudan**, as the majority of its population remains and will probably remain in rural areas beyond 2050; **Mauritania** witnessed a dramatic change in 2002, and given its accelerated urbanization, 75 percent of its population will be living in cities by 2050. The same applies to **Morocco** and **Tunisia**; and (iii) the case of **Egypt** is specific in that its urban census conditions are substantially more selective than in the other countries, reason why “stated” urbanization is slower there than in the other countries under review.

Figure 7 clearly illustrates the different urbanization processes of the 6 countries under review: **Egypt** and **Lebanon** have spectacular urban continuities (including in what Egypt still considers rural), while urbanization in **Morocco** and **Tunisia** is still closely related to road infrastructure. The case of **Mauritania** is unique: urbanization is concentrated in two urban centres, in a territory covering over one million square kilometres. Urbanization in **Sudan** is focussed on Khartoum.

Figure 7. Night satellite photos of the 6 countries under review, showing urbanization profiles



Source: Satellite photos edited by the authors: <http://www.nightearth.com>

Urbanization increasingly leads to the monetization of food demand, for two reasons: the drop in the number of smallholders consuming part of their production, combined with the settlement in towns of people who increasingly rely on the market for food. This situation may provide an opportunity for those still in agriculture. However, three conditions need to be met: urban dwellers should have sufficient purchasing power; changes in supply chain organization do not outsource most of the added value of the sector to non-farmers; and productivity gains do not lead to lower agricultural prices.

The ability of smaller family holdings to take advantage of this development depends on the one hand on their collective organization (to generate economies of scale in marketing) and, on the other hand, on public investments that create a link between local production and urban markets, especially community markets: transport infrastructure, physical markets, and support for farmers to comply with health standards.

Urbanization also leads to a change in eating habits (less time spent in the kitchen, dietary and food quality concerns, mass catering, etc.), thereby increasing food expenditures and changing the conditions of access to food (Rastoin and Gherzi, 2010) (from raw products to cooked meals, from markets to supermarkets, from the traditional product to the international meal). A clear challenge for farmers and farmer organizations that intend to retain a substantial market share of domestic demand is to improve their product offering through processing, and integrating services expected by urban consumers, including purchasing conditions (in shopping centres where they can find a greater variety of products) and patterns of consumption (fast food). To fight rural poverty, especially among smallholders, the challenge is to be able to maintain maximum added value at the level of farmers.

RECOMMENDATIONS

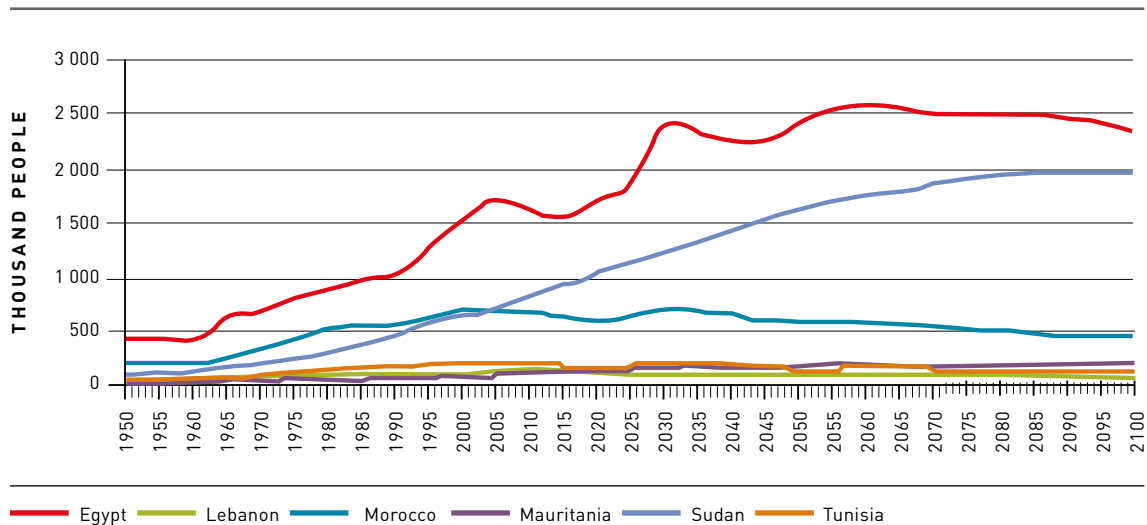
1. Support community smallholders to supply food to small and medium-sized towns, through public investments aiming to ensure the regularity, quality and safety of marketed foodstuff: (i) physical storage (including cold chain) and market infrastructure; (ii) funding collective investment to enable small-scale farmers comply with health standards; and, (iii) regulate public tenders to supply public canteens/social policies that promote small-scale family farming.
2. Develop policies on food education (at school, in public media and in other settings) that valorize local products, diet variety and the principles of healthy eating, relying on women to provide such education.

3.1.2 Young people enter the job market en masse

The sequencing of demographic transition determines the evolution of the number of active youth entering the job market. Over the period 1950–2050, the maximum number of youth that Tunisia can receive into the job market each year stands at 214 000; this peak was

reached in 2004. For Lebanon, the number is 100 000; the peak will be reached in 2016.⁶⁵ For Morocco, the figure will rise to 667 000 in 2030. For Egypt, it will peak at 2.6 million in 2060. The stakes are high for Sudan too, with an annual arrival of 1.78 million active youth at the end of the century. In Mauritania, the peak will be reached only after 2100. At that time, there will be 194 000 active youth (Figures 8 and 9). The variability of absolute values is explained by differences in the size of the population in each country. This general trend is similar to that of the whole sub-Saharan region, which thus raises the issue of employment. Where there are no opportunities to leave agriculture as desired by such authors as Collier and Dercon (2014), this sector reclaims a central role as a source of jobs.

Figure 8. Number of young people entering the job market every year (1950-2100)



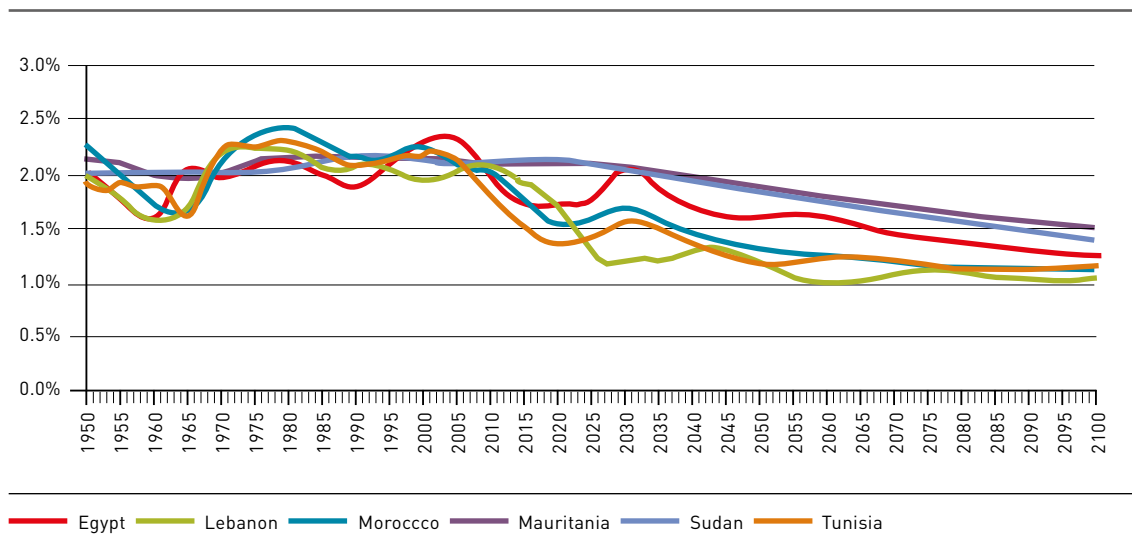
Source: Authors' calculation based on World Population Prospect 2015 data

Previous figures indicate the magnitude of job creation challenges confronting these countries, in temporal sequences spreading differently for each country over the century. However, presenting the same figures by percentage of the total population makes it possible to better comprehend the different national processes. Rates vary from 2.5 percent to 1 percent and tend to encompass an ageing population. Two groups of countries can be clearly identified: on the one hand, Lebanon, Tunisia and, to a lesser extent, Morocco, are better advanced in the structural transition of their economies, in the urbanization of their population and in the education of younger generations. This old convergence of the impact of lower birth rate, investment in the education of younger generations, particularly girls, and urban development explains why the number of youth entering the job market dropped from 1995, but more significantly since 2005. Nonetheless, the past influxes are such that youth unemployment rate will take some time to subside.

⁶⁵ Obviously, this figure does not take into account the impact of the geopolitical deflagration in the Middle East and the subsequent influx of refugees.

In the second group of countries, made up of **Egypt, Mauritania and Sudan**, the rates will exceed 2 percent only after 2030: demographic and structural transitions are slower and challenges are more difficult because they are quantitatively more significant as a result of the slow pace of transitions. It is important to stress that in both groups of countries, we can see the delayed impact of birth rates trends, hence the boomerang effect of girls' education on the latter: the more educated girls are, the lower the birth rates.

Figure 9. **Total youth population entering the job market each year, in % (1950-2100)**



Source: Authors' calculations based on World Population Prospect 2015 data

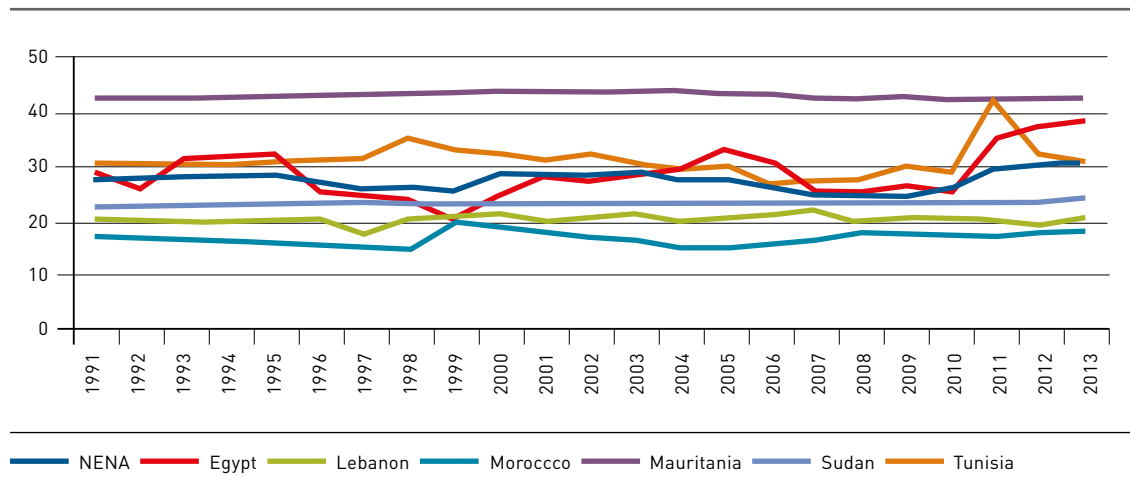
Be they absolute or relative, these figures call for an unprecedented mobilization. The ability of a society to provide decent employment to younger generations is a guarantee of long-term stability and growth. The concurrence of the Arab Spring in **Tunisia** with a large number of active youth entering the country's job market is not just a coincidence.

The second part of this report helps to stress the importance of agriculture in providing jobs, all be they often tedious and not always well paid. This situation requires that the objectives of food and agricultural policies take into account the pressing need to increase production while minimising its arduousness, improve farmers' incomes and opt for agricultural patterns that favour decent job creation. These three goals are all the more pressing as opportunities to exit agriculture are limited. If exit opportunities (including international emigration) do not increase considerably, then multi-activity patterns should be promoted for farm households, at least transitionally.

Figure 10 shows how crucial the issue of youth employment is. Not only will young people continue to enter the job market massively, but the current situation already attests to the difficulty of finding a job. While **Lebanon, Morocco and Sudan** are able to contain their youth unemployment rate at around 20 percent, **Egypt and Tunisia** are witnessing an alarming increase that takes them closer to the average of NENA countries (30 percent). But the most acute situation is that of **Mauritania**. Its level of unemployment is damaging all social

structures: beginning with the family, which has to provide for the financial needs of young adults, and the society that must cope with the legitimate frustrations of unemployed youth. It is clear that in countries where the main activity is agriculture, the farming systems promoted by government should contribute to generating decent jobs for this segment of the population.

Figure 10. Unemployment rates for young people aged 15 to 24



Source: Authors' calculation based on WDI 2015 data

RECOMMENDATIONS

1. Ensure the development of primary education so that all young people entering the job market have basic literacy skills.
2. Promote youth employment through meaningful policies: learning, vocational training in farming and agribusiness.
3. In countries still experiencing high population growth, priority should be given to agricultural and agro-food models that promote employment and meaningful mechanization to reduce the arduousness of work while ensuring decent remuneration, as compared to models which are too quickly replacing labour by capital.

3.1.3 Ability or inability to benefit from the demographic dividend

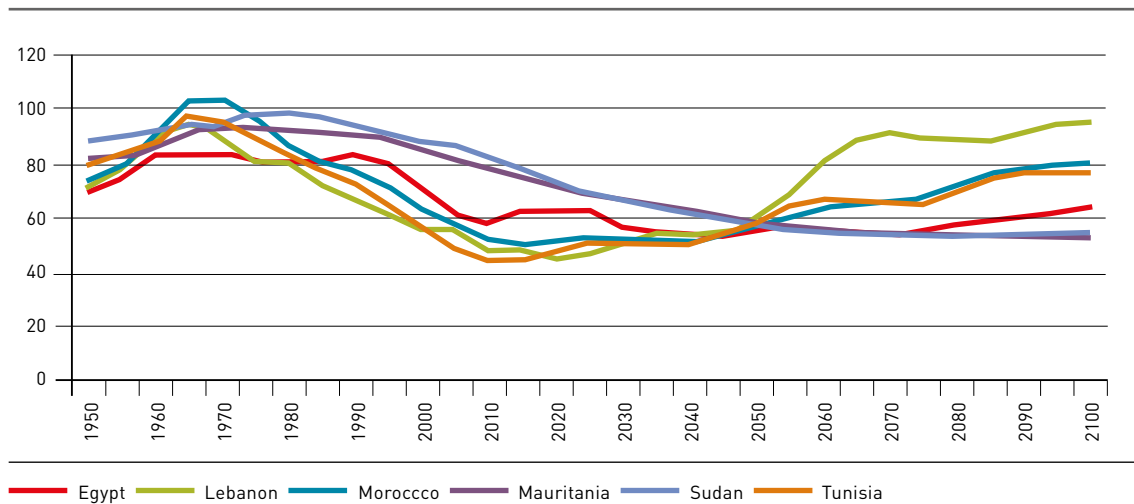
The term demographic dividend refers to a period when the number of non-working-age population depending on the working-age population is lowest. Figuratively, the scenario is to shift from a phase where youth make up the majority of non-workers to a phase where non-workers are mostly elderly people. In these two opposite phases, there are about as many non-workers as workers. In between the two periods, the ratio of non-workers to workers falls to around 50:50: this is the period referred to as the demographic dividend. This period enables maximum growth if unemployment is only structural, since more than half of the population is active. This demographic dividend period may be extended or shortened by

anti-birth policies (as in China) or spread over several generations when the birth rate reduces slowly (as in the case of Mauritania).

A certain number of conditions should be met in order to benefit from this demographic dividend, namely: upstream, prepare future workers through efficient education policies that promote labour productivity gains, policies that foster full employment without which growth is sluggish, and finally, establishing infrastructure and institutions that will make it possible to manage the progressive ageing of the population (retirement scheme, infrastructure, educational level of the population, etc.).

Figure 11 illustrates this demographic dividend for the six countries under review. In line with the other demographic variables studied, the three countries most advanced in demographic transition could capitalize on this historical moment: between 2005 and 2045 for **Lebanon**, between 2005 and 2045 for **Tunisia**, and between 2010 and 2045 for **Morocco**. As can be seen, employment challenges are pressing. It is important for the agricultural policies implemented to contribute to job creation.

Figure 11. **Demographic dividend – percentage change of the population aged 0 to 14 and 65+ on the 15-64 age group (1950-2100)**



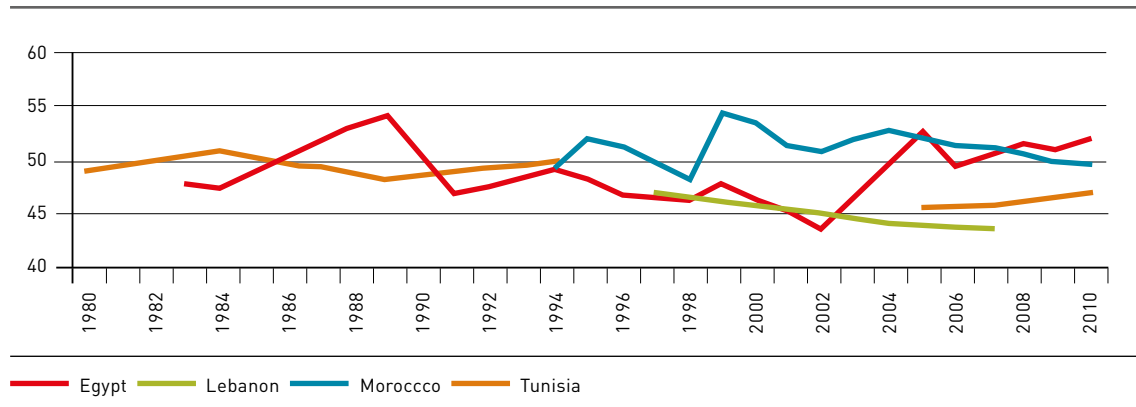
Source: Authors' calculation based on World Population Prospects 2015 data

The other three countries will benefit from this demographic dividend much later: from 2035 to 2070 for **Egypt** and from 2065 to 2100 for **Mauritania** and **Sudan**. For the next decades, they will have to achieve the daunting task of educating the ever-increasing ranks of the younger generations and prepare them for the drastic changes that will occur in most trades in a globalized world caused by rapid technology transfer, including in agriculture. The challenge is particularly intimidating for small-scale family farms.

One of the conditions for demographic dividend to help anticipate population ageing is that the participation rate in the job market be as high as possible in order to maximize growth and facilitate the requisite investments by households and the state. Yet, in the countries surveyed

(Figure 12) for which sufficient longitudinal data is available, this participation rate is not high: it is about 50 percent in Morocco, but hovers around 45 percent in Egypt, Lebanon and Tunisia. By way of comparison, the rates in countries with the highest participation rise to 90 percent (Tanzania), and most countries exceed 65 percent.

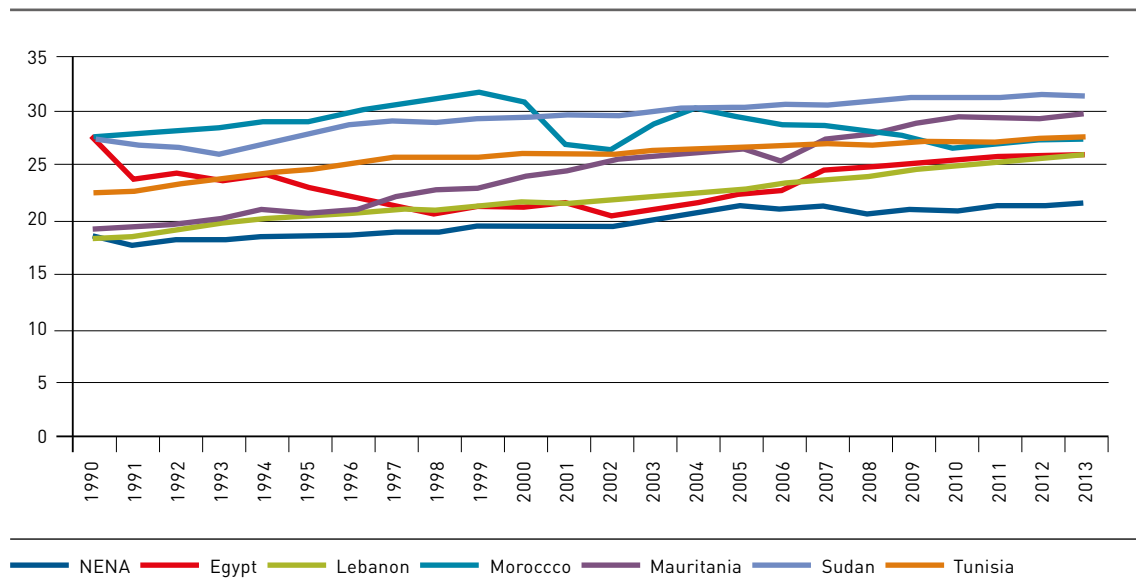
Figure 12. Involvement in the job market for people aged 15+, by percentage (1980-2010)



Source: WDI 2015 data

There are two main reasons for this situation: the youth unemployment rate as seen earlier, but also women's involvement in the job market (Figure 13). With a convergence between 25 and 30 percent, the countries surveyed stand above the average of NENA countries (20 percent). However, this situation differs significantly from that of many African or Asian countries where this rate exceeds 60 percent, reaching up to 75 or 80 percent.

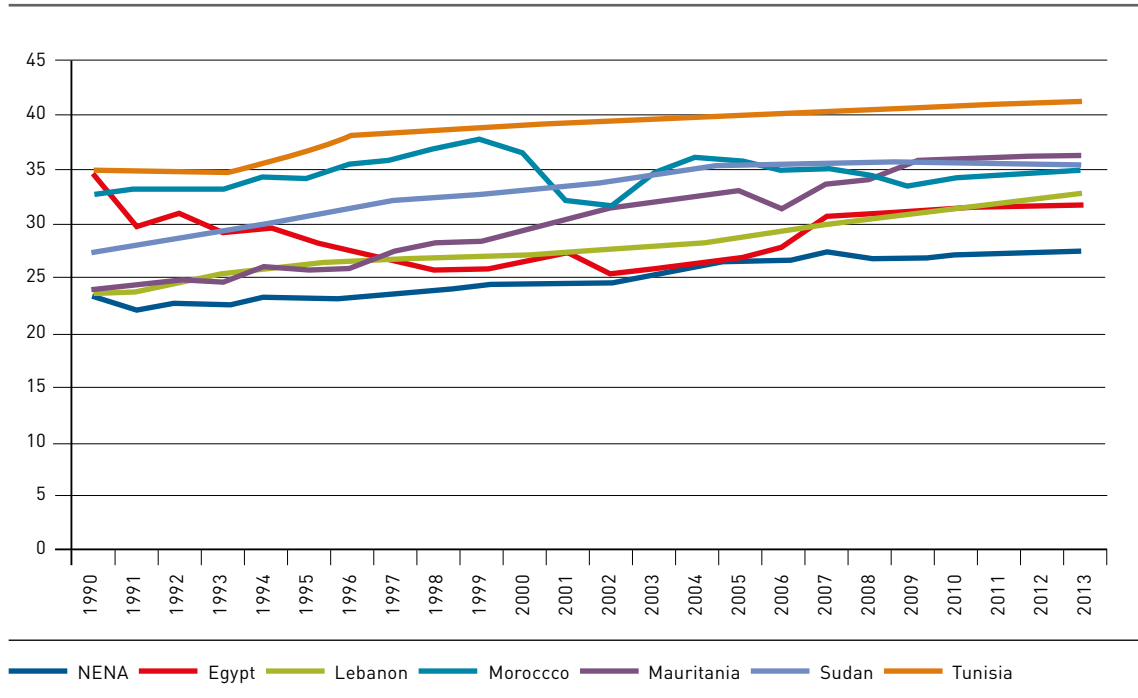
Figure 13. Working women in the 15-64 age group, by percentage (1990-2013)



Source: WDI 2015 data

If the proportion of women involved in formal economic activities is small, the gap between men and women in the total labour force is only closing slowly, as shown in Figure 14: in 1990, the male-female ratio in the working population was of 3:4.5; in 2013, it ranged between 2.5 and 4. Countries where women make up the highest working population are Morocco, Sudan and Tunisia. In Egypt and Lebanon, the proportion is lower. In Mauritania changes have occurred the most rapidly closing the gap with the first three mentioned during the past 25 years.

Figure 14. Male/female ratio in the working population (NENA)(%)

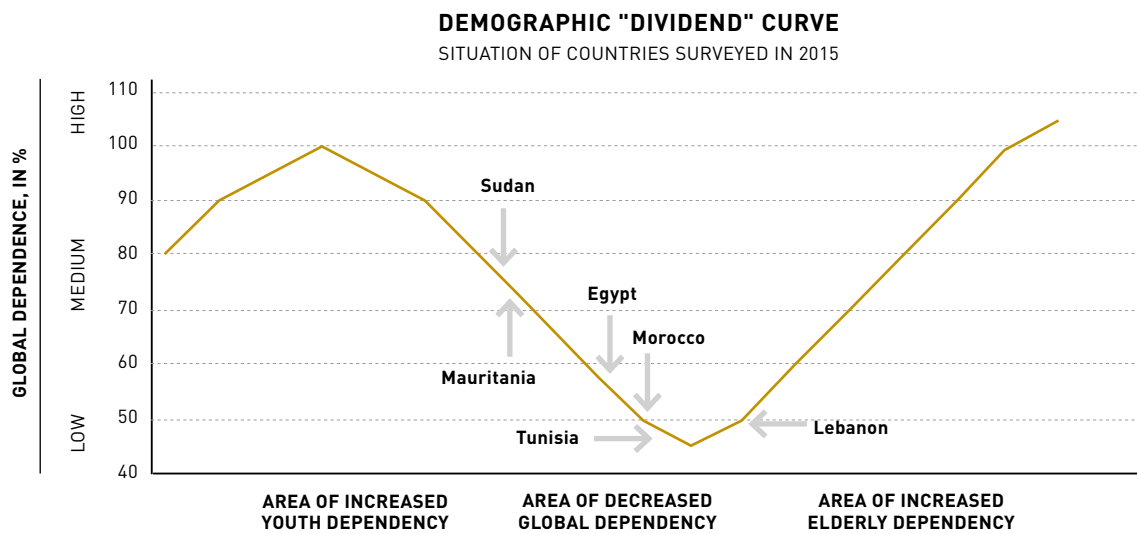


Source: WDI 2015 data

Designing employment policies in such a way that each country can better benefit from its demographic dividend should be a permanent concern. But in the process of demographic transition, each country sets its own pace according to its health, education and urban policies, etc. The common challenge to better tap into the demographic dividend should result in specific national policies that are tailored to the conditions and sequencing of such demographic transition. Figure 15 may help to better understand this process.

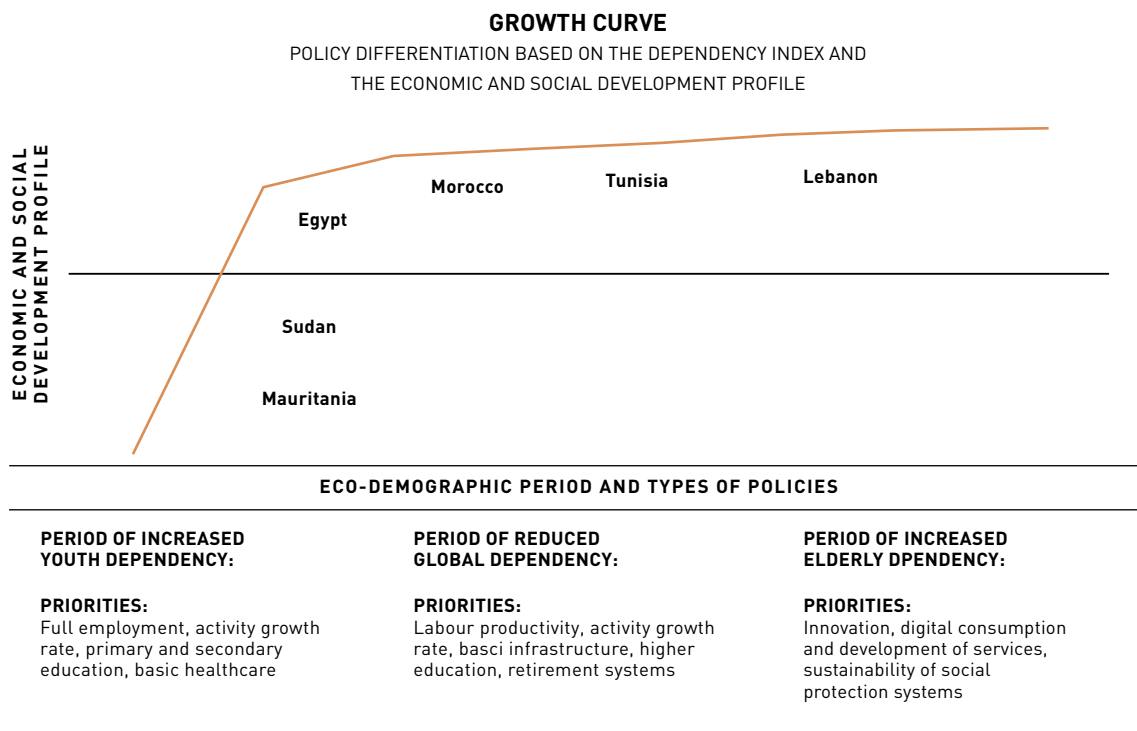
Based on Shediac's work (2012), we can specify different types of policy objectives in line with these different phases. Figure 15 summarizes some of their features. Previous studies on the dividend period in each of the countries show that (i) policy priorities such as the comparative advantages for each of the countries should be different, (ii) the types of agricultural policies to be developed should be consistent with these general objectives.

Figure 15. Countries position on the demographic dependence curve (2015)



Source: Authors' calculation based on Bloom, 2006 and Shadiac, 2012

Figure 16. Growth Curve: Change of priorities according to a growth curve based on the demographic bonus and the level of economic and social development



Source: Authors' adaptation of a concept by Shadiac, 2012

Figures 15 and 16 show that in the next 20 years, **Mauritania** and **Sudan** will have to handle a proportionately significant number of active youth arriving on the job market, which makes the question of employment a key issue. It is also the period during which basic education should be scaled-up in order to prepare future workers for ever-changing trades. Agriculture could play a role here, provided that these social investments in education and health are not just focussed on urban areas. **Egypt** and **Morocco** should take full advantage of this period to capitalize on the end of their demographic dividend. These countries should immediately increase labour productivity in order to fund infrastructure that will help them better handle the end of their demographic dividend. It is essential to set up social protection institutions⁶⁶ to reduce growing inequalities and also to foresee the weight of the future ageing population, which will generate additional intergenerational solidarity and health costs. As such, providing guarantees in terms of monetary or in-kind social transfers deriving from public policies such as social insurance (retirement pension project in Egypt for instance) and social welfare (like food vouchers in Egypt), as well as social services available and accessible in territories of small-scale family farming, especially in rural areas (health, etc.), will be a challenge over the next decades. The dearth of data available on this issue shows that this concern is just emerging in most of the countries surveyed.

During the same period, due to an ageing population, the number of non-workers will once more soar in **Lebanon** and **Tunisia**. The issue of labour productivity is therefore capital, since workers will have to support an increasing number of non-workers. Infrastructure and institutions – especially retirement schemes – should foresee these developments. These demographic trends – with their inherent limitations since they do not account for emigration patterns or regional geopolitical shocks – are extremely important to small-scale family farming. Depending on the ability of policies to intensify the use of agricultural labour while ensuring appropriate remuneration, create decent exit options for some farm-workers, and cover, through national solidarity, part of the costs of intergenerational solidarity (Chang, 2009), small-scale family farmers may contribute to their own food security and to that of their country.

RECOMMENDATIONS

1. Adapt policy objectives to the demo-economic paths of each country and each region within a country in order to set the conditions for small-scale family farming development and determine its potential contribution to food security, employment and regional planning.
2. Develop observatories for youth employment in rural areas, in order to identify and support diversification of activities.
3. Develop women's employment.
4. Design social policies on retirement from agriculture (possibly in relation to a policy on intergenerational transfer of land), health and occupational injuries, which are major factors of impoverishment, as well as on the gradual spread of systematic school enrolment for children up to the end of secondary education et vocational training.

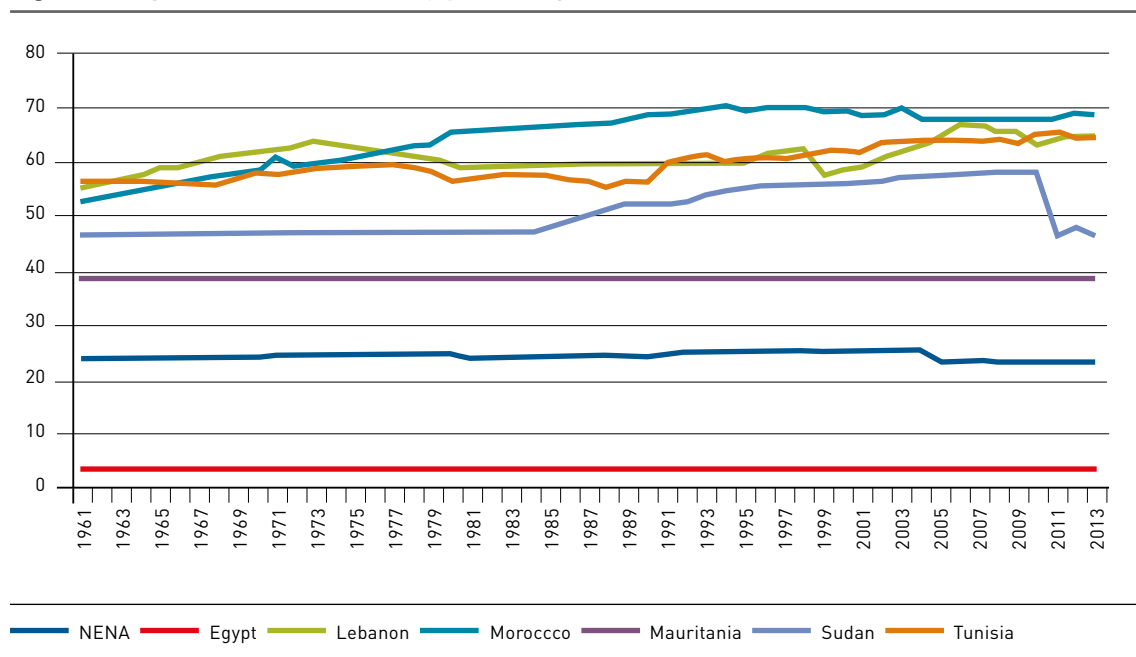
⁶⁶ See MSA in France, the second social protection scheme covering the whole agricultural sector, <http://www.msa.fr/lfr>

3.2 Structural changes in the economy

3.2.1 Significant variation of the role of agriculture in terms of land use, economic importance and job creation

Like most of the region's countries, the six surveyed are characterized by sometimes harsh climatic and agro-pedological conditions. Hence the classification in two groups (Figure 17): countries with vast desert areas but limited agricultural land (6 percent in Egypt, 39 percent in Mauritania - if rangelands are included - and 46 percent in Sudan); the other three countries where agricultural lands (see Figure 17) exceeded 60 percent of the total area. Food security, regional planning and urbanization challenges are different in those countries. Depending on the availability of water resources, the issue of cropland expansion through irrigation warrants different solutions. Such varying parameters impact greatly on the competitiveness of national agricultural commodity chains in a globalized economy, and require specific policy designs.

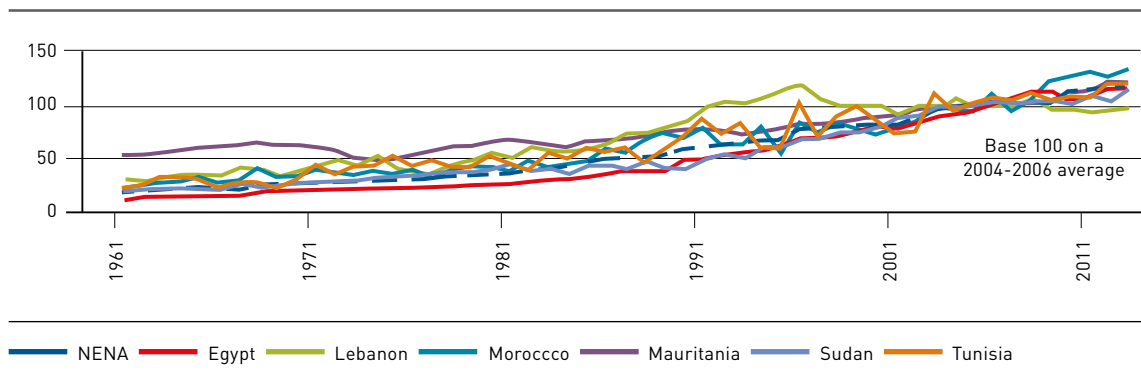
Figure 17. Agricultural land area, by percentage (1961-2013)



Source: Authors, based on WDI 2015 data

Over the same period, production indices (Figure 18) rose faster than cultivated areas showing that land factor productivity increased mainly through the development and/or better management of irrigation. Two countries have differing pathways: Lebanon's production indices have been stagnant since the year 2000, following the country's disinvestment from agriculture; conversely, Morocco is enjoying rapid production growth as a result of numerous investments under the *Plan Maroc Vert* (Green Morocco Plan). This suggests that proactive policies have an impact on production levels.

Figure 18. **Production Indices (1961-2013)**

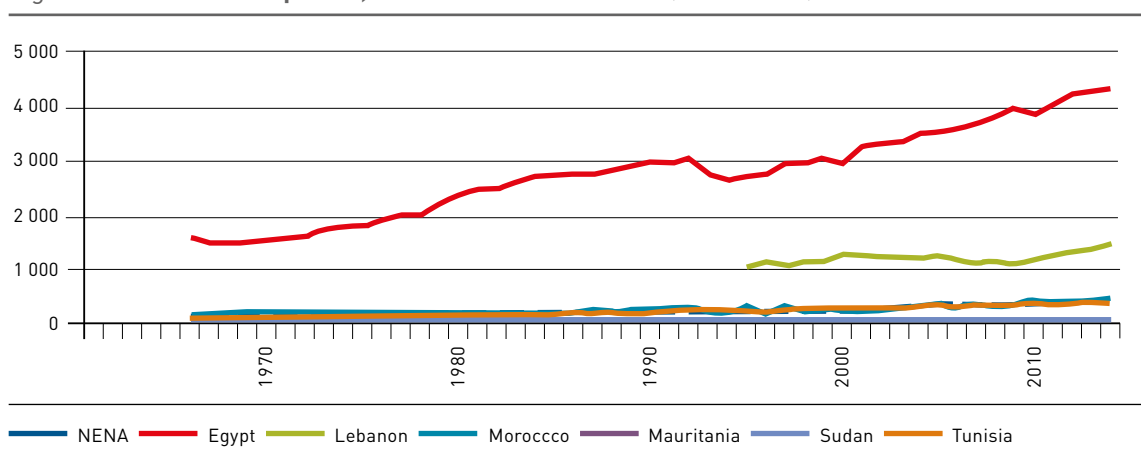


Source: Authors, based on WDI 2015 data

Calculating value added per ha over time (in constant 2005 dollars) makes it possible to understand the changing levels of land productivity (Figure 19). This is a criterion more often used by agronomists than by economists. It helps to record the trends of yields adjusted for changes in the use of inputs and for prices applied for the first placing on the market.

Four scenarios can be extracted from the countries surveyed. First, **Mauritania** and **Sudan** are making very slow progress, with very low starting levels: US\$11 to 21/ha and US\$28 to 94/ha respectively between 1961 and 2013. However, there is scope for improvement: the issue is for such improvement to lead to higher earnings for farmers. Two other countries are following a similar path: **Morocco** and **Tunisia** (moving from and US\$114 to 437/ha and US\$86 to 360/ha respectively). In 1965, their productivity was higher than that of **Mauritania** and **Sudan** in 2013. **Lebanon** enjoyed modest growth, having moved from US\$998 to 1 444/ha from 1990 to 2013. Lastly, **Egypt** witnessed spectacular growth in land productivity, its VA/ha rising from US\$1 560/ha in 1965 to US\$4 289/ha in 2013. Under the Green Revolution paradigm, an agronomist assessment would lead one to commend the performance of Egypt's agriculture. However, subsequent calculations taking into account labour productivity requires putting some things into perspective.

Figure 19. **Value added per ha, in constant 2005 dollars (1961-2013)**



Source: Authors, based on WDI 2015 data

In fact, in all the countries surveyed, the active agricultural population dropped over the past 50 years (Figure 20). However, baselines such as the rates of decline of the active agricultural population differ. **Lebanon**, for example, rolled out its economic transition in the mid-twentieth century, focussing essentially on the services sector. This explains why in 1980, farmers did not exceed 15 percent of the working population, and in 2015, they represent about 2 percent of same (FAOSTAT). By contrast, at the beginning of the 1980s, the majority of **Mauritania's** working population was employed in agriculture (over 70 percent, against slightly under 50 percent according to FAO stat figures, 24.7 percent in 2013 according to government figures). The three other countries are similar with about an active agricultural population of about 20 percent, with more (**Egypt** and **Morocco**) or less (**Tunisia**) rapid developments. Data are not available for **Sudan**, even if FAOSTAT estimated the active farmer population at 46.5 percent in 2015.

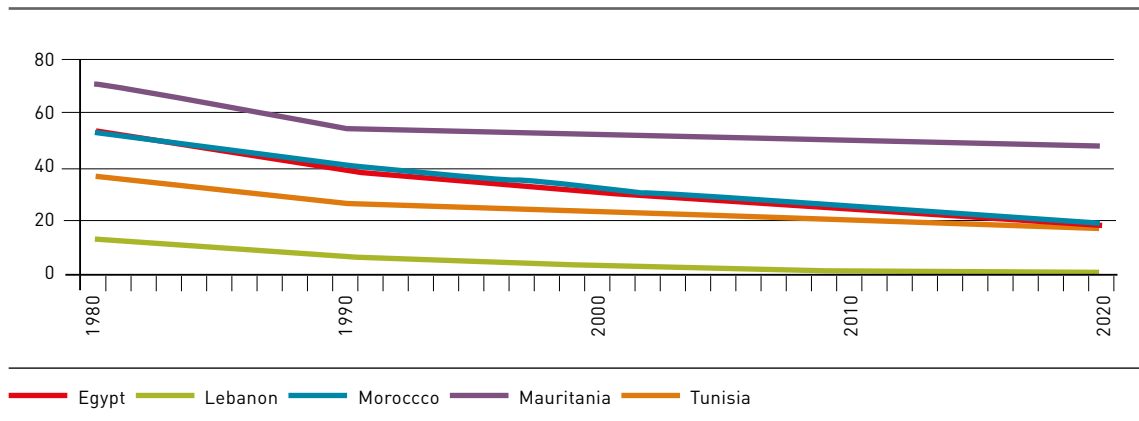
Demographic trends show a parallel evolution of the global population and the active agricultural population in the countries surveyed, except for in **Lebanon** which recorded a significant drop in the active agricultural population during this period. Thus, in a hypothetical situation of national food autonomy, a Lebanese farmer would feed 45 people in 2009. For **Egypt**, figures were globally stable, rising from 9 to 10 between 1990 and 2011, whereas they doubled for **Morocco** (from 4 to 7) between 1994 and 2013, and rose from 15 to 17 for **Tunisia** between 2005 and 2012 (Figure 21). Data were not available for calculations on **Sudan** and **Mauritania**.

Assessing the evolution of global added value based on agricultural labour such as illustrated in Figure 22 (in logarithmic scale) enables us to see the evolution of labour productivity, which can be classified into three groups: **Lebanon** tops the chart alone, with productivity per farmer nearing US\$40 000/ year. This performance is underpinned by specialization in quality produce, a dynamic domestic market and its proximity to countries of the Gulf, all allowing for a good valuation of exported produce. The second group is made up of **Tunisia**, **Morocco**, and to a lesser extent, **Egypt**, whose productivity per farmer is close to US\$5 000/year. This performance rests on quite different strategies driven by exports (**Morocco** and **Tunisia**), the size of the domestic market (**Egypt**) and/or the dynamism of the tourist industry (the three countries until recently). **Mauritania** clearly lags behind all these countries with productivity per worker staying around US\$1 000/year for the past 35 years. Lifting so many agricultural workers out of poverty will entail a discussion on how to increase labour productivity where, despite being an important component, increasing yields may not be sufficient. The whole agribusiness system should work towards this strategy, along with the capacity to develop other livelihoods for farm households.

This development logically translates into different productivity pathways (Benoit-Cattin and Dorin, 2012), depending on whether public policies contributed to prioritising land productivity or labour productivity.⁶⁷ Three scenarios can be observed in the countries surveyed (Figure 23): **Lebanon's** added value per farmer increased tremendously (from US\$9 770 per workforce to

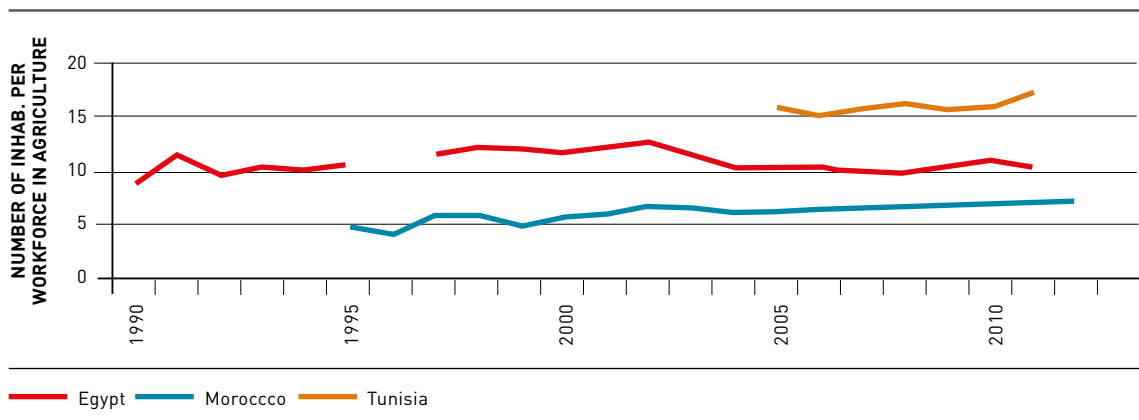
⁶⁷ It might be interesting to do the same analysis on capital productivity, but there is not enough relevant aggregated data; this analysis may be made using agricultural censuses.

Figure 20. Population employed in agriculture (1980-2014, + estimates for 2015 to 2020)



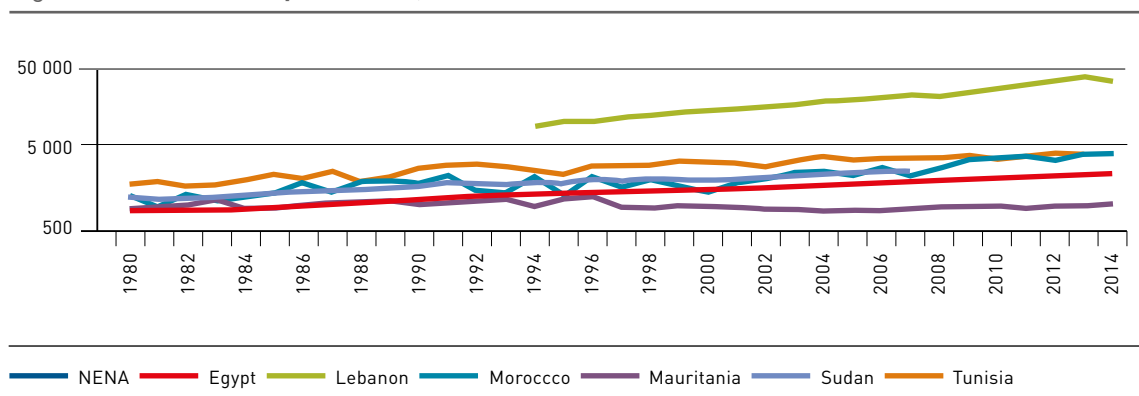
Source: Authors, using FAO Stat data, 2015

Figure 21. Number of inhabitants in each agricultural workforce (1990-2013)



Source: Authors, based on WDI 2015 data

Figure 22. Value added per farmer, in constant 2005 dollars (1980-2014)



Source: Authors, based on WDI 2015 data

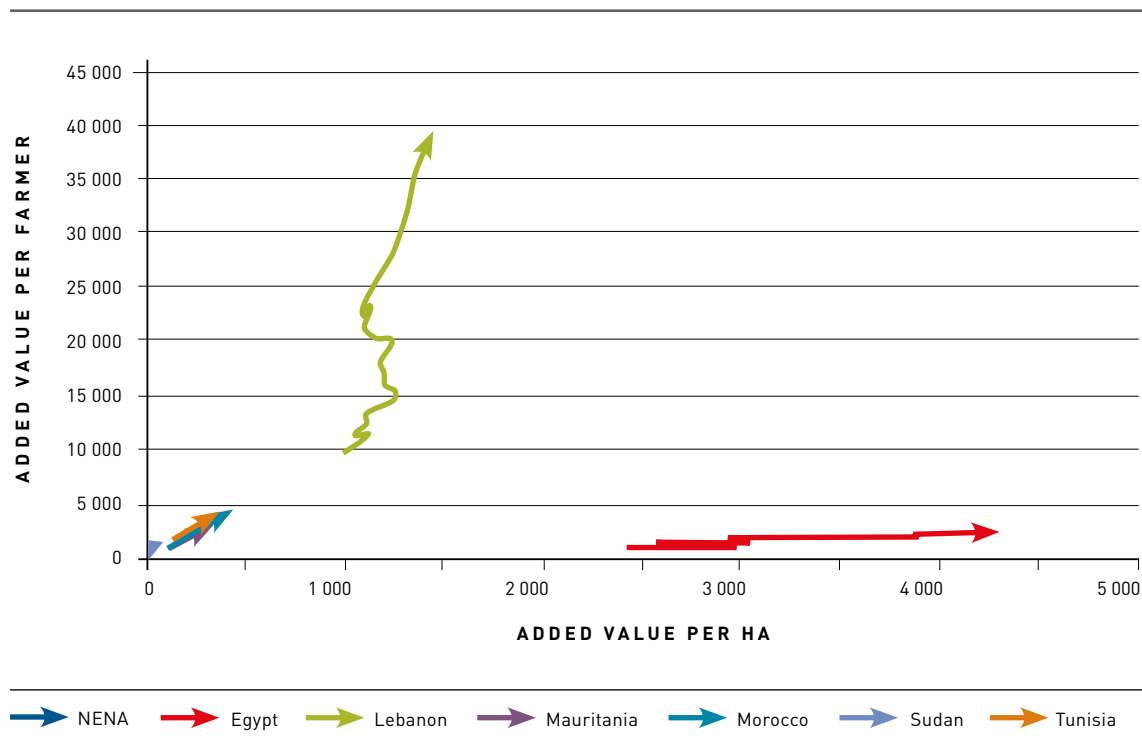
US\$35 124 between 1994 and 2013) as a result of higher added value (niche market, export of finished products, qualitative domestic market dynamics) and a drastic reduction in the farming population. This path is made possible by the existence of opportunities to exit agriculture, especially due to an increase in the service sector.

The pathway followed by Egypt is divergent; policies focused successfully on increasing land productivity (rising from 2 452 to 4 289 in constant 2005 dollars per ha between 1980 and 2013) through irrigation systems, high minimum producer prices driving this type of productivity, technical support, etc. However, an increase in land productivity hardly results in a similar increase in labour productivity and income for farmers. As an example of this, labour productivity rose from 935 to 2 562 constant 2005 dollars between 1980 and 2013. It is thus reasonable that the incidence of rural poverty only be marginally reduced as far as agricultural income is concerned.

The third group is made up of the four other countries (Mauritania, Morocco, Sudan and Tunisia), where growth is very limited: neither labour productivity nor land productivity have increased significantly.

These figures show that depending on the status of structural transition of the economy and on population patterns, appropriate policies are possible and necessary. For lack of data, this work was not done locally in each of the countries, but similar conclusions could be drawn from the available data: local adaptations of agricultural production models are possible and necessary.

Figure 23. Productivity pathways (1965-2013)



Source: Authors, based on WDI 2015 data

RECOMMENDATIONS

1. Design a policy mix suited to different phases of structural transition of the economy and demography.
2. Consider and develop the gamut of small-scale family farmers' livelihoods, given that intensification of agricultural production alone cannot lift them from poverty, given the small size of their holdings.
3. Differentiate agro-food policies according to local dynamics within the same country.

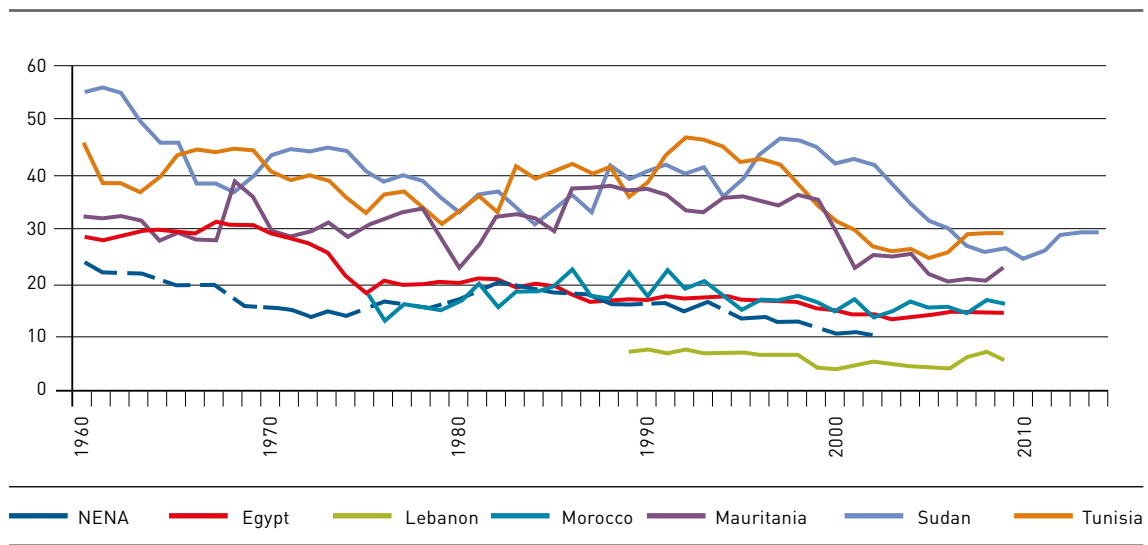
3.2.2 Major policy issue: the contribution of agriculture to the GDP is falling, unlike its share of employment

Similarly, the share of value added from agriculture in GDP (SVAA-GDP) has fallen in all the countries, even more strongly as the baselines, in 1965, were high (Figure 24). Once more, we find ourselves with three groups of countries. **Lebanon**, on the one hand, diversified its economy in services quite early. Its SVAA-GDP went from 7.5 to 5.2 percent between 1995 and 2014 (according to WDI sources). At the other extreme, **Mauritania** benefitted in 2006 from an increase in its mines and energy exports, thereby automatically reducing its SVAA-GDP. However, the drop in commodity prices over the past three years has made agriculture strategically important once again because of food security: the terms of trade in food imports are no longer as favourable. Moreover, extractive activities provide hardly any jobs, the industry has not developed much, and the services sector is developing without creating many jobs: the political stability of this country will depend on its ability to improve its performance on the employment dimension, among others, Agriculture can play a role here, especially small-scale family farming. With its partition, **Sudan** has lost both its agricultural vocation and a significant proportion of oil production.

The group of the other three countries (**Egypt, Morocco and Tunisia**) has followed a similar path: since 1965, the SVAA-GDP has fallen from 25 percent to 15 percent. Depending on the country, the development of services (especially in **Tunisia**) or industries (especially in **Egypt and Morocco**) has supported economic growth.

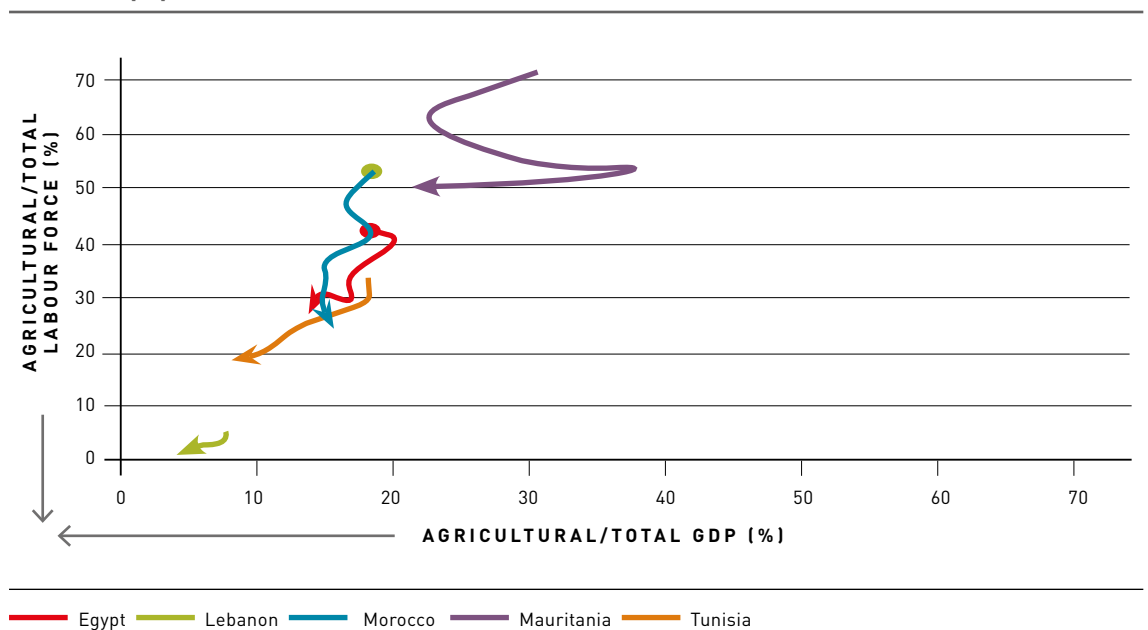
Figure 25 shows the different paths followed by each country with regard to the demographic and economic weight of agriculture.

Figure 24. Agricultural added value in GDP (1965 to 2014)



Source: Authors, based on WDI 2015 data

Figure 25. The path of agriculture in the countries' economies, per GDP and active agricultural pop. (1980-2010)



Source: Authors, from WDI 2015 data

Mauritania is typical of countries where structural diversification of the economy is yet to materialize. Its agricultural population is still substantial, and the SVAA-GDP changes with climatic variations and external shocks to the prices of its export commodities. Therefore, its economy is highly vulnerable to international market volatility. The small size of its domestic market does not allow for a standard industrialization policy, and the educational level of its population does not allow it to access premium industrial export niches (like Taiwan or

Singapore). The positioning of agriculture is therefore central to the country's economy: the production function is obviously important to ensuring food security – which, as we have known since 2008, can only be based on food imports – but even more, helping to create decent jobs. Agricultural policies can play a role, particularly in the trade-offs to be made between investments – especially foreign investments – on high technology and a high level of mechanization of irrigated areas, and the modernization of small-scale family farming. In **Mauritania**, another important function of agriculture relates to regional development: through human activity in the oases, domestic security is enhanced. Oasis agriculture plays an important role, and shall continue to do so in the coming decades.

In contrast, **Lebanon's** agriculture has little weight in the country's economy, both with regards to the agricultural population and the SVAA-GDP. The situation of agriculture here is similar to that of developed countries. Apart from its standard production functions for food security, other functions play an important role: social cohesion, identity bonds in village communities and family groups through local products and urban/rural connections, job creation and regional development. The last few years have shown that local agricultural dynamism contributes significantly to the food security of the country and its neighbours. The massive influx of Syrian refugees into its territory (25 percent of the population) may act as a catalyst for revamping Lebanon's agriculture.

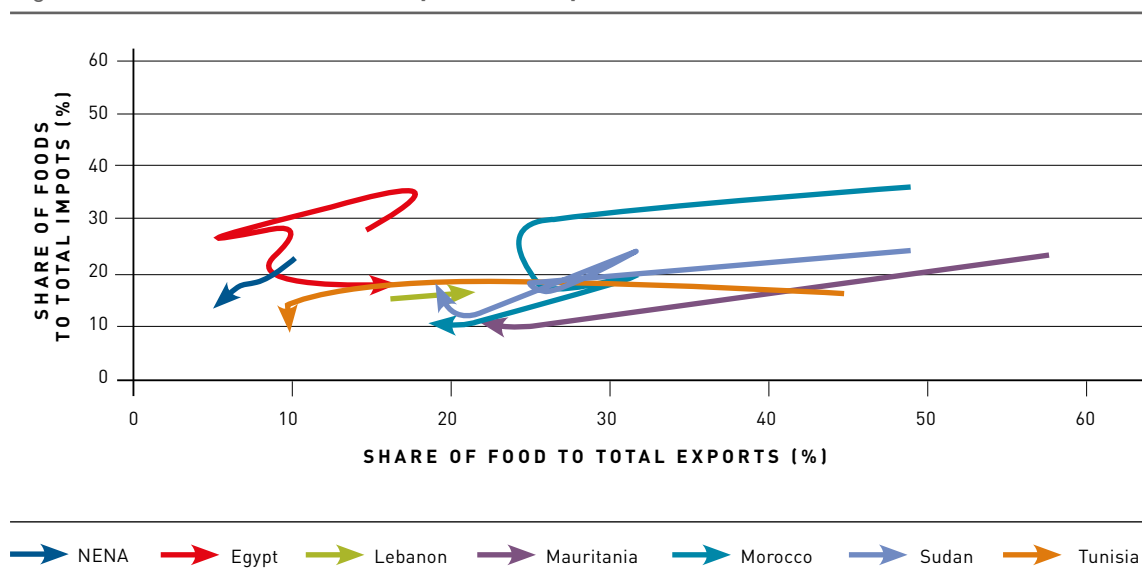
During the period under review, **Tunisia** seemed to be following in Lebanon's footsteps. By diversifying its economy in services, notably tourism, its SVAA-GDP reduced significantly, while at the same time, the labour force fell at roughly the same rate. This path could have been "ideal" if followed under full employment. Yet, the unemployment rate in this country has remained high over the past 10 years, showing the difficulty of providing young people, notably graduates, with jobs that meet their expectations. In such a context where the level of education is good, the agricultural professions lose their appeal if they do not incorporate technological advances in practices, changes in patriarchal relationships to empower young generations, and income levels operating on a par with urban incomes. These rapid transitions require reconsidering the standard agricultural policies of the Green Revolution period, intensifying the use of the labour factor and intermediate consumption, seeking additional opportunities to capture more added value for the farmers, diversify farm and off-farm income, and promote agricultural and agro-food development around regional dynamics (Dorin, Hourcade and Benoit-Cattin, 2013).

Lastly, two countries have a fairly similar path: **Egypt** and **Morocco**. They are characterized by having maintained a relatively stable share of agriculture in GDP, whereas the proportion of labour involved in agriculture has fallen sharply (by 15 percent in **Egypt** and 25 percent in **Morocco**). This path reflects the growth of agricultural added value, as well as opportunities to exit agriculture, either for the secondary or tertiary sectors of each country, or by emigrating.

In many countries, agriculture still plays a crucial role in stabilising the balance of payments, by providing sometimes a significant portion of the foreign exchange reserves needed for imports (Figure 26). In the six countries under review, this contribution is tending to decrease, with the notable exception of **Egypt** and **Lebanon**. In the other countries, agriculture contributes between 10 percent (**Tunisia**) and 20 percent (**Mauritania**, **Morocco** and **Sudan**) of exports.

This drop in the contribution to exports does not lead, however, to a greater reliance by the six countries on the international food market. There is a general trend towards a percentage reduction of the share of food imports in total imports of around 10 percent (Morocco, Mauritania, Tunisia) or 20 percent (Egypt, Lebanon, Sudan). Proactive agro-food export strategies are being implemented in countries that have started their structural transition: the growth of agricultural exports in volume remains lower than the growth of total exports. However, with the decline of food imports, we can say that the urbanization momentum reinforces the urban/rural connection on the domestic food market. Here, the stakes are likely to increase with the growing demographic weight of these countries. It will therefore be all the more important to redesign the domestic agro-food market through policies.

Figure 26. Share of food to total imports and exports (1965-2013)



Source: Authors, based on WDI 2015 data

RECOMMENDATIONS

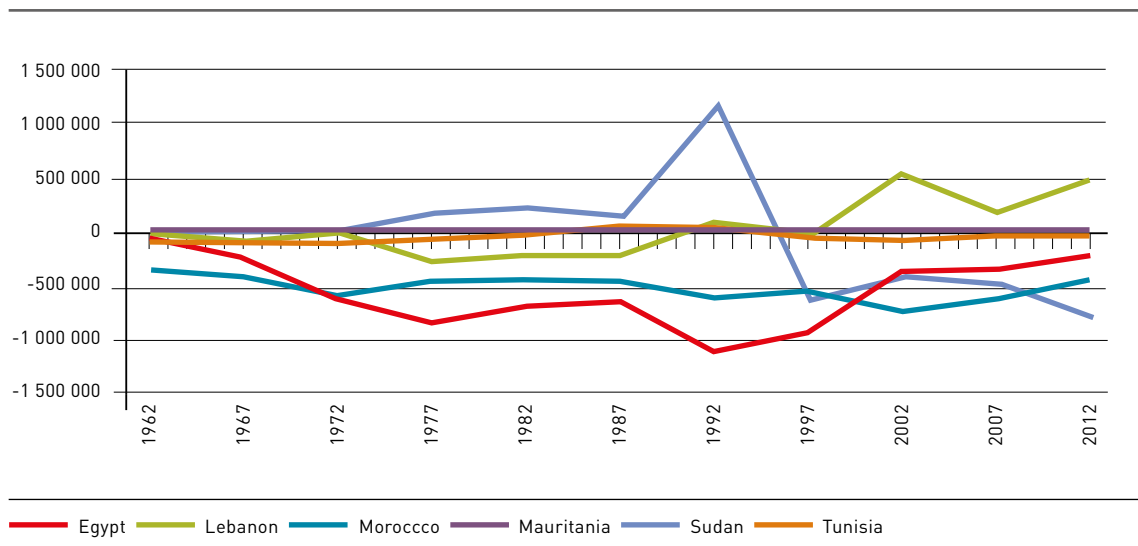
1. The productivity of all production factors (land, capital, and labour) should be taken into account when setting the priorities of agricultural and food policies. Particular attention should be paid to labour productivity, which is a key dimension in the fight against poverty.
2. Agricultural policies should factor in opportunities to exit agriculture. The fact that such opportunities vary significantly means that these policies should be tailored to local realities.
3. Agricultural models that serve to inform agricultural policies should facilitate cross-sectoral, temporary or permanent, local or international mobility. Supervised multi-activity is an option which enables longer transition periods to be managed with greater flexibility.
4. The change in the weight of agriculture, and especially small-scale family farming, should be assessed in light of the structural transition in order to update the tasks assigned to it by society: source of employment/decent jobs; supply of foreign exchange/domestic food security; international competitiveness/land use planning; food production/generation of ecosystem services.

3.2.3 The multiple challenges of migration

The data available does not allow us to make comparisons based on each country's internal migration dynamics yet this is absolutely key to understanding the challenges of agriculture and rural development, the urban/rural nexus, and household and village community diversification strategies. We will therefore focus on international migration and its impact on national economies.

Figure 27 shows that with the exception of Sudan until 1995, and Lebanon from 1998, all the countries surveyed are net exporters of labour. This is consistent with the state of the labour market. Also, the export volume may be significant, especially for Egypt with almost 1 million departures per year between 1977 and 1997.

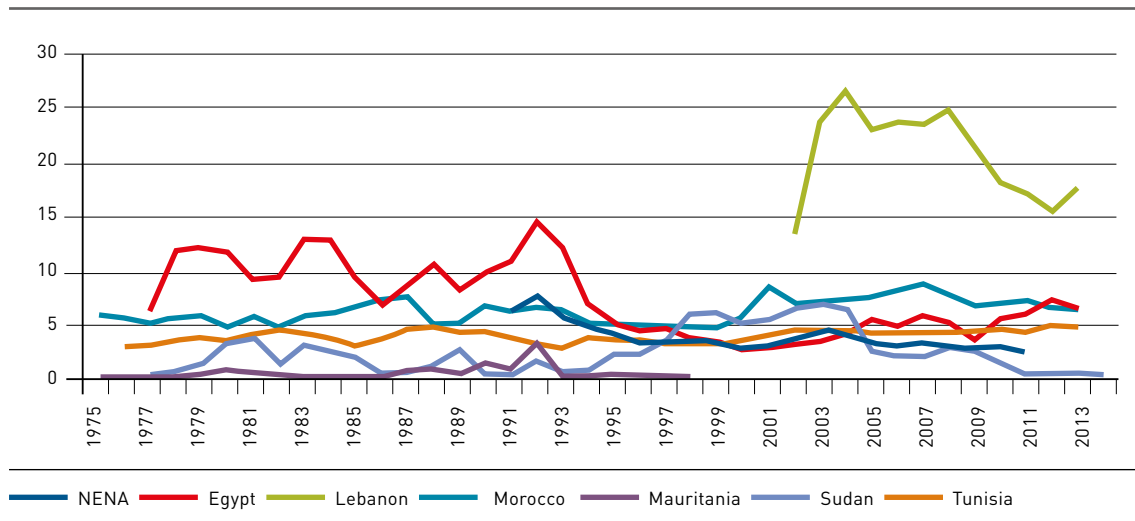
Figure 27. Net international migration (1962-2012)



Source: Authors, based on WDI 2015 data

These migration patterns logically imply remittances to families back home, for investments aiming to prepare a return in the active phase of life, or to prepare for retirement in the home country (Figure 28). Such remittances can be significant: they range between 15 and 25 percent of GDP for a country like Lebanon, whereas for Mauritania and Sudan they are insignificant as remittances represent less than 1 percent of their GDP. By contrast, Egypt, Morocco and Tunisia benefit from stable transfers ranging between 5 and 10 percent of the GDP. Given that most migrants are from rural areas, it is likely that this is where most of the remittances are destined for. Unfortunately, WDI data that can be used for international comparisons does not distinguish between urban and rural areas.

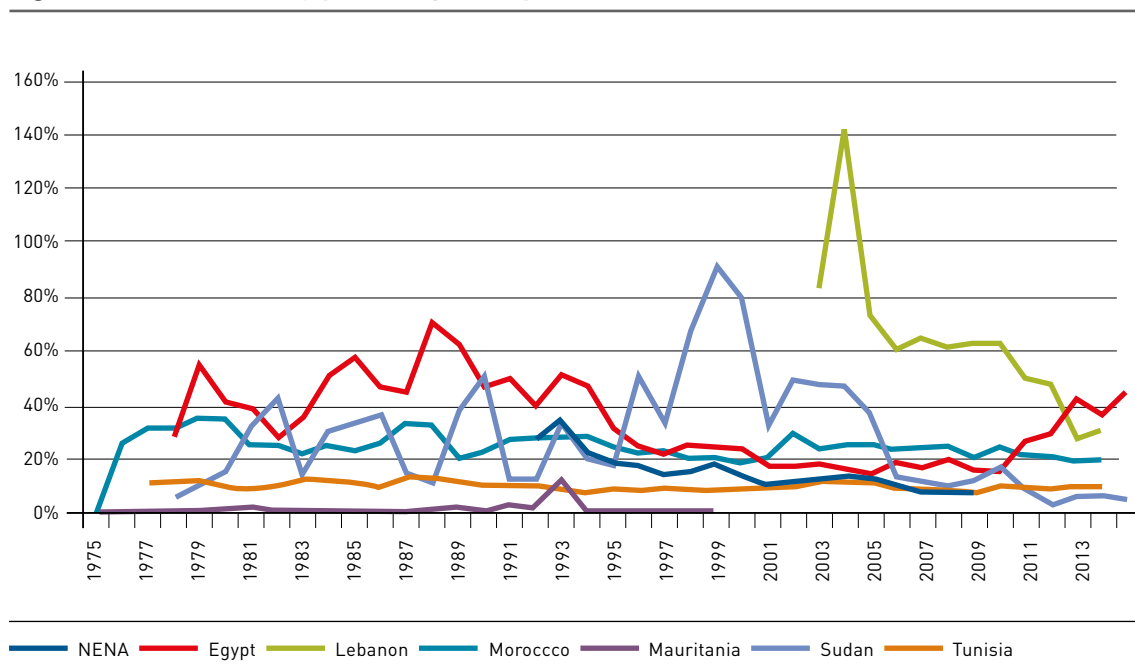
Figure 28. Remittances from migrants (% GDP)



Source: Authors' calculations based on WDI 2015 data

Another way of understanding such remittances is to determine to what extent they shore up the foreign exchange reserves each country needs, by comparing them with other sources of foreign exchange reserves, namely exports (Figure 29). The data available is astonishing. **Lebanon** benefits the most (remittances account for 35 percent to 140 percent of exports, depending on the year). In **Egypt** also, remittances play an important role in the balance of payments, representing between 15 and 70 percent of exports. For **Morocco**, **Tunisia** and **Sudan**, the figures vary between 10 and 20 percent.

Figure 29. Remittances by percentage of exports (1975-2014)



Source: Authors' calculations based on WDI 2015 data

RECOMMENDATIONS

1. The patterns of remittances from migrants should be better understood in order to measure their impact on families, territories and production patterns (businesses, employment, etc.) through observatories and consultation platforms.
2. Incentive policies could direct part of the remittances to employment-generation in rural areas through co-financing, tax reduction, co-investment or convergent public investment mechanisms (support for farmers' organizations, chambers of agriculture, small and medium-businesses).

3.3 Interim conclusion

The first two parts of the report have revealed the extraordinary resilience of family holdings which, in certain cases, can be seen in the ability to take advantage of opportunities to develop their activities by integrating growing markets or state support programmes (plantations, irrigation, etc.). In difficult areas (mountains, oases, encased valleys, steppes), families are clearing their farms, removing stones and digging wells that they then fit with motor pumps. For these family farmers, ownership of irrigated land remains a guarantee for stable income and decent status.

But the recent economic crises have left their mark. Indeed, the economic, financial and food crises of 2007-2008 have had a major impact on the economies of countries such as **Tunisia** and **Morocco**, and have indirectly compounded the difficulties of family holdings and disrupted their functioning. There has been a downturn in remittances from migrant workers (**Morocco**, **Tunisia**) that benefitted farming families back home. The shocks suffered by labour markets have reduced job opportunities off-farm for an oversized agricultural population. Formal sector businesses are no longer able to absorb an increasing number of agricultural workers.

The rationale behind small-scale holdings, based on multi-activity and the contribution of external income, has changed dramatically. Family farms are forced to keep excess labour on increasingly cramped surfaces because powerful economic players, both rural and urban, currently compete with them for access to water and land, thus reducing their productive capacities. This competition for natural resources, encouraged in recent years by land laws, difficulties in finding jobs off-farm or accessing loans, has resulted in family farmers losing control over land, and to material de-capitalization leading to an exit from agriculture. Uneven across the countries, the ongoing disconnect between labour, land and capital is a sign of exhaustion of the coping capacities of small-scale family farms in **Morocco** and **Tunisia**, and threatens the very conditions of their resilience.

The third part has shown that the observed decrease in the agricultural labour force obviously had the greatest impact on the smallest farmers, including the landless. The main reason for exiting agriculture is the extent of poverty in their ranks. For these households, raising income through the usual processes of the green revolution, namely intensifying production by purchasing inputs and increasing the amount of labour, does not work: land productivity

increases – a good thing for national food security – but labour productivity remains stagnant, and the time increasingly spent on agricultural activities competes with other off-farm activities. This is not conducive to enhancing the proper food security of these poor households.

Yet, the other three income-improving options (de Lattre-Gasquet, 2014) are often beyond the reach of these small family farms: mechanization (which substitutes labour for capital) requires access to land and investment financing mechanisms that are generally inaccessible, for lack of an agenda of new forms of agrarian reform or adaptation of financing institutions to these poor client; extensification equally implies the availability of land in the country, and contradicts the current food security objectives of the region's countries. The only remaining option therefore is increasing added value by improving marketing conditions (agro-food processing, short supply chains, and high-value niche markets).

The comparative advantage of these small farms is obviously not in long export chains (as the marketing costs consume most of the profit margins, and asymmetries between economic actors are huge). While the policy objective is to keep a maximum of specialized small-scale farmers in agriculture, only the strengthening of local food systems and the cohabitation of different agricultural patterns within localized agro-food systems (SYAL) (Beber *et al.*, 2011) can significantly improve the income of small family farmers.

Of course, other options exist for small-scale family farming: (i) a part-time farming model, for farmers who need to continue farming to guarantee their family's food security; (ii) exit from agriculture, as long as decent exit options exist in agriculture-related activities; or (iii) outside agriculture, but either within the rural world, or in suburban areas. The option to keep only one model or to allow the development of several models is a political choice.

Public policies can both guide agricultural patterns and strengthen one or several of the functions of agriculture: ensuring the country's food security, improving the safety of food products, generating foreign exchange, developing the regions, creating decent jobs, producing ecosystem services, etc. Of course, these choices depend on policy options, and also on incorporating the sequencing of the demo-economic transition and the comparative advantages that the country has or is preparing.



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PART FOUR

4

Agricultural policies and small-scale family farming

The agricultural and rural policies of the six countries under review are part of an international economic environment, and in national contexts with specific natural, economic and political conditions. It is therefore important to place their analysis within the perspective of these contexts.

4.1 An international economic environment and specific contexts and histories

Because they are fast integrating with the global economy, the six countries under review are particularly dependent on the international environment. Changes in production and technical paradigms that accompanied the globalization of economies and trade in the 1960s and 1970s challenged the former political, economic and social order inherited from independence and/or national revolutions. The era of agrarian reforms (Egypt, Morocco, Tunisia), social reforms and national economic projects was followed by a period of liberal reforms and structural economic adjustments carried out under the leadership of the International Monetary Fund (IMF) and the World Bank (WB).

The fragility of macro-economic balances (deficit of the state budget, the balance of trade, the balance of payments, foreign exchange reserves, and external debt) which characterized the economies of the majority of the countries under review forced them to adjust their policies to these new constraints. The global economic and financial crisis of 2007, followed by the food crisis of 2008, compounded the effects of adjustment policies on local economies and societies (poverty, food insecurity, social infrastructure deficit and public services, etc.).

The study of national situations shows, on one hand, high vulnerable agricultural and rural economies, and, on the other hand, as was observed in Part Three, a growth model resulting from an unfinished structural transition.

The primary sector, which holds a significant place (except in Lebanon), has limited natural resources (land and water) that are otherwise highly subject to climatic variability. Where this is not the case (Lebanon or Sudan) land or water resources are underexploited.⁶⁸ Everywhere, including in the poorest countries (Mauritania or Sudan), the services sector (business and administration) where productivity gains are low, is expanding. The industrial sector is underdeveloped or stagnant, with a predominance of low-technology industries (mining and manufacturing) employing an unskilled and low-paid workforce. The countries under review are progressing at different paces in their structural transition, which is marked by a change in the productive specializations of the various sectors of the economy. The development of agricultural models, all including small-scale family-type holdings, is thus hampered by an unfinished structural transition on the economic front, with the employment of a growing agricultural labour force still a pending issue in countries like Egypt, Mauritania or Sudan.

⁶⁸ Sudan's water potential is estimated at 34 billion cubic meters. Close to 20 percent of arable land is not cultivated in Lebanon.

Although the demographic transition process is underway in most of the countries under review (Morocco, Lebanon, Tunisia and most recently Egypt), overpopulation in the rural areas is continuously fuelled by positive natural growth rates, which contribute to heightening the pressure on a sluggish employment market and increasingly limited natural resources. The degradation of agricultural structures as seen in the countries under review is partly due to this demographic variable.

Local agricultures are evolving in these specific contexts and the national studies also highlight the peculiarities of the natural, socioeconomic and political conditions of each country. The economies of Mauritania and Sudan are highly dependent on the vagaries of the climate. In the late 1960s (1968), Mauritania descended into a prolonged drought period that, after peaking in 1972-1973, continued into the 1980s and beyond, and had a lasting effect on agriculture and livestock. In Sudan, the paradox lies in the fact that the country possesses significant water resources⁶⁹ (water from the Nile, surface water from the *wadis*, and groundwater) on the one hand but they are underexploited, and on the other hand, suffers from severe drought episodes. These occurred in the southern regions (Darfur) from 1969 to 1973, and again from 1979 to 1983 leaving famine and large-scale migratory movements in their wake only to resurface again in 1983-85 and in 1990-91. Rising temperatures and reduced rainfall in these countries in recent decades have accelerated already well-advanced desertification processes, and led to a change in bioclimatic patterns with the border separating the desert from semi-desert areas moving southward. These natural phenomena, which are illustrative of climate change impacts on these two countries, have significantly affected the relations between the nomadic and sedentary people, stirring up conflicts over resource use (water and rangelands). They have also intensified difficulties in small-scale stockbreeding and family farming in rain-fed areas.

Agricultural and rural policies in Mauritania and Sudan should be understood primarily in the light of the climate vulnerability of their agricultural systems. All actions taken by the state (irrigation, grazing policy, anti-desertification programmes, and fight against poverty, etc.) are an attempt to cope with the disruptions caused by the deterioration of the environment. The macroeconomic and social contexts prevailing in both countries also influence the reference framework for public policies. Besides the key factors referring to a recurrent climate threat, the agriculture sector is impacted by fiscal crises and the necessary adjustment of local economic structures to market needs.

In Sudan, climate and economic shocks combine with political shocks. The country's economic and social policies are the result of a context marked particularly by the development of violent and destructive political conflicts that tore the country apart until 2005.

One cannot understand and interpret the agricultural policy in Lebanon without taking into account the local and regional community and geopolitical conflicts that are a source of the institutional instability affecting the country and its economy for a long period of time, as

⁶⁹ According to a report by Sudan's Ministry of Irrigation and Water Resources, water available from the Nile per year is 20.5 billion cubic metres, the estimates for the *wadis* is 5 to 7 cubic metres, and renewable water tables provide 6 billion cubic metres. This makes a total of about 30 billion cubic metres. The target for recycled water is 6 billion cubic metres, which would bring the total amount that can be leveraged to 36 billion cubic metres.

was the case with the 1975 to 1990 civil war. The instability of political institutions helps to explain the direction and the functioning of agricultural and rural programmes and policies adopted in recent years. Although the migration of men and trade development have been a constant in the history of the country, structural changes in the economy, combined with political and military conflicts, have been instrumental in the development of the agriculture sector and the rural areas.

Ancient migratory movements going back to the nineteenth century were followed by population movements closely related to the conflicts across the country and the region. The massive exodus of populations, coupled with population displacements during community and political conflicts, has contributed to restructuring the territories, leading to a change, on the one hand, in the rural-urban ratio, and on the other hand, of the place of agriculture in the national economy. The influx of foreign populations (yesterday Palestinians, Iraqis, and today Syrians, etc.), victims of regional conflicts, has impacted the rural economy and Lebanese society. It should also be recalled that the liberal economic growth model is the key reference framework in the design of Lebanon's agricultural policies. This growth model, which first came into force in the early 1960s, is based on the promotion of service activities and financial and commercial intermediation structures operating both at the national and regional level.

Though surrounded by the desert, agricultural and rural Egypt has existed from the dawn of time, and remains structured and organized by the existence of the Nile waters, and more recently, the Aswan Dam. The Nile Valley, the Delta area, and now the new agricultural lands in the other regions of the Northeast or Northwest, are the seat of an agriculture sector developed, yesterday by a traditional peasantry, and today on the new reclaimed lands by a class of private entrepreneurs, agricultural technicians, and farmers. As in **Lebanon**, its economy and agricultural trade are strongly integrated into the trading system (agricultural and food products) of the Middle East and global markets. The region's oil economy has generated a flow of Egyptian migrants, most of them from Egypt's rural areas, to work in the neighbouring countries (Saudi Arabia, United Arab Emirates, Libya, etc.). Remittances help to enhance the purchasing power of the families back home and in the economic development of their farms. Thus, any disruption of institutions, political or economic conflict or shock, will impact the local economy, as is the case today with the political upheavals resulting from the January 2011 revolution.

The matrix of agricultural and rural policies adopted in **Morocco** and **Tunisia** aims to help these countries participate in the globalization of trade (especially with Europe), and will translate into market-oriented growth models. The economic growth models put in place were affected by the economic and financial shocks of 2007, and the food crisis of 2008. While food security, agricultural competitiveness, city supply and rural development are the bedrock of such policies, subsequent agricultural reforms – Green Morocco Plan, Guidelines from the 11th Plan (2007-2016) in **Tunisia** – were a result of changes in the international environment.

Agriculture is facing common challenges in all the countries under review: sensitivity to climate variability, job creation needs, food security, new competition with different forms of agricultural production, lack of financial resources, dysfunctional institutions, absence of producer organizations and poverty related to poor living conditions.

The objectives of agricultural and rural policies have thus been influenced by international factors, and by the way they translate the requirements arising from the specific contexts in each of the countries under review.

4.2 The origins of national priorities and strategic pillars structuring agricultural and rural policies

One of the visible signs of the food crisis of 2007/2008 was the instability of agricultural markets and price volatility. The volatility is part of a trend of rising international prices for agricultural commodities as shown by studies.⁷⁰ In recent years (2008-2012) this instability led to higher prices which significantly affected food bills representing, for the countries under review, 15 to 25 percent of total import expenditures. Faced also with an inflation of food prices, the governments of the six countries under review subsidize bread or other basic commodities through compensation funds, which sometimes weigh heavily on public finances (1 – 2 percent of GDP).⁷¹

The deterioration of the nutritional status in a number of countries (**Mauritania and Sudan**), as well as the rising cost of food imports, have accentuated the degradation of agricultural trade balances, which have been in deficit for many years in all the countries under review.

This combination has led all governments to list food security among their national priorities.

Even though over the past decades and in virtually all the countries under review, there has been a relative decline of agriculture in national wealth production (**Egypt, Lebanon, Mauritania, Morocco and Tunisia**),⁷² agriculture remains a national priority on the political agenda. With the exception of **Lebanon**, where agriculture accounts for only 5 percent of GDP and 6 percent of the labour force (2014), in the other countries, this economic sector still bears heavily in economic growth and GDP. It plays a major role in employment and in export earnings. It should be pointed out that agriculture contributes to export-related foreign exchange inflows in **Egypt, Morocco, Sudan and Tunisia** (10 to 20 percent of exports).

With regards to employment, agriculture is also one of the leading sources of employment in the countries under review (except **Lebanon**). In 2013, it employed a quarter of the working population (25 percent) in **Mauritania**, over 30 percent in **Egypt, Morocco and Sudan**, and more than 20 percent in **Tunisia**. Agricultural strategies in all these countries should increasingly identify employment as a target.

⁷⁰ OECD-FAO, "Agricultural Outlook 2008-2017", OECD-FAO Report, Rome, May 2008. Mahavedi, V, Cheriet F. and Rastoin, J.L. (2010) IPEMED. *La situation alimentaire en Méditerranée : enjeux stratégiques et éléments de prospective.* After rising significantly in 2011 and 2012 food and agricultural prices have fallen in the past two years. It should be noted that all commodity price indices - sugar, dairy products, oil and cereals - fell as a result of abundant supply and stiffer competition on export markets.

⁷¹ In 2011-2012, food prices are believed to have increased by an average of 9 percent in **Egypt** and close to 6 percent in **Tunisia**.

⁷² The decline was lower in **Sudan**.

Export promotion in order to improve trade balances and foreign exchange reserves is also included in all agricultural strategy instruments of the countries under review. All these countries aim to modernize their agriculture, increase plant and animal yields, and improve their competitiveness in the face of ongoing competition.

The natural resource degradation process observed in almost all six countries has prompted policy-makers to pay greater attention to environmental issues. The “green plans” (reforestation) intended for forest areas (Lebanon and Morocco), the fight against land degradation and desertification (Mauritania, Sudan, Tunisia), or the fight against water pollution (Egypt and Tunisia) are included in the agricultural strategy instruments of the countries under review.

Disruptions of the legal and institutional framework, its instability in countries hit by political or climatic crises (Lebanon, Mauritania, Sudan), or simply the will to reform it in order to improve the quality of public services to farmers (Egypt, Morocco or Tunisia) have led the governments to include this push in agricultural policy objectives.

Lastly, note should also be taken of new approaches to designing agricultural strategies and policies.

Lebanon’s National Economic Recovery Plan (1993–2002) involved a national consultation in association with the agricultural profession (Cortas, 2002).⁷³ This procedure, which was intended to “(a) properly plan the future of Lebanon’s agriculture; (b) incorporate all the views and perspectives of producer associations and individual farmers in order to design an efficient agricultural policy and prepare a medium- and long-term agricultural development plan; (c) monitor and evaluate agricultural development policies and programmes” was replicated in the strategies (2010–2014 and 2015–2019) that followed.

Attempts during the Nasser administration to involve small-scale farmers in the process of developing the agricultural policy, by legislating for better parliamentary representation, were defeated by the representatives of large landowners. It should be noted that the preparation of the 2030 sustainable development strategy in Egypt has seen the involvement of local experts, the participation of three international organizations (FAO, IFAD, World Bank) and numerous farmer associations and organizations from the country’s different agro-ecological regions.

In Mauritania, the Rural Sector Development Strategy (SDSR) by 2025, adopted by government in 2013, was developed following public debates involving all stakeholders (*wilayas*⁷⁴, local authorities, cooperative unions, stockbreeders’ federation, farmers, women’s associations, etc.). These initiatives, involving farm groups, producer organizations, farmers’ unions and other civil society representatives, are signs of a positive change in relations between the state and the agriculture sector.

Besides these general objectives of agricultural policy, the priorities of each of these countries depend on their own peculiarities.

⁷³ Cortas A. (2002), *Problématique de l’agriculture libanaise: problèmes et solutions*. Revue New Medit. N° 1/95.

⁷⁴ *Wilaya* is the Mauritanian nomenclature for ‘region’

Livestock-rearing and agro-pastoralism are major activities in **Mauritania** and **Sudan**. Livestock accounts for 20 percent of GDP, almost 60 percent of agricultural value added and 20 percent of exports in **Sudan**. In **Mauritania**, it occupied 58.8 percent of the total population engaged in agriculture and accounted for over 80 percent of the agricultural value added during the period from 2006-2013.

In **Mauritania**, the livestock sector is governed by an agro-pastoral framework law (LOAP) drafted and adopted in December 2012. Public sector support is primarily directed to animal health issues, which receives support from international organizations, particularly for the major diseases that impede export trade and/or have regional or international dimensions.

Demographic (sustained increase in population) and economic factors (increase in domestic and import demand) have led to **Egypt** being the world's largest wheat importing country. This situation has led Egyptian authorities to identify agriculture as a strategic sector. The scarcity of arable land in a country made up of desert encouraged the government to transform desert lands into cultivated lands in order to enhance the country's productive potential. This line of action was combined with the search for agricultural competitiveness in order to export the country's produce to foreign markets and reduce the agricultural trade deficit. Moreover, it appears that public infrastructures (particularly for drinking water) are still needed in rural areas, the literacy rate remains low compared to urban areas (half the population of **Upper Egypt** is still illiterate) and poverty seriously affects rural areas. Developing new lands, irrigation works, developing export supply chains and fighting rural poverty are the pillars and main purpose of the agricultural and rural policies carried out in **Egypt**.

Agricultural strategies in **Lebanon** since 2004 remain focused on strengthening agriculture competitiveness, by modernising the legal and institutional frameworks in order to reclaim historical markets (the Middle East and Europe) for quality products.

In connection with developments within their economies and societies, the factors that have inspired recent agricultural and rural policies in **Morocco** and **Tunisia** are structured around the competitiveness of agriculture, the development of domestic production and export supply chains (fruits and vegetables, olives, milk), and public-private partnership with the aim of mobilising private investment and fighting poverty.

Rural development policies are structured around programmes with a very strong social dimension. Indeed, poverty in **Mauritania** mainly affects rural areas (44 percent of the rural population), which explains the government's motivation to design a Poverty Reduction Strategic Framework and make promoting the rural sector a key area of intervention given its high potential to fight food insecurity. The Five-Year Strategic Development Plans (2007-2012 and 2012-2016) in **Sudan** are geared towards attaining the Millennium Development Goals (MDGs). They aim to reduce poverty and food insecurity, which is particularly high in rural areas. In **Tunisia**, rural development policies are defined in the various five-year development plans. Their objective is to improve the living conditions in rural areas, where poverty is highest. In **Egypt**, the main objectives of the Sustainable Development Strategy for Agriculture in 2030 relate to the improvement of the livelihoods of rural populations. The investment programmes are focused on community infrastructure (roads, health, education, drinking water) and utilities.

In Morocco, Pillar II of the Green Morocco Plan is aimed at developing projects to reduce poverty among vulnerable populations living in the most fragile rural areas. In Tunisia, the various development plans have defined programmes to fight against localized poverty in rural remote areas. National rural development policies often funded by international donors are structured around infrastructure programs and employment and income generating projects.

4.3 Historical sequences in the development of agricultural and rural policies

Three major historical sequences can be identified in the implementation of agricultural and rural policies in the countries under review.

4.3.1 1950-1960: The first programmes following independence

The first period spanned the 1950s and 1960s when successive governments to national revolutions (Egypt) and colonial regimes (Lebanon, Morocco, Mauritania, Sudan and Tunisia) focused on building their institutions and managing their legacies.

During the first years following independence in Morocco (1955) and Tunisia (1956), the main framework of agricultural and rural development programmes was built around actions to fight poverty in the rural areas where the majority of the population lived, underemployment, malnutrition and illiteracy. State intervention in rural areas focussed on water infrastructure, reforestation and soil protection, while agriculture modernization was left to private actors. Agricultural policies were focused on recovering colonial lands and redistributing them as part of land reform. In Morocco and Tunisia, government desire to modernize the “traditional” sector and link it to markets translated into actions to support smallholdings through the mobilization of technical support services. Incentives for the use of fertilizers and improved seeds, and introduce and support mechanization were the main policy actions in these two countries. However, some initiatives – affecting the so-called modern sector inherited from colonization – were aimed at structural transformations in the economy and agrarian societies. The limits of these initiatives were quickly reached, as was the case of the “cooperativization” in Tunisia (1967-69).

In Egypt, the Nasser regime enacted a first agrarian reform (1952), then a second one (1958); these laws restricted ownership⁷⁵ and redistributed land to landless peasants and smallholders. Besides land redistribution and the protection of small-scale tenant farmers, agrarian reforms implemented in favour of smallholders during the 1950s and 1960s were accompanied by the creation of service cooperatives that provided them with effective material support. Agricultural financing innovated in favour of smallholders by disconnecting loans from land

⁷⁵ In 1952, small-scale owners (defined at the time as those who possessed less than five *feddans*) accounted for more than 94 percent of owners with barely 35.4 percent of the land, whereas large-scale owners (more than 50 *feddans*) held 34.2 percent of arable land. The Agrarian Reform Law of 1952 limited ownership of agricultural land to 100 *feddans* per family and 50 *feddans* per individual. This law led to an increase in the number of holders of 50 *feddans* from over 78.5 percent in 1950 to 84.1 percent in 1960. The surface area held by this category increased from 23.1 percent of the total UAA to 37.8 percent.

collaterals that were difficult to provide. Subsidized loans were therefore guaranteed by the annual production of borrowers. To improve the allocation and efficient use of Nile waters, the government designed a modernization plan of irrigation systems managed by water users' associations and parliamentary representation of peasants and smallholders was enacted by law. However, while the conditions of the smallholders have improved, all the studies show that not all of these objectives have been achieved, and that the political influence of major landowners in political institutions such as parliament, have remained by and large intact.

In **Mauritania**, the first Plan (1963-1966) committed to an economic development based on mineral resource exploitation. Although emphasis was laid on the role of agriculture and animal husbandry, policies focused on irrigated agriculture and the export of livestock products (meat). The severe drought of the 1970s created major historical disruptions in the rural world. Before the drought, the rural world was dominated by pastoralists moving from one area to another in search of water and pasture for their cattle and cohabiting with sedentary farmers. The great drought of the 1970s completely changed this order over which the state had no control. Mass population movements reduced the place of nomadism: Nomads accounted for 73 percent of the total population in 1965, 11.4 percent in 1988, 4.8 percent in 2000, and less than 2 percent in 2013. Urban areas have benefitted from this accelerated settlement process; for example, 51.6 percent of the urban population was based in Nouakchott in 2013. The economic crisis that followed the droughts weakened the state, leaving it with very few financial and fiscal resources, and so the main investment actions focused on developing irrigation schemes, with smallholders in rain-fed areas receiving few public interventions.

In **Sudan**, past government strategies mostly favoured sedentary farmers, at the expense of stockbreeders and pastoral communities. During this period, emphasis was placed on developing and expanding irrigated areas, and supporting semi-mechanized large holdings in rain-fed areas. Modern dairy cattle-breeding profited from public projects as part of the implementation of the first Ten-Year Plan (1960/61-1970/71). In order to improve milk production, the first experimental research centres established after independence provided inputs and veterinary services, enhanced the genetic potential, popularized improved animal breeding practices and supported stockbreeding.

During the 1955-1960 period, when most public institutions of the Ministry of Agriculture (established in 1955) were set up, **Lebanon** opted for a service-based economic model. Inspired by the work of the Regional Training Institute for the Environment and Sustainable Development, a development project (1964-1968) was designed by the Ministry of Planning. This project was an attempt to address the social and economic dimensions of the country's development by offering to ensure regional balance through regional development. The Institute had in fact highlighted the excessive polarization of Beirut and the marginalization of other areas, especially rural ones. However, the government opted for a deliberately liberal policy, including in the agriculture sector. This policy encouraged exports and opened the domestic markets to foreign products. Meanwhile, the Ministry of Agriculture and the Ministry of the Economy and Finance underwrote grain subsidies and provided support for tobacco and sugar beet cultivation. It should be noted that small-scale farmers specialized in apple production in certain areas (Mount Lebanon), as well as many small-scale tobacco farmers,

benefited from state support policies. The regional balance approaches advocated by the 1964-1968 Development Plan were not achieved; and the public investment deficit in the agricultural North, or the Bekaa Valley encouraged rural migration.

4.3.2 The 1970s: A period of national economic projects

The second period that coincides with the 1970s is that of agricultural modernization policies managed by the governments and funded through public budgets. While the state remained the main provider of interventions in the agricultural and rural milieus, the nature of such interventions was strongly determined by the specific contexts of each of the countries.

Hard-hit by drought, **Mauritania** primarily focused on rebuilding its livestock, reclaiming land through irrigation development works (M'Pourié, Manantali, Diama dams, Gorgol, Fom Gleytat and Boghé pilot areas) and developing cooperative facilities. These programmes often benefit from international aid. A state farm (800 ha) was set up with the help of the People's Republic of China and was equipped with machines to develop paddy rice cultivation. Plots were allocated to peasant families in 26 communities in the Rosso area at 0.5 ha per family. 1983 marked the enactment of the State Land Reform which authorized individual access to land for farmers, on the condition they develop the land. The state promoted individual ownership of land within its private domain. It only retained so-called "dead" (abandoned, and recognized as having no owner) land.

In **Sudan**, the Five-Year Plan (1971-1975) focused on increased animal and milk production. The government established seven large settlements in Kordofan by installing water points and transhumance corridors for pastoralists. It also developed milk production projects through the creation of state farms. These projects, which were a response to the growing demand for milk and dairy products in urban centres, were compromised by the drought of 1972-1975 that affected the region. Following the famine that hit the country, food aid was provided in the form of powdered milk which competed with local milk production. Attempts to regulate nomadic activity and help traditional agriculture during this period were deemed generally inadequate.

In the 1970s, **Egypt** continued to pursue developing its hydraulic potential (Suez Canal dam) and land colonization interventions with a view to rebuilding its agricultural area by extending it into uninhabited zones. The government organized agricultural holdings, imposed farming plans and subsidized chemical fertilizers and energy. It implemented an active agricultural financing policy and supported the prices of domestic commodities (wheat, cotton). Rural areas received direct support through the Village Construction and Development Agency, and the Local Development Fund granted promotional loans to women and youth. The government implemented a social policy for poor households mostly in rural areas, by subsidising the price of bread, rice, cooking oil and tea.

In the 1970s, **Tunisia** embarked on agriculture modernization programmes through public investment and infrastructure creation in rural areas: rural electrification, rural road network, drinking water supply, etc. Once again, the role of the state was crucial in the agricultural growth process supporting the costs of inputs, mechanization, and the so-called strategic products delivered by farmers.

Meanwhile, Morocco embarked on a dam revolution. The target set by the Royal Palace was to reach one million irrigated hectares during the 1970s. The dam policy was implemented by government offices in a number of areas which were to become the major production and export zones of the country. The land was improved with state budget support and transfers to farmers were made in the form of price support, equipment, inputs, or services through public works companies, thereby enabling the development of agriculture. The government developed water resources and put itself at the service of agriculture.

4.3.3 Since 1980: The structural adjustment period

In Lebanon, the civil war transformed the role of agriculture. Rural areas were affected by the destruction of infrastructure, massive displacement of populations, community ghettoization, and the development of illicit crops to finance the war effort. Trade flows were disrupted and shares on Middle East markets were taken up by neighbouring Syria. This period marked the beginning of the decline of agriculture and of a rural world particularly affected by community violence. Public institutions were neutralized and food supplies were provided by the family farms that were still able to produce. Fiscal pressures and the external debt crisis forced countries to implement structural adjustment policies in the agriculture sector. Structural adjustment, to which Lebanon's agriculture was subjected due to the war and to political conflicts, became the rule for the agricultural economies of the other countries in the 1980s.

Egypt started structural adjustment quite early by adopting the *infitah* (opening) policy in 1971. The economic reforms that were adopted reduced the role of the state and transferred the resource-allocation and price-setting functions to the markets. The government liberalized the agriculture sector and abandoned its supervisory role of farms and strategic crops;⁷⁶ it transferred the commercialization of such crops to the markets and pricing was left to the farms. It reduced its regulatory functions to input supply at sustained prices.

Private operators (wholesalers, exporters or brokers, traders, manufacturers) became the main players in the markets. Seasonal loans were provided for certain crops at subsidized interest rates. The land reforms of the 1990s called into question the achievements of Nasser's agrarian reforms. Land ownership ceilings were raised, and benefits granted to tenants in lease contracts (lease renewal for life, devolution) were reviewed.

The social consequences resulting from the implementation of the structural adjustment programme were severe, especially for smallholders. The high poverty rates in the rural areas led the government to step up the supply of basic food products through ration cards.⁷⁷ A Social Development Fund was established in 1991 to mitigate the negative effects of the

⁷⁶ For strategic crops, notably wheat, and to a lesser extent maize, the state announces indicative prices prior to the agricultural season: such prices were sometimes higher than world prices in order to support the sector. Government committed to purchasing production from farmers based on the indicative prices, without any quantitative requirement.

⁷⁷ The number of households benefiting from these policies was estimated at about 11.8 million in 2010 and 18.6 million in 2013. Subsidies per family stood at about 725 LE per family (US\$91).

structural adjustment programme. Its aim was to improve the living conditions of the rural populations by mobilising national and international resources. Egypt very quickly took on board participatory poverty reduction projects, which became the rule in developing countries: drinking water supply, connecting the villages to the sewage system, literacy programmes and community schools, training for women, family planning, primary health care programmes, employment- and income-generating projects, etc.

In Morocco and Tunisia, state budget support was abandoned in favour of restoring the equilibrium of major “fundamentals” (balance of payments, capital, foreign trade, etc.). In terms of land policy, legal arrangements (the 1971-1973 laws in Tunisia) reinforced the trends to private ownership with the excuse of combatting stagnation by linking them to economic dynamics. Private ownership of land in the state estate promoted land concentration in favour of social groups from the cities or countryside, and accentuated agrarian dualism: the coexistence of many small and very small farms alongside very large farms.

All state monopolies were abolished, and (production or services) cooperatives were dissolved in favour of private entities. Declining investments primarily affected the rural areas. The spread of poverty in rural areas and growing social disparities between urban and rural areas led governments to implement, as in Egypt, programmes to fight poverty. This was the era of “participatory approaches”, rural employment and income-generating projects, agro-pastoral or silvipastoral development projects, integrated rural development projects in Tunisia, hydro-agricultural and rural development projects in the mountainous areas of Morocco, micro-credit, NGOs and mobilization of funds from international cooperation.

Mauritania continued to finance hydro-agricultural schemes, on the one hand, and to enhance its interventions to address rapidly growing rural poverty. Dams were constructed by the Senegal River Basin Development Organization. While investments were primarily aimed at irrigated agriculture, for several years, rain-fed crops and livestock, which hold a major place in production, were relatively neglected.

In Sudan, the 1980s were marked by serious macroeconomic imbalances, a depreciation of the national currency, high inflation and external debt. It was in this economic environment that a four-year “Recovery, Reconstruction and Development Programme” (1989-1992) was adopted. Supervised by the World Bank, this programme introduced a reform package dedicated to the rehabilitation of irrigated agriculture with a view to improving the conditions for food security, leading to 90 percent self-sufficiency at the end of the programming period. Of the eight measures adopted in the “Recovery Plan” to support agricultural production and food security, three were specifically aimed at rain-fed agriculture, mainly through farm loans, improving infrastructure (roads and railways) and support for the use of new technologies through the Research Council and extension services. Overall, resources were mainly allocated to large projects. Incentive prices set by the state for wheat crops and favourable weather conditions contributed to increasing agricultural production in the 1990s (10.8 percent per year). Small-scale farmers, who were beneficiaries of this programme, capitalized on state support.

Emerging from a war in the mid-1990s, Lebanon faced another problem: the occupation of its southern territories. A National Economic Recovery Plan (1993-2002) was adopted following a

national consultation. This plan was aimed primarily at strengthening institutions, improving the administrative and technical management of the agriculture sector, and implementing regional agricultural development projects (the Baalbek/Hermel project, development of animal production, irrigation of the North Lebanon, South Lebanon, and Mount Lebanon Regions). The objectives of the Ministry of Agriculture's Green Plan were land development, small irrigation, construction of farm-to-market roads and catchment ponds.

During the reconstruction period, the agriculture sector, whose role had been eroded by fifteen years of civil war, was only granted a secondary position. The liberal model adopted before the war has been renewed, and many trade agreements attempt to strengthen the agricultural export sector. State interventions are ad-hoc and policies are limited to the few support measures noted above. While smallholdings that were poorly integrated into international markets could cushion the impact of unfavourable competition, others were marginalized or else excluded from the market for lack of preparation and support to meet the new standards imposed by trade agreements with Arab or European partners.

4.4 Current policies: support for and/or impact on small-scale family farming

All the policy reviews in these countries underline the fact that small-scale family farming is only given a marginal place in government action. Annex 4 lists some areas that may be prioritized in the countries under review, particularly the categories supported through a public policy (subsidies, exemption, credit, etc.) and their involvement in agricultural representation structures as well as decision-making supported by policies. The analysis below was drawn from the six national reports and shed light on those policies as implemented in each country. More details may be found in the national reports.

4.4.1 Agricultural and rural development policies

In Mauritania, current agricultural policy is informed by the agro-pastoral framework law of 2012, the Rural Sector Development Strategy by 2025, the 2015-2025 National Agricultural Development Plan, the National Food Security Strategy for 2015, and the Poverty Reduction Strategy Paper. The 2012 framework law includes in its objectives promoting and developing the agro-pastoral business, as well as supporting the agro-pastoral family farm. However, assessments show that most funding has been allocated to irrigated agriculture, to the detriment of rain-fed crops. The Rural Sector Development Strategy is the outcome of a discussion involving all the relevant stakeholders (*wilayas*, local authorities, cooperative unions, federation of livestock farmers, producer organizations, women's associations, etc.). The officially outlined objectives, which are far from being truly supported, are to promote stockbreeding and local development, support the transition from subsistence agriculture to competitive animal and plant production, all through the involvement and capacity building of socio-professional and community-based organizations. The component on efficient management of natural resources provides for developing small areas and establishing pre-cooperative groups for irrigated agricultural production that will be of benefit to small-scale producers. Areas of the M'Pourié perimeter have been assigned to farmer cooperatives and a

group of young unemployed graduates. The latter were integrated from 2011 and they were given smallholdings of 10 hectares each, as well as a loan to purchase equipment and cattle. The strategic vision of public investment policies is specified in the Poverty Reduction Strategy Paper (CSLP), which has been the country development reference framework since 2001.

The state has been carrying out activities to support rural areas under the third-generation CSLP. These activities include the free distribution of food to ensure food security for the most vulnerable populations. Programmes to fight rural poverty are implemented both in production and the pastoral systems, and they involve health, education and employment, as well as income-generating activities. It is worthwhile noting the involvement of women and youth in productive capacity-building activities.

Government policies addressing the upheavals resulting from the deterioration of the environmental production framework affected a wide variety of fields. They have had multiple positive implications on family farming through land reform, agricultural finance (credit), capacity building (vocational training, agricultural extension services), direct public support (agricultural investments) and indirect support (road infrastructure, energy, etc.) to develop crops and livestock, and the introduction of a sector development and farm modernization approach. In addition, it is worth noting the existence of an agricultural insurance project to cover agricultural risks (avian invasions, floods, crop scorch).

In 2000, the World Bank called on policy-makers in Sudan to “promote the participation of the poor in economic growth”, to “refocus the rural development strategy towards the needs of rain-fed areas”, to “steer the private sector regulatory framework” and lastly, to “support small- and medium-sized enterprises” (World Bank, 2003). The 2004-2008 five-year plan clearly outlined the objectives set out above, just as it promoted public investment in rural infrastructure (roads, health centres, education). The 2004-2006 medium-term strategy confirmed the emphasis placed on traditional agriculture. The strategy advocated land reform,⁷⁸ as well as strengthening agriculture supervisory institutions: research, extension, training, etc. A 25-Year Strategic Plan (2007-2032) was prepared by the government to give fresh impetus to rural development. The actions implemented, however, revealed an almost total neglect of small-scale family farming. The prevailing strategy has not ensured a balance between investment in small-scale family farming and investment in large irrigated farms. Current programmes barely incorporate the environmental dimension of development and do not correct the regional imbalances that have fuelled conflicts. Inclusion (fight against poverty) and sustainability (made necessary by the strong climatic stresses experienced by the country) are two objectives of the development strategy that remain to be achieved by the country.

In Lebanon, one of the major challenges consisted in restoring the functions of agriculture by mobilising the smallholder sector and improving the living and working conditions of farming families. It was not until the appointment of a new government in the late 2000s that

⁷⁸ New land regulations provide for the institution of long-term leases associated with land use conditions, the possibility to renegotiate land lease terms and a reduction of the size of very large farms in semi-mechanized areas.

the paralysis that had characterized Lebanon's agricultural policy came to an end. Informed largely from the FAO survey guidelines, a five-year agricultural strategy was set out (2010-2014). In the official document of this strategy, the Ministry of Agriculture and the government attempted to rehabilitate the agriculture sector by raising the contribution of agriculture from 5 to 8 percent of the GDP; improving the situation of agricultural employment, both in terms of quality and number of jobs; reducing the trade balance deficit; and boosting the production of strategic crops such as grains, in order to improve the country's food self-sufficiency. The safety of agricultural and food products is also a priority strategic objective. The 2015-2019 strategy strengthens the agricultural rehabilitation option by setting the objective of increasing budget spending from 0.5 to 1 percent of public expenditure. It should be recognized, however, that the agricultural strategy does not question the agro-export model promoted by all government policies, and that it has introduced too few economic reforms in favour of small-scale family farming.

Measures in support of small-scale family farming are varied and may be identified through a number of programmes: support for the funding of "*kefalat*" and "*kafalat trees*", the 5 million dollars/year Green Plan that is also extended to small-scale farming areas, the quality improvement plan for commodities such as apples grown by small-scale farmers in the Mount Lebanon area and other programmes. Small-scale farmers receive subsidies from production (grains, tobacco, etc.) or export chains.

In Egypt, most policies focus on agricultural development on new reclaimed lands where business patterns are implemented. In order to mitigate the impact of a model open to global trade and entrusting the development of agriculture to private investors, support measures (bread prices, property tax, use of fertilizers, etc.) have been instituted in favour of small-scale farmers. Agricultural policy is backed by private sector-led hydro-agricultural development and agricultural intensification policies. Private investment in development projects, equipment and production represent, on average, between two-thirds and 80 percent of total agricultural investments (84 percent in 2006). Large commercial holdings which are far removed from the family model of the "ancient lands" have emerged on the new reclaimed lands. These irrigated and mechanized farms are geared towards export production. It is on these lands – 20 to 25 percent of the total farming area – that social infrastructure, economic services and activities are concentrated. The target set under the 2017 Strategy is to extend the area of developed lands to 3 million *feddans*, i.e. an additional 1.2 million hectares. The largest share of public and international funding is being channelled into six major projects, the most important of which are the Toshka and Elsalam Canal projects. In the land reclamation areas, the local economy is dominated by a class of agricultural entrepreneurs, technicians and local executive staff. For decades, public policies have neglected the rural areas of Upper Egypt, whereas the current agricultural and rural development policy highly favours the new lands that cover only 20 percent of the agricultural area, house only 8 percent of the population and account for only 2 percent of holdings. The rural population of Upper Egypt (the Nile Valley) is made up of small-scale farmers, employees, and landless people; it remains largely poor and dependent on government support. As such, a pilot social protection scheme was recently implemented therein, just as in the other high poverty-prevalence governorates.

The following measures in support of small-scale family farming have been identified:

- Less-than-three-*feddan* smallholdings are exempt from property tax. Households of small-scale farmers, as other vulnerable groups, receive various types of direct support, including subsidized bread, a ration card for the purchase of staple food, and subsidized electricity.
- Fertilizer subsidies, preferential loans and fuel subsidies (petrol and diesel) are another form of direct assistance to small-scale farmers, which benefit other farmers as well.
- The price floor policy for wheat (price exceeding the world price) and government's role as the buyer of last resort for subsidized wheat represents another form of support for small-scale farmers.
- Small-scale farmers receive indirect support through agricultural extension services, veterinary services, soil conservation services and improved agricultural practices.
- The most notable recent achievements have included the right to health insurance, regulations on contract agriculture (supply contract), farmers' entitlement to pension, and agricultural insurance laws.
- Agricultural cooperatives have been the subject of intense and direct interventions by the state, and their role was limited to the distribution of subsidized fertilizers. Recent amendments to the Cooperatives Act will certainly play a key role in strengthening these organizations for the benefit of their members.

Needless to say there is a strong interrelation between the critical issues raised on small-scale family farming, rural poverty, rural employment and unemployment, the productive efficiency of agriculture, and food security in Egypt. Consequently, the question of small-scale family farming should be seen as part of a multidimensional approach incorporating social, economic and political aspects.

Public policies in Morocco and Tunisia are based, on both cases, on a revival of investments and the development of strategic alliances with the national and international private sector (public-private partnership). The future of the agricultural and rural sectors is entrusted to private farms and agribusinesses which are export-oriented. Rural development in the two countries is promoted through social initiatives: improving the living, employment and income-generating conditions of rural households.

In Tunisia, recent government policies have favoured a type of agriculture aiming at foreign markets and supplying local urban markets. Export crops grown in intensive areas or in large extensive governments (olives) have mobilized the bulk of public and private resources. Large farms are particularly favoured as concerns access to land (often of greater fertility), water, credit, production means, and state support. In addition, the farms benefitted greatly from the price support policy and the preferential tax regime applicable to agriculture. Through the use of productivity factors they have upgraded (fertilizers, pesticides, improved or high-yield seeds, etc.), acquired equipment (tractors, harvesting and processing equipment, hydraulic pumps, sophisticated irrigation equipment, etc.) and are better prepared to meet the conditions of international competition. Conversely, smallholdings had to face the impacts of

the economic crisis (falling public budget support, fewer private transfers and reduced income from multi-activity). However, rural development policies have offset these negative impacts. They have helped to launch projects geared towards natural resource conservation and stewardship, increasing agricultural production, improving the living conditions and income of rural populations, and the empowerment of rural women. Integrated Rural Development Programmes combined two major types of interventions: productive interventions and others aiming to improve the living conditions and basic infrastructure of the most disadvantaged rural areas. Government interventions focused on improving infrastructure: construction of feeder roads and major roads, drinking water supply, etc. Agricultural policy guidelines in Tunisia are designed to set goals for improving resource management (especially water), increasing agricultural productivity and strengthening the competitiveness of agriculture and production sectors. Discussions are focused on the sectors to develop, the extent of protectionism and/or liberalism to adopt, and land management as a way of regulating social transformations in the countryside. The issue of small-scale family farming, and its role in ensuring food security for the country, has also emerged in the current public debate.

In the spring of 2008, Morocco adopted the “Green Morocco Plan (PMV)” which identifies two pillars. Pillar I focuses on intensive investment in technically controlled and highly productive agriculture, in medium-sized and top-level holdings, for high added-value sectors. This agriculture controlled by private investors covers over 1,000 projects with high added value at a total cost of 10 to 15 billion dirham per year. Pillar II is that of small-scale family farming, which involves the vast majority of Moroccan peasants. According to the Green Plan, this agriculture will benefit from an investment of around 5 billion dirham per year over the next ten years.

Cross-cutting interventions involving the two pillars are another dimension of the PMV. They focus on the establishment of farmer organizations, the privatisation of state-owned and collective lands, economic management of water resources, equipment of land irrigated by dams, technical assistance, training and the modernization of distribution networks. In order to enhance the competitiveness of Moroccan commodities, reforms are being envisaged on tariff protection, price policy and subsidies, taxation and research and agricultural extension services. An Agricultural Development Agency (ADA) has been created to implement the Green Plan. Its role is to be the intermediary between the farmers, the investor and the administration. It is also expected to define the organizational framework of sector professionals. New reforms to the agricultural administration (departmental and regional directorates have been reduced to 16 to match the administrative organization of the Kingdom) have been introduced. The agricultural extension agency, *Office National du Conseil Agricole*, is an institution that is called upon to play a key role in the system designed under the PMV.

Different approaches per agricultural region were clearly specified under the PMV. These approaches are diverse and targeted to the “modern sector” (Pillar I) as well as the “social agriculture” sector (Pillar II). The modern private agriculture sector (Pillar I) was thus entrusted with supervising and “aggregating” the small rural economy sector (Pillar II). The PMV provides support to Pillar II by establishing four project categories: (i) conversion of existing or extensive production sectors to other higher added value sectors; (ii) intensification through improved productivity; (iii) value addition through certification, processing, labelling, etc.; and (iv) diversification through the creation of additional sources of farm income for farmers

or members of their families (ADA, WB, 2012).⁷⁹ In practice, support for family farming was provided through three major components: i) the professionalization of small-scale family farming and rural development through the institution of collective organizations, namely cooperatives and associations, generational transition with youth training in agriculture, and the supply of microcredit; ii) local products. A survey of local products identified a list of 200 key sectors totalling 4,027.81 million dirham; iii) the aggregation mentioned above as a model of agricultural organization.⁸⁰

The PMV strategy is complemented by a strategy for developing mountainous and southern areas where a large number of productive small-scale farmers is located. Where in the 1990s, rural development approaches in Morocco amounted to the implementation of sector programmes aimed at closing the gaps in infrastructure and basic social services (drinking water, electrification, rural roads, etc.), the approach today is territorial and integrated. According to established guidelines, significant national and international resources will be assigned to this sector in the future, which will certainly help to significantly reduce the gap between the two constituent pillars of Morocco's agriculture.

4.4.2 Social Policy: New directions

Social measures often stem from poverty reduction programmes, and aim to improve the livelihoods and living conditions of the population. Public interventions associated with rural development policies (building community infrastructure, improving public services, employment and income-generating programmes) are another dimension of social policy implemented across the countries. The issue of social protection, social insurance and pensions for the benefit of small-scale farmers is emerging in a number of countries (Egypt, Lebanon, Morocco, Sudan and Tunisia).

Specific measures in support of small-scale family farming were identified in the study on the agricultural and rural policy matrix designed and built by the different countries.

For the first time in modern history, Egypt's new Constitution of 2014 refers to the eligibility of small-scale farmers and the landless peasants for pensions. Section 17 of the Constitution provides that "The state shall endeavour to provide a suitable pension for small-scale farmers, farm workers, fishermen and unorganized workers in accordance with the law". In light of this constitutional provision, the Ministry of Agriculture has prepared a bill on the retirement of farmers, disability insurance and death.

Farmers working on less than three *feddans* are fully entitled to this legal provision. Funding is provided by the farmers, the state through the public treasury, and the Ministry of Agriculture, Agricultural Cooperative Unions and agricultural associations. The bill was to be tabled before parliament reconvening by the end of 2015.⁸¹

⁷⁹ <http://www.ada.gov.ma/Strategie.php>

⁸⁰ Aggregation is the conclusion of trilateral contractual arrangements between the aggregating party (public and private businesses), the aggregated party (farmers) and the government.

⁸¹ The bill was not tabled before parliament during the last sessions.

Demands are emerging in **Sudan** for the state to enact a new law on health insurance and pensions for farmers. Public discussions were also held on these issues in all countries of the NENA region. **Tunisia** notes that despite the efforts made and incentives introduced in recent years in terms of coverage of the various agricultural risks, the penetration rate of insurance among farmers remains low. The number of insured farmers is estimated at only 7.75 percent of all **Tunisian** farmers. Therefore, subscriptions to health, death or retirement insurance are still marginal. The issue of social protection, labour laws and access to pensions is very topical in **Lebanon** and **Morocco**. It is indeed an obstacle to improving the living and working conditions in the agriculture sector, and to enhancing the value of agricultural labour. It determines the sector's attractiveness, especially for new, more educated and more demanding generations.

RECOMMENDATIONS

1. Continue ongoing studies on access to social services, which is not currently adequately documented.
2. Supplement existing solidarity processes (family remittances) through policies and provide guarantees in terms of monetary or in-kind social transfers deriving from public policies (insurance and social assistance), as well as available and accessible social and education services in areas dedicated to small-scale family farming.
3. Develop policies on women's access to and transfer of land, as well as access to technical services, and support the networking of women involved in food production and processing.
4. Define public procurement rules that are more favourable to some farmers' organizations.

4.5 Interim conclusion

The review of agricultural and social policies has shown that all the countries surveyed focused more on promoting large estates and holdings apropos the intensification options of selected agricultural programmes. Large farm creation initiatives, development of new lands, private investment on irrigated farming or commercial stockbreeding are all encouraged and widely supported through tax and fiscal policies. These choices are clearly advocated in **Mauritania**, **Morocco**, **Sudan** and **Tunisia**. Legal measures are leveraged to access land in the form of concession (**Tunisia**) or final transfer of ownership (**Morocco**) under a public-private partnership.

Land tenure is a more complex issue for small-scale family farmers. Modest in size, most of the land of smallholders is neither surveyed nor registered. These smallholders rarely possess land titles that can allow them to access credit, thereby limiting their financing capacity. The establishment of land registers will therefore be a first measure of land policies.

The strong attachment of small-scale farmers to their land does not prevent, on the one hand, the dismemberment of farms resulting from inheritance schemes, and on the other hand, the sale/lease of the land to other farmers or agricultural businesses for lack of financial resources. One threat not addressed in land consolidation policies is that of excessive land fragmentation and multiple micro-holdings in a precarious economic situation. Another issue that needs to

be highlighted and addressed is that despite the fact that they play an increasingly important role in the management and operation of small-scale holdings in Egypt, Lebanon and Tunisia, and, women's tenurial status is marginal.

Ultimately, save for a few differences here and there, the social organization pattern of production identified in current agricultural policies of the countries under review remains that of the modern agricultural business, which is the target of financial, institutional and technical support: this economic form of agriculture organization receives the bulk of public or private investments, financial support and technical guidance from the governments.

In a context of under-industrialization, low diversification of the economy, technological backwardness and dysfunctional institutions, the continuing concentration of farms, which further reduces the number of farmers on the one hand, and increases unemployment and rural exodus on the other hand, involves major political and social risks. Political conflicts are provoked by agricultural and rural policies that are not inclusive, and are not enough to address the challenges related to issues of social and territorial cohesion; they clearly demonstrate the need to rebalance the relationship between small-scale family farming and large-scale agriculture.

To be sustainable, agricultural development has to undergo structural reforms providing for the rehabilitation of family farms. Land policies promoted should emulate the "Voluntary Guidelines (VG) on the Responsible Governance of Tenure of Land" officially adopted by the Committee on World Food Security at its thirty-eighth session (special) on 11 May 2012, and approved by the majority of FAO member governments.⁸²

The VG provide a framework that governments can use when developing their own strategies, policies, legislation, programmes and activities. They promote responsible governance of tenure of land, fisheries and forests, taking into account all forms of tenure: public, private, community, indigenous, customary and informal.

It would be particularly advisable to promote gender-based rules of fair land governance to ensure that women and men are involved in the same way in decisions relating to the administration of farm and land management (VG§ 4.6).

They also mandate reducing existing inequalities in the allocation of material and fiscal resources to the modern agriculture sector.

Looming demographic changes - the rural populations and agricultural labour force will continue to grow - demand a review and overhaul of the model used today by governments as a reference.

Agricultural policies, and the forms of social organization that underpin them, must face the challenges of climate change, largely degraded natural resource conservation, food security and the fight against rural poverty. Experience shows that when supported appropriately by political and public investment, small-scale family farming has the potential and the capacity to contribute efficiently to the development of sustainable agriculture and the revitalization of rural areas.

Ultimately, the new balance thus established can only promote the political and social stability of the countries of the region.

⁸² <http://www.fao.org/nr/tenure/voluntary-guidelines/en/>



5

PART FIVE

Recommendations and final conclusions

After the interest of development partners and the countries themselves in agriculture dwindled since the 1980s, there was renewed global interest in this sector following the food crisis of 2007-2008, driven mainly by food security and supply concerns. During the International Year of Family Farming in 2014, emphasis was placed on this type of agriculture, which mostly involves small-scale farms. It should be noted, however, that most investments and political attention are still focused on large-scale capitalist agriculture. The NENA region is no exception, on the contrary, our study showed little interest in small-scale family farming, which is generally unknown and poorly supported, except for in some countries where it is addressed from a rural poverty reduction perspective (Morocco, partly Egypt and Tunisia). Where specific policies are defined, concrete implementation is often problematic due to the lack of resources on the ground.

Yet, almost ten years after the food crisis, it is not only food security that is the major global concern, but security in general, employment, climate change, conflicts and migration caused by deteriorating living conditions, particularly in rural and marginalized areas. The Mediterranean region is particularly hit by these problems. It is even one of the world's regions most affected by these phenomena, directly and indirectly, because it hosts migrants from Sahelian Africa or the Middle East whose livelihoods are threatened in their countries.

One of the long-term political responses to these problems is increased support for small-scale family farming and the development of decent livelihoods in rural areas. The idea is no longer only to boost agricultural productivity in order to increase the availability of foodstuffs and foreign exchange reserves through exports, but also to provide employment and decent income opportunities to millions of people in order to avoid migration (internal and external), despair, radicalization and conflicts. The reduction of rural poverty provides opportunities, not only in terms of food production (on which agricultural policies are most often centred) but also in creating or maintaining jobs, especially for young people, land use and related environmental services.

Although they often appear to be a minority in terms of farmland, small-scale family farms make up the majority farming and rural population in all the countries under review, especially in countries that have not yet started their structural transition (Mauritania, Sudan, and to a lesser extent, Egypt). Yet, do governments have a long-term strategic vision of the position given to these people in society? This position may differ depending on the macroeconomic environment and the structural transition stage where the country finds itself at a particular juncture.⁸³ In all the countries under review, this structural transition is ongoing, even though the countries are at different stages of the process. It is accompanied by changes in social patterns (urbanization, better education, challenging patriarchal models, new aspirations of

⁸³ See "African Economic Outlook", <http://www.africaneconomicoutlook.org/en/> and the section on "Regional development and spatial inclusion" <http://www.africaneconomicoutlook.org/en/outlook/regional-development-and-spatial-inclusion/>

youth), which are sometimes accelerated. Policies are intended to support structural change by minimising their negative impact on the society as a whole and the environment. In most of the countries surveyed (except perhaps **Lebanon**, although refugees are putting pressure on the agriculture sector), the place of small-scale family farming is still very significant in terms of the number of people involved and farms represented but it is almost non-existent in the political arena. And yet, it can provide solutions to the acute challenges faced today, especially in terms of employment.

This study has demonstrated the urgent need to opt for models fostering the creation of decent jobs (while increasing production and reducing hardship) and improving the level of income of small producers.

We have shown that there is a dearth of facts and data characterising and monitoring the development of small-scale family farms. These shortcomings are not only due to a lack of resources to carry out censuses and statistical surveys, but also to a lack of consideration for, and factual representation of the role of these players, who are often marginalized in society. It is thus difficult to assess the specific impact of policies on this population group. Overall, we can say that current government policies barely recognize the importance of small-scale family farms in this region. When they attempt, or have attempted to support them, it has been to include them in strategic poverty reduction plans or “modernization” strategies for increasing agricultural production, with varying results. One-time development projects (with or without the support of donors) have been successful at the local level but their widespread deployment and sustainability is still in question. It is the very concept of the small-scale family farm that should be brought back to the centre of political attention. We should consider small-scale family farming, not so much and only as a job, an activity with a single production function, but as a lifestyle and an existing multifunctional system, even in the most difficult areas where it sustains the life (or survival) of households.

On the one hand, the study shows that external constraints on small-scale family farms in the NENA region are growing. The scarcity of natural resources, water primarily, land access difficulties, land splitting, drought and adverse weather events are global change factors, and it is expected that such constraints shall continue to increase, along with the impact as the population grows. The resilience of small-scale family farms, though significant, has its limits. Hence we need to adopt a holistic, voluntary and positive approach if we wish at least to offset these mounting pressures that threaten, in some places, the very survival of the family farm model. So, in order to avoid a general impoverishment of small-scale family farms in the NENA region countries, holistic policies and strategies that are coordinated, people-centred and focused on their business systems and rationalities, are needed. These policies should be geared primarily towards supporting livelihoods and living conditions. Guidelines should promote the diversification of rural jobs, the construction of regionalized food systems and social protection policies to encourage intergenerational transmissions should be designed.

Lastly, through national surveys, we note trends that cut across society, change family systems and impact agriculture. We see a lack of interest of younger generations in traditional agriculture, particularly in those countries that are well advanced in their transition (**Lebanon**,

Morocco, Tunisia or even Egypt). This lack of interest is partly linked to the level of youth education, which is rising overall. These young people refuse to work under the same, generally harsh and low-paid, conditions as their parents.

The recommendations made during the national workshops held as part of the survey include common proposals that advocate for better recognition of and support for small-scale family farming. They are quite similar overall, despite the diversity of contexts: they focus on individuals and households, in contrast to approaches that prioritize production systems and agricultural production. Although there are specific suggestions in some countries, this common core of recommendations can be organized according to six themes. A summary is presented below, as all of the national recommendations are displayed in the detailed table in Annex 10. Links have also been established with the interim recommendations made in the previous parts of this overview that are grouped by theme, and presented again in more detail below. Monitoring the situation and the transformations of small-scale family farming, as well as the implementation of these recommendations at the regional and sub-regional levels, is recommended, in order to benchmark countries, monitor the implementation of national policies and facilitate the institution of a multi-stakeholder dialogue at a supra-national level.

The recommendations aim to enhance some or all the factors that contribute on the one hand to the resilience of small-scale family farms (and to reducing their vulnerability), and to enhancing their development potential on the other hand. The trade-offs between these two policy objectives are the preserve of the governments, and depend on the national or regional context.

National recommendations are listed in Annex 10. As indicated in Section 2.1.2.2 of this overview, actions to be implemented aim to change some individual characteristics of small-scale family farming, based on the most accurate diagnostic possible and the identification of an impact pathway, to strengthen and/or transform it, as well as its operating patterns and the economic, social or territorial (associations, etc.) forms of organization that support it.

These are actions suggested at various scales and segments of the SFP model with a view to changing the operating conditions of small-scale family farming.

They are also going to generate further knowledge and information with a view to changing the perception of institutional players, donors, and research and development institutes in their interactions with small-scale family farming (sovereign role of public statistics, etc.) and encouraging them to develop policies that are more adapted to this category of agriculture.

As stated by the FAO on small-scale family farming: “At national level, there are a number of factors that are key for a successful development of family farming, such as: agro-ecological conditions and territorial characteristics; environmental policies; access to markets; access to land and natural resources; access to technology and extension services; access to finance; demographic, economic and socio-cultural conditions; availability of specialized education among others.”⁸⁴ These generic factors can be put into six major consistent sets and are

⁸⁴ <http://www.fao.org/family-farming-2014/home/what-is-family-farming/en/>

related to activities to be implemented following different impact pathways whose approach should be assessed *ex ante* (causal path or relationship) and adapted to the national and sub-national environment. The countries of the NENA region wishing to develop such agriculture should therefore contextualize the following recommendations in order to design a specific action plan.

RECOMMENDATIONS RELATING TO:

1. Statistical tools, methodologies and evidence to better understand, characterize, evaluate, measure and represent the contribution of small-scale family farming

Agricultural policies should be based on a regular assessment of the situation and diversity of small-scale family farming in order to define, improve and readjust relevant policies. To do so, it is necessary to better understand and recognize small-scale family farming at national and subnational level.

R1.1. Stabilize the national definition of small-scale family farms by taking into account criteria that go beyond mere size considerations (utilized agricultural area) recognizing their economic and social functions.

R1.1.1. Better document, in particular, the consolidated income and the investment capacity of households.

R1.1.2. Better document the multi-activity dimension and the relative role of agriculture in the systems of activity (agricultural and additional income, respective working time, division of labour).

R1.2. Introduce into national statistics the definition of the small-scale family farm as an economic and social unit, follow its operating dynamics through more appropriate and regular agricultural censuses and surveys. Develop survey tools, sampling frames, graphical land parcel registers, statistical methods for advanced monitoring and evaluation (multivariate analyses) while strengthening the statistical capacities of relevant services.

The data should include household characteristics, access to markets (autonomy / dependence vis-à-vis the market upstream and downstream), access to inputs (land and financial capital), forms of labour and level of substitution of labour with physical capital, access to credit, land tenure, diversity and forms of integration of farming or stockbreeding systems, etc. Special emphasis could be laid on income and employment (direct and indirect, multi-activity). We should be able to disaggregate some key variables (operating scale measures) per subtype of small-scale family farming and other per gender (at an individual level). The regional scale and access to territorial resources (bioclimatic resources and services) should also be taken into consideration (context of farm allocations);

- R1.2.1. Use an SFP-type (Structure, Functioning, Performance) conceptual model for the operations of small-scale family farming and agricultural families to derive a system of indicators.
- R1.2.2. Enhance the production of certain SFP model indicators on temporary or permanent farm work (duration of farm work is one of the keys to calculating labour productivity) and its distribution within the household, between men and women, and depending on the various crop and breeding categories, as well as the duration and level of remuneration of off-farm temporary and permanent labour associated with multi-activity (one of the keys to calculating consolidated household revenue and labour productivity) and its distribution within the household.
- R1.2.3. Develop rural household survey systems to assess their multiple performances, their operating methods and the income of small-scale farmers compared to other models, taking into account mobility (family labour and cash flows, remittances from migrants, etc.).
- R1.2.4. Develop rural and agricultural employment observatories (regional, national) – using a methodology shared with ILO (International Labour Organization).
- R1.2.5. Develop methodologies and *agricultural working time measurement guides* by improving knowledge of working time, associated with the level of mechanization and the respective involvement of different family members of small-scale farms and their paid employees, per crop type and production stage in the agricultural calendar.
- R1.2.6. Characterize the arduousness of farm work to inform well-argued mechanization plans, giving the importance of adapting them to the type of land and the aim of attracting younger generations to agriculture.
- R1.2.7. Develop *methodologies* and *working time measurement guides* for marketing and processing farm produce (direct sale), in addition to agricultural work.
- R1.2.8. Develop *methodologies* and *reference systems* to better characterize and measure secondary activities and jobs (multi-activity).
- R1.2.9. Disaggregate family farm labour statistics per gender, given the important role that women play in this form of agriculture.
- R1.2.10. Disaggregate family multi-activity statistics (secondary employment of farm households) per activity based on recognized economic activity classification, given the important role of multi-activity.
- R1.2.11. Develop agricultural accounting systems tailored to small-scale family farming in order to better define and calculate farm income.

- R1.3. Carry out short- and medium-term studies and encourage research in order to develop knowledge about small-scale family farming, and represent the diversity of farm categories (notably through multivariate statistical analyses, multi-criteria assessments and typologies).
- R1.3.1. Encourage, in the analysis of agricultural and socioeconomic data, the use of multivariate methods for producing mostly functional typology profiles that describe subsets of small-scale family farming based on such variables as structure, functioning and, where available, multi-criteria performance.
- R1.3.2. Develop a more diversified representation of regions and categories of agriculture in order to identify the various types of agricultural holdings in territories, highlight their contributions to different sectors and better capture the importance of small-scale family farming in its diversity (sub-types) in relevant territories and ad hoc zones which are representative of specific levels of governance or adapted to thematic or cross-sectorial policies.
- R1.3.3. Develop “territorial coherence plans” and “rural plans” that address the development of medium-sized towns (and villages) for multi-polar territorial development that ensures a diversification of job opportunities for multi-activity players.
- R1.3.4. Disaggregate global statistics and indicators for different types of agricultural holdings, to be able to compare agricultural models based on agro-environmental criteria, through the use of multi-criteria evaluation methods that will complement those already in place for the sectors (life cycle analysis).

2. Institutions (public, private or mixed), governance and public policies

In order to rehabilitate the agriculture sector and make it more attractive, it is first of all necessary to legislate the status of the farmer where it is non-existent, and recognize small-scale farmers and their contributions at the national level. It is also necessary to deploy a range of policies and measures focusing on small-scale farmers which capitalize on strong public institutions and stakeholder participation in decision-making.

- R2.1. Recognize and define small-scale family farming in legal and regulatory provisions, given its economic, social, environmental and cultural role, and grant it special status. Through its multi-functionality, small-scale family farming is well prepared to meet the challenges of today and so should benefit from an adequate institutional environment. The social rights of farmers, especially the most vulnerable (smallholders), should be officially recognized by society.
- R2.2. Be more sensitive and give more consideration to small-scale farmers who are currently poorly represented in the representative structures of the profession and in agricultural unions. Their representation in public institutions is key to the success of

programmes rolled out in their favour. The participation of their representatives in the development of favourable policies, strategies and programmes should be considered when designing these, and continued throughout the cycle through feedback, impact monitoring and discussions on changes to be made. Good territorial governance should involve all local stakeholders in a participatory approach in decisions about their future. Moreover, multi-stakeholder discussion forums should be created or enhanced in order to address issues of food security, regional development, economic growth and the choice of developments or investments to be made at the local level. Indeed, the efficiency of a policy lies in the quality of the tools used, their adaptation to implementation conditions and also negotiating all the previous arrangement with stakeholders. Sectoral (for joint management) or territorial and multi-stakeholder reflection frameworks should be created.

- R2.3. Support the emergence and strengthening of small-scale farmer organizations, and promote the creation of collective tools and approaches (cooperative-setting for the use of equipment, seed supply, collective marketing of products, producer organizations, trade unions, etc.): such collective actions would enhance the efficiency and competitiveness of small-scale family production facilities, reduce asymmetries in relation to major economic actors, and ensure that small-scale family farmers enjoy economies of scale without having to resort to concentration, especially land concentration. Incentives, fiscal, technical and managerial assistance should encourage all forms of pooling of resources available to small-scale producers, as well as promote producer associations or federations. It would be necessary also to build the capacities of such farmer organizations so that they are able to represent such categories in political circles (see R2.2.).
- R2.4. Formally recognize the social rights of farmers, particularly those of the most vulnerable (small-scale farmers) and put in place social protection measures in favour of small-scale farmers and their families, which would reduce poverty and strengthen household resilience. Instruments such as health insurance, workplace insurance, retirement pensions and social safety nets for the most vulnerable (head of smallholdings as well as of their family members) should be implemented. It would be advisable to review current subsidy policies targeting vulnerable farmers in order to assess their impact and efficiency and possibly revise them. Moreover, support for agricultural insurance systems (public or private) would provide minimum protection to smallholder incomes, especially given that the majority depend on the climate in rain-fed agriculture. Guaranteeing systems for public or shared funds should ease access to such insurance schemes, and to credit systems that are favourable to smallholders.
- R2.5. Invest in rural areas and in small-scale family farms: public investment should target the rural areas to make them attractive places for people to live in, with basic infrastructure and vital public services (health, education, etc.). Donors and governments should devote special efforts and attention to the most marginalized areas in order to mitigate regional inequalities.

- R2.6. Strengthen public institutions dedicated to agriculture (statistics, social protection, finance, extension, training, research, land governance and water management) as a prerequisite for supporting small-scale family farming. In the absence of operational entities the implementation phase of any policy is doomed to fail.
- R2.7. Promote conducive land legislation, policies and governance that can, on the one hand, improve the structure and viability of holdings, and on the other hand, the livelihoods of small-scale farmers and their families. The fragmentation of agricultural land, failure to secure ownership and inheritance rights are major challenges that hamper investment and reduce the possibility of raising productivity. User rights (e.g. of forest resources) and collective land should also be considered. Land policies promoted should follow the “Voluntary Guidelines (VG) on the Responsible Governance of Tenure of Land, Fisheries and Forests “ officially adopted by the Committee on World Food Security at its thirty-eighth session (special) on 11 May 2012. It would be particularly desirable to promote gender-based rules of fair land governance to ensure that women and men are involved in the same way in decisions relating to farm management and to the management or ownership of land.
- R2.8. Take into account the territorial scale and differentiate policies according to the endowments and dynamics of regions within the same country. Introduce regional planning schemes as a tool for local governance.

3. Productivity and efficiency of small-scale family farming

Agricultural productivity issues are generally well treated in agricultural policies, which prioritize this productive function of the farmer. However, emphasis is laid on the consideration of the multi-activity of small-scale family farmers, which is likely to distort the figures on their productivity. It is therefore recommended to calculate this productivity not necessarily with regard to cultivated areas but rather with regard to the time spent by small-scale farmers and their family on their holding. The share of multi-activity of small-scale family farmers in the six countries under review appears to be high.

- R3.1. Review and adapt agricultural policies and regulations supporting small-scale family farming, making a clear distinction between small-scale farmers working full-time on their farms and those who do it to supplement other income-generating activities.
- R3.2. Provide some economic stability to small-scale farmers (fight against price inflation for inputs, hardware and services, income stabilization).
- R3.3. Facilitate small-scale farmers’ access to knowledge and techniques, knowledge-sharing and dissemination of research findings and traditional know-how. Governments should invest more in agricultural research, vocational training and extension services, and in the transfer of innovations targeting small-scale family farming. The objective is to enhance the productivity of small-scale farmers on the one hand, and to adopt sustainable practices on the other hand.

R3.4. Facilitate small-scale farmers' access to production factors, material and natural resources (water and agricultural land in particular), as well as financial resources. Access to resources is a crucial and priority dimension in improving the economic and social status of small-scale farmers.

R3.4.1. The issues of land access, securitization and transmission should be given special attention. Excessive land fragmentation and multiple micro-holdings in precarious economic situations is a threat rarely addressed through consolidation policies.

R3.4.2. As regards access to financial resources, family investment could be complemented by indirect public investment (in management and service structures), subsidized loans, loan guarantees (collaterals), micro-credit including warrantage, harvest advances, innovative financial solutions, donor loans, etc.

R3.5. Encourage all forms of pooling of resources available to small producers and promote producer associations or groups to build their competitiveness. Apply structuring models, collective farming and crop rotation based on the needs of local producer communities and demand from consumer markets. These pools are intended to make the farmer groups more efficient in both the production and marketing of products, and to weigh more on value chains.

R3.6. Pay more attention to animal sectors: strengthen stockbreeders' organizations and capabilities, develop livestock financing sources and increase investments to develop this sector (health systems, advice on herd management, etc.). Many small-scale farmers are stockbreeders but this activity is sometimes poorly reflected in agricultural policies, especially when the breeding methods involve exceptional or systematic mobility (transhumance). Adapted policies and monitoring should be established, particularly in areas where conflicts between pastoralists and farmers may arise due to land use competition.

4. Sustainable agro-food systems, territoriality, small-scale family farming links with markets and value chains

Food systems include all players and functions associated with the food process, from production through to consumption (suppliers of agricultural inputs, farmers, processors, traders, intermediaries, distributors, consumers, etc.). Such systems should be envisaged in an integrated manner and supported to enable sustainable development by adapting to consumer needs and the requirements of markets and distribution systems on the one hand, and by enhancing their resilience to global changes on the other. Territorialized food systems should be recommended because they are likely to maintain a higher share of added value at the local level.

- R4.1. Support economic diversification to create a conducive environment for small-scale family farming, and opportunities for youth at the local level: service jobs linked to agriculture, small-scale processing, trade, promotion of handicrafts, rental of material and equipment, etc.
- R4.2. Enhance the added value in the sectors through appropriate processing methods and better use of agricultural by-products.
- R4.3. Promote value creation in local value chains by developing processes related to agricultural production (input supply, storage, drying and processing, marketing). Innovative initiatives to create regionalized (short) value chains could be identified and disseminated more widely.
- R4.4. Support small-scale family farming by providing privileged outlets: through public procurement (school canteens, community restaurants, etc.) by facilitating access to public contracts for small-scale farm produce and by designing specifications that are favourable to local produce of small-scale farmers. Certification/labelling systems for products of small-scale family farming could also allow for all consumers to better remunerate the quality of products (certifications, labelling, traceability, indication of origin, local products, etc.). Greater valorization of local products, of products from organic agriculture or with geographical indications, often deriving from small-scale holdings, may be achieved through labelling and certification systems. Governments may choose to create these at the national level, building possibly on what exists at the regional or international level.
- R4.4.1. Promote traditional products that are mainly produced by small-scale holdings and that include high-value niche products, in order to sustain and develop demand. Indeed, traditional quality products supplied by small-scale family farming are often not labelled or certified or bear other indications of quality which would also benefit regional development and the local economy. These may be promoted at the national or even the international level (export of niche products).
- R4.4.2. Develop policies on food education (at school, in public media) that valorize local products, a varied diet and the principles of healthy eating. Communication/marketing campaigns and preferential access to public markets could be orchestrated and financed by the government.
- R4.5. Help link small-scale family farming to markets (domestic, national and even international) by investing in infrastructure (transport, collection, storage, or processing) and to market information systems (ICT use, mobile phones, etc.), as well as by promoting the sharing of marketing services. Regulate contract farming such that it does not come at the expense of the weak.
- R4.5.1. Involve intermediary organizations to provide assistance and services to existing short value chains and to develop new value chains that provide permanent or seasonal indirect jobs, including in private extension services.

- R4.5.2. Develop rural infrastructure (including digital ones) to provide an environment that: (i) enables the value chains to be organized in such a way as to link rural small-scale family farming to the markets; and (ii) that is attractive for young graduates who are agents of organizational and technical innovation in rural areas.
- R4.5.3. Adapt the basic and further vocational training of all stakeholders of small-scale family farming by targeting activities that develop in commercial and food processing sectors, agro-ecological practices and agricultural services, using local human resources, especially rural youth.
- R4.6. Carry out future studies on the contribution of small-scale family farming to feeding the urban (and rural) areas, and optimize the urban-rural links by promoting the supply of cities through community food systems that offer opportunities to small-scale farmers.
 - R4.6.1. Support nearby smallholders to supply food to small and medium-sized towns, through public investments aimed at ensuring the regularity, quality and safety of marketed food products: (i) physical storage (including cold chain) and market infrastructure; (ii) funding collective investment to enable small-scale farmers comply with health standards; and (iii) regulation of public tenders for the supply of public canteens/social policies that promote small-scale family farming.
 - R4.6.2. Develop food policies that better integrate small-scale family farming (suburban and rural) and develop the main distribution channels to continue to offer a range of products suitable for the varying purchasing powers and consumption baskets of the urban food system.
 - R4.6.3. Assess the loss of farmland, due especially to the expansion of cities and combat of farmland *artificialization* in suburban areas through food and town planning, including land issues.
- R4.7. Encourage the reduction of post-harvest losses and waste, by investing in warehouses and cold chain and processing equipment; promote the safety and quality of small-scale agricultural produce that meet consumer needs.

5. Rural employment, professionalization of smallholdings, integration of young farmers and intergenerational transfer of holdings, youth and women employment, conditions for exiting small-scale family farming

Rural job creation is key to regional development and poverty alleviation, but also to preventing massive migration. It should be considered from a holistic perspective that targets farm and non-farm employment in order to diversify the activity and make it more resilient. The idea is to consider and develop the gamut of small-scale farmers' livelihoods, because intensification of agricultural production alone is generally not enough to lift them from poverty given the small size of their holdings. Job creation should be carried out under conditions enabling particularly the empowerment of youth and women.

It is necessary to adapt policy objectives to the demographic and economic paths of each country and of each region within a country in order to set the conditions for developing small-scale family farming and determining its potential contribution to food security, employment and regional planning. The change in the weight of small-scale family farming should be assessed in light of the structural transition in order to update the tasks assigned to it by society (source of employment/decent jobs; supply of foreign exchange/domestic food security; international competitiveness/land use planning; provision of diversified food/ecosystem services, etc.). The idea is to design a policy mix adapted to the structural transition phases of the national economy and demography. The productivity of all production factors (land, capital, and labour) should be taken into account in setting the priorities of agricultural and food policies, laying special emphasis on labour productivity.

R5.1. Reinforce, through incentives (tax, credit, training, services), the capabilities of rural economies to create jobs and small businesses, and improve the capacity to absorb active youth and women into small-scale family farming. It is necessary to create and promote new farm and off-farm activities in rural areas, and small businesses across the village communities, especially for women, involving inclusive activities that are conducive to local development and associated with agricultural production activities.

R5.1.1. Develop observatories for youth employment in rural areas, in order to identify and support the diversification of activities.

R5.1.2. Ensure the development of primary education such that all young people entering the job market have basic literacy skills.

R5.1.3. Promote youth employment through meaningful policies: learning, vocational training in farming and agribusiness.

R5.1.4. In countries still experiencing high population growth, priority should be given to agricultural and agro-food models that promote employment while ensuring decent remuneration, as compared to models which are too quickly replacing labour with capital.

R5.1.5. Agricultural models that serve to inform agricultural policies should facilitate cross-sectoral, temporary or permanent, local or international mobility. Supervised multi-activity is an option which enables longer transition periods to be managed with greater flexibility.

R5.1.6. Direct part of the remittances towards employment-generation in rural areas through co-financing, tax reduction, co-investment or convergent public investment mechanisms (support to farmers' organizations, agricultural councils, SMEs).

R5.2. Empower women by giving them the opportunity to head farms or businesses, the ability to own and inherit land, to get loans and invest in their own name, to manage small businesses and to network. Where necessary, review the relevant legislative and legal provisions and use gender-disaggregated statistical data. Work on the development of women's employment.

- R5.3. Consider options to exit agriculture: promote intergenerational transmission by creating the conditions that enable older farmers to exit agriculture (pension systems, life annuities) and younger generations to take over (assistance to settlement and modernization, subsidized loans).
- R5.4. Mobilize the state budget and allocations to its decentralized structures, international aid or international donors in favour of marginalized regions, and enhance the local environment through the provision of community-based facilities, basic infrastructure, the creation of services in rural areas, and the creation of economic activities in disadvantaged areas to meet the critical job and income needs of the poor.
- R5.5. Improve technical supervision, advisory support structures and vocational training to facilitate economic diversification in rural areas. It is therefore necessary to update and weigh: (i) the diversity of public and private agricultural extension services; and (ii) training and extension subjects that need to be expanded to meet more ambitious extension goals (agricultural consultancy, agro-food and agro-processing). Another important issue relates to the leverage effect made possible by: (i) general education and basic and further training provided to rural young people and women with a view to replacing ageing extension workers and staff in collective organizations; (ii) replacing heads of smallholdings as part of the intergenerational transfer, which is a source of change; and (iii) recruiting youth in the different professions of agriculture which fully include extension services. Indeed, demand for support labour, such as private technicians in the development of structured sectors, offers significant employment opportunities for rural youth.

6. Climate change and strengthening of the resilience of small-scale family farming

Current food systems should be supported to develop sustainably, first by adapting to consumer needs and market requirements, and second by improving their resilience, particularly with respect to climate change. The objective is two-fold: enhancing the technical and social efficiency of small-scale family farming on the one hand, and adopting environmental-friendly practices on the other. Land use methods in areas prone to climate hazards are more likely to be impacted by enhanced erosion, inefficient use of agricultural water, salinization, loss of soil fertility and even desertification.

- R6.1. Identify, validate and disseminate local knowledge and good practices implemented by small-scale farmers and adapted to the relevant areas and their bioclimatic conditions; mobilize, in favour of small-scale family farming, resources and agro-ecological techniques needed to address the risks caused by climate change, and mobilize technical structures for water, soil and forest conservation.
- R6.1.1. Develop the collection of agro-environmental indicators and measure the efficiency of agronomic practices of different forms of agriculture, including small-scale family farming, at the level of farms (plots and areas) and territories using existing analytical frameworks.

- R6.1.2. Pay more attention to soil management so as to optimize some of its functions (carbon), and develop participatory governance for land and soil.
- R6.2. Treat water as a scarce resource and use it more efficiently. Prevent and manage the negative effects of drought, and where possible, develop irrigation infrastructure in an inclusive and sustainable manner, ensuring that small-scale farmers can also access water.
 - R6.2.1. Promote the adoption of low-cost and efficient water-use techniques for small-scale family farming, including by supporting the adaptation of standard technical packages to local contexts.
 - R6.2.2. Pay keener attention to and develop better governance and collective action to tackle the emergence of groundwater overuse.
- R6.3. Promote complementarity between crops and livestock. Many small-scale family farmers apply a mixed farming–breeding system, which can be in tune both with the objectives of resilience, as well as with sustainability or economic viability.
- R6.4. Involve all local stakeholders in a participatory approach in decisions about their future, especially with regard to adaptation to climate change and management and protection of natural resources at territorial level (combatting desertification, reforestation, protected areas).
 - R6.4.1. Develop appropriate standards and incentives (including subsidies and testing of payments for environmental services) so as to promote the adoption of environmental best practices along a gradient of opportunities (sustainable, integrated, organic agriculture) and through policies supported by intermediary organizations
 - R6.4.2. Link these policies with those on climate change adaptation focusing on small-scale family farming because it is possible to decentralize them depending on the regional context as opposed to mitigation policies that should be holistic.



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Annexes

ANNEX 1

Contract management and scientific supervision of the study

Contract Management of the Study

The contract management of the study was shared between CIRAD and CIHEAM-IAMM, including two managers.

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Scientific Coordination of the Study

The scientific coordination of the study was shared between CIRAD and CIHEAM-IAMM and included two international experts in the field.

Name of international scientific coordinator	Priority country for supervision
CIRAD	Egypt
Jacques MARZIN jacques.marzin@cirad.fr	Mauritania Morocco Sudan (FAO supervision with CIRAD support for methodology and completion)
CIHEAM-IAMM	Lebanon
Omar Bessaoud bessaoud@iamm.fr	Tunisia

The initiators chose to hold a preliminary national “methodological workshop” in the countries studied in order to hone the content of the study conducted in each country. National and international coordinators attended these workshops, which were adapted to each country. These were in-person gatherings (except in Mauritania & Sudan, by videoconference), following an indicative and detailed thematic programme. The list of national coordinators is indicated in the following table:

National Study Coordinators:

Country	Name
Egypt	Adel AboulNaga ARC APRI adelmabounaga@gmail.com
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The national coordinators were selected according to their skills and competences (academic discipline and past work), and for their affiliation to a professional network providing access to diverse sector experts.

ANNEX 2

Some criteria and ways of classifying holdings

Table 7. Definition dimensions and variables based on the FAO “Data portrait”

Size	Size of the land (excluding livestock)
Production	Value of agricultural production, food production per ha/ workday of labourer
Capital & inputs	Tropical livestock units (TLU), % of households with motorized equipment, % of land under irrigation, use of fertilizer/ha (value), seeds per ha (value)
Innovation & technology	% of households receiving improved varieties (seeds), % of households with access to agricultural extension, % of households with a telephone
Income & poverty	
Labour	
Demographics Household size, education	Household size and composition, education level
Contextual constraints, advantages	% production sold, % input costs relative to value of production, road accessibility, % of households with access to credit, and credit level

BOX 2: WAW - World Agricultural Watch

WAW's ambition is to support a network of countries with common methodological approaches in order to: (i) better document, in an internationally comparable manner, the diversity of their agricultural holdings, (ii) understand ongoing transformations, and (iii) substantiate agricultural support policies through a better informed multi-stakeholder dialogue with a sustainable development perspective, taking into account the contributions of the different types of holdings, from small-scale family farms to large farms. The first approaches of WAW made it possible to categorize the key attributes of agricultural holdings (see following table). Then, three macro-variables were identified: form of labour, type of marketing and type of management. The three attributes were assessed using available national data to inform feasibility studies of typologies in several countries, including France, Vietnam, Nicaragua and Madagascar (WAW, 2014).

Table 8. **Four groups of attributes to consider in characterising and understanding the transformations of agriculture (WAW, 2013, 2014)**

Sets of attributes	Details
<p>Social attributes: Who is the head of the holding? How are decisions made?</p>	Nature of the management unit: family, private individual or group, or non-family (cooperative mode, business, public management)
<p>Operational attributes: How is farm work organized? Family and /or paid labour? - Is the land owned or rented, is it collective? What is the level of equipment, access to credit, inputs (fertilizers, pesticides, etc.), what is the degree of mechanization?</p>	% of the family involved in farm work and related activities; technical and natural capital as described in agricultural censuses; available technologies, reflecting the level of intensification/extensification
<p>Production and market attributes: What is the purpose of the farm production, home consumption and/or marketing</p>	On-farm consumption versus sold-on-the-market ratio Form of link to markets (direct sales, physical market, contracts, integration)
<p>Structural attributes: What are the characteristics of farm activities, livestock, cropping, forestry, and aquaculture? How does this reflect the level of integration and diversification or specialization?</p>	Portfolio of agricultural activities (crop, livestock diversification index); permanently or temporarily sown areas, dominant activity, integration and internal transfers

ANNEX 3

Structure, functioning and performance (SFP) model, a detailed conceptual framework

	STRUCTURE		Activities /FUNCTIONING/ Strategies		PERFORMANCE Sustainability
Context, trends and determinants	Capabilities Access permitted by ... Livelihoods platform (capital)		Resulting from the combination of various factors...		With effects on sustainability
National & internat. trends & context Population & migration technological change national policies	Social relations • Gender/Class • Age • Ethnicity • Urban/rural • Social & political participation		Natural resource-based activities • Farm and non-farm activities • Farming (food & market) • Catering (food & market) • Livestock	Livelihood Strategies • Specialization/ Diversification • Intensification (chemical or ecological)/ Extensification, • Concentration/ fragmentation • Migration, • Rental strategies • Combined strategies, including collective dynamics	Social and human sustainability Education and knowledge gains Health situation Social & political part. Collective dynamics
Local context & trends Local economic trends (including commodity chains), collective dynamics access to public goods, natural resources	Institutions • Rules and customs • Land tenure • Markets	Tangible & intangible assets Natural capital Physical capital Human capital Financial capital Social capital	Non natural resource-based activities • Wages • Rural trade • Rural services • Rural manufacture • Remittances • Others transfers		Economical sustainability Production & income level and stability Seasonality Degrees of risk Food security Market integration
Shocks Drought, floods, diseases, conflicts	Organizations • Local associations • NGOs • Local administration • Government agencies				Environmental sustainability Soil & land quality Water Rangeland Forests Biodiversity Energy Carbon
Useful indicators and variables, aggregation keys					
Zoning	Family features Urban area Affiliation to organizations and institutions (socio-cultural or market) Type of tenure External support, conducive policy	Assets descriptors	Agronomic practices Productive orientation Multi-activity portfolio Farm/off-farm labour distribution	Production diversity index Intensification index Parcel fragmentation index Ratios	Income Nutritional level Savings Biodiversity index in the territory, the parcel Soil fertility (time series)

Source: Sourisseau et al., 2012, derived from Chambers R., Conway G. [1991] and Scoones I. [2009]

ANNEX 4

Definition and differentiation criteria

KEY FEATURES OF SMALL-SCALE FAMILY FARMS INDICATED IN THE 6 NATIONAL REPORTS OF THE NENA STUDY (OVERVIEW)

	Mauritania	Egypt	Lebanon	Tunisia	Morocco	Sudan
Area & Herd Size	From 0.5 ha to 5 ha, depending on the cropping systems, the latter being defined according to the type of soil and of water management.	Generic threshold (national) at less than 1 <i>feddan</i> or less than 3 <i>feddans</i> according to experts. Difference according to areas: less than 5 <i>feddans</i> in the Delta old reclaimed lands (ORLs), less than 20 <i>feddans</i> in the newly reclaimed lands (NRLs). Threshold set for our study on the basis of the last agricultural census (2010) at less than 3 <i>feddans</i> , including the landless.	Equal to or less than 10 <i>donums</i> .	Four size categories (between 0 and 50 ha) were considered by the authors in these bioclimatic zones: M1 (0 to 5 ha), M2 (5 to 10 ha), M3 (10 to 50 ha) and M4 (above 50 ha), according to the <i>Survey of Agricultural Farm Structures</i> in 2004-2005	Small and medium-size farms (SMF): between 3 and 50 ha in rain-fed areas and between 1 and 20 ha in irrigated areas. Micro-farms: less than 3 ha in rain-fed areas and 1 irrigated ha. Differences of size thresholds proposed for different agro-ecosystems (zones).	Per area, threshold established in number of cattle heads in pastoral areas: threshold at 50 camels or 200-600 sheep, or 40 cattle. Religious threshold for the <i>zakat</i> (charity amount to give to the poorest): 30 cattle, 40 sheep and goats and 5 camels (dromedaries). Threshold for small poultry farms at 50-500 birds (chickens). Land threshold between 5 to 50 <i>feddans</i> according to regions (5 to 10 in rain-fed system).
Income or investment capacity threshold				10,200 Tunisian Dinars (DT) per year in 2014 <i>Investment capacity criteria</i> (DT 40 000 threshold), criterion developed in 1994 by the Support Fund for the Development of Agriculture and Fisheries (FOSDAP), and retained in the Investment Code to set the conditions of benefits to farmers and fishermen. Average annual income not exceeding the threshold of DT 6 000 in 2000 or DT 10 200 in 2014 (PACFS study).	Viability threshold: The conventional minimum area threshold likely to procure an annual income equivalent to the wages of two labourers paid SMAG (Guaranteed Minimum Agricultural Wage).	

	Mauritania	Egypt	Lebanon	Tunisia	Morocco	Sudan
Assistance threshold and status, related to a specific policy (subsidy, exemption, credit, etc.)		Threshold of 3 <i>feddans</i> associated with a property tax exemption	<i>Kafalat</i> ("small farmer" status) Programme: enables access to microloans	Low involvement of banks as the smallholder sector is considered at "risk" due to its tenurial fragility following land privatization. This low involvement is barely offset by special state funds (including the special development fund for agriculture and fisheries).	Green Morocco Plan including 2 specific pillars.	
Orientation of the production system: the crop and livestock system	Defined according to the soil type on the one hand, and the level of herd mobility on the other hand.	"Traditional" production, with reference to the technology mobilized.	Defined by retaining three systems: rain-fed, irrigated and supplemental irrigation (mixed system).	Defined by retaining three farming systems: <i>rain-fed</i> , when the UAA is farmed entirely dry; <i>irrigated</i> , when the UAA is farmed entirely irrigated; and <i>mixed</i> , when the UAA is farmed partly dry and partly irrigated.	Defined by retaining rain-fed, irrigated and zone (oasis, mountain, plain, etc.) systems.	Six categories of small-scale farming agricultural activities, namely, small-scale rain-fed crop production, small-scale animal production, small-scale forestry-based production, small-scale semi-mechanized farms, small-scale irrigated agriculture, and fisheries.
Level of crop/livestock integration	Livestock specialization (dry areas).	High integration and fertilization transfers.	High number of livestock on small farms.	High integration on small farms.	Integration and transfers in some areas (mountain, oasis)	Livestock specialization (dry areas).
Level of natural resource use, agricultural water (irrigation, natural pastures, etc.), excluding rain-fed	High dependence	High dependence	Lower dependence	High dependence	High dependence except in mountain areas	High dependence but reserves
Type of tenure	Direct tenure, pastoral areas under special regime.	Direct tenure or lease.	Direct tenure predominates on small farms (86%).	Predominant direct tenure, tending to rise.	Direct tenure (over 99%).	Pastoral areas under special regime.
Income diversification level (multi-activity)	Low, but seasonal (urban centres).	Farming is the main source of income for only 50% of small farm households, the other 50% is multi-active.	Significant multi-activity (2/3 of small farms).	High multi-activity; increasing from the North to the South, 55.4% for holdings of less than 5 ha.		Sheep fattening is increasing among youth, particularly small and sedentary producers as an off-soil activity.
Level of dependence on external transfers (city, Diaspora)	High		High			
Work on the farm	Family labour	Family labour	Permanent and occasional family workforce	Family labour	Family labour	Family labour

	Mauritania	Egypt	Lebanon	Tunisia	Morocco	Sudan
Marketing method	Home consumption, surplus sold at domestic markets, rural-urban food system, livestock export.	Home consumption and limited opportunities at domestic markets, not for export.	Home consumption, surplus at domestic markets, rural-urban food system.	Home consumption, surplus at domestic markets.	Home consumption, surplus at domestic markets.	Home consumption, surplus at domestic markets, livestock export.
Level of qualification of farm head (education)	Low, except graduate programmes.	Illiterate, or low level of education (if old).	Low	Low, especially if old.		Low
Involvement in farmers' representation structures and decision-making bodies	Strong membership rate (state-controlled cooperatives), including for water management.	Low	Low, community-like	Low membership rate (6%)	Growing, and source of innovation (rural youth).	Low, for herdsmen (livestock) and small-scale farming.

ANNEX 5

Situation of small-scale family farming (SSFF) in the 6 national agriculture sectors

Country	Features of SSFF: % of the UAA, relative situation in the sector, trends	Social features of households, in agriculture, with multi-activity	Average features of crop farming with land ownership, land features (including irrigated)	Average features of the other categories: landless/livestock and gathering of forest products activities
Lebanon	<p>70% of farms occupying 18.2% of the UAA are under 10 <i>donums</i> (dn=1 ha) in Lebanon.</p> <p>SSFFs stand <u>below</u> the average national thresholds.</p> <p>Majority of mixed holdings (crop & livestock) and 57% with livestock.</p> <p>The % of farms of less than 10 <i>dn</i> decreased significantly from total holdings in 2010 (by 2.7%), its share of the UAA has also decreased (by 1.3%).</p>	<p>5 people per farm household (family) on average.</p> <p>In 2010, 50% of farmers only practiced agriculture, without any other source of off-farm income.</p>	<p>The average size of a farm is down to 13.6 <i>donums</i>.</p> <p>Land fragmentation resulting from succession and inheritance systems.</p>	<p>Livestock accounts for 9% of the total number of farmers.</p> <p>Land acquisition is not a key criterion for livestock development, and 19% of stock breeders do not own farm land.</p> <p>The % of stockbreeders remained stable.</p> <p>The average size of a herd is 7 cattle (60% dairy) and 60-70 sheep (or goats).</p> <p>54% of small farms keep cattle, 35% breed sheep, 37% breed goats, and 40% keep pigs.</p> <p>Small poultry farms are highly specialized in <u>traditional</u> breeding (88%), and when they practice modern breeding, it is primarily broiler chicken.</p>
Morocco	<p>Agriculture sector: 1.5 million farms, 70% of which have a UAA <5 ha; 55% < 3 ha (with 12% UAA).</p> <p>"Social" agriculture: 601,000 micro-farms, accounting for 8% of the UAA, as compared to 875,000 small and medium-sized farms, which account for 92% of the UAA.</p> <p>The % of farms with an area below the minimum threshold of viability is between 58% and 99.5%, depending on the region.</p> <p>Irrigation covers 19% of farmland, and SSFF accounts for 5% of irrigated farming.</p> <p>Dualities: modern - traditional, large - small, irrigated - rain-fed.</p>	<p>The agriculture sector involves 46% of the workforce, and 80% of the labour force in the rural areas.</p> <p>About 5.5 million people are engaged in SSFF.</p>	<p>Mainly grains on 75% of the UAA, but only 10 to 15% of the agriculture sector turnover, and 5 to 10% of employment.</p>	<p>The landless fell by one-third between 1974 and 1996 (agricultural census - RGA).</p> <p>Cattle-breeding often remains the only income-generating alternative on farms with very limited land and capital use.</p>

Country	Features of SSFF: % of the UAA, relative situation in the sector, trends	Social features of households, in agriculture, with multi-activity	Average features of crop farming with land ownership, land features (including irrigated)	Average features of the other categories: landless/livestock and gathering of forest products activities
Tunisia	<p>Small-scale family farming covers 78% of the total number of farms, but 43% of the total agricultural area.</p> <p>66.8% of small-scale family farms has an area less than 5 ha and 86.7% less than 10 ha.</p>	<p>The average size of the rural household went from 5.7 people per household in 1975 to 4.3 in 2014.</p>	<p>76.8% of small-scale family farms is rain-fed, 12.4% is mixed, and 10.8% is irrigated.</p>	<p>The majority of stockbreeders consist of smallholders: in 2004-2005, 73% of cattle farmers, 70% of sheep farmers, and 67% of goat farmers had holdings of less than 10 ha.</p> <p>Small farms (2-3 cattle, 14 sheep and 3 goats) represent 83.5% of total farms, with 67% of cattle, 52% of sheep and 59% of goat population.</p>
Mauritania	<p>Family and traditional types of agriculture (rain-fed, flood-recession, lowland, behind dams, oasis) and irrigated crops make up small-scale family farming).</p>		<p>Wide variety of rain-fed crops.</p>	<p>The landless carry out gathering activities whose output is integrated into their system of production and activity (forest products: firewood, building materials and for fruits production, to improve soil fertility, for animal fodder).</p> <p>Breeding, with deterioration of ecosystems, reduction of pastures and livestock, concentration on small areas.</p>
Egypt	<p>SSFF accounted for 4.7 million holdings in 2010, including the landless, or 87.2% of farms (84.3% of farmers with land), and 35.2% of UAA.</p> <p>Group II: - small-scale farmers with land accounted for 2.3 million in 1990, increasing in size and % to 3.7 million in 2010.</p>	<p>SSFF accounts for 24.23 million people working in the sector (rural households) or 57% of the rural population.</p> <p>A small family farm feeds an extended family of about 6 people.</p>	<p>The average farm size decreased between 1990 and 2010, from 1.14 to 0.91 <i>feddan</i>.</p> <p>Increased fragmentation of plots between the last two agricultural censuses.</p> <p>UAA increased from 3 297 281 hectares in 1990 to 3 750 699 hectares in 2000 (or by 13%) due to the development of land reclaimed from the desert (New Reclaimed Land programmes).</p>	<p>Group I of the landless: increasing in number and %, 16.3% of farmers in 1990, and now 965 000 farmers, or 17.9% in 2010 (including a large number of stockbreeders).</p>
Sudan	<p>SSFFs accounts for 70% of agricultural GDP (value added), rain-fed agriculture contributes 11% and forestry 1.5%.</p> <p>In the Khartoum region, SSFF (less than 10 <i>feddans</i>) represents 56.54% of farms.</p>	<p>58% of the labour force is engaged in agriculture and 83% of the national population depends on agriculture for their livelihoods.</p> <p>70% of the labour force works in rain-fed agriculture and only 12% in irrigated agriculture.</p>	<p>Rain-fed agriculture covers 71% of the cultivated agricultural land in Sudan.</p> <p>5 major productions: sorghum, sesame, millet, peanuts and wheat.</p> <p>Strong diversification of SSFF: onions, tomatoes, fodder.</p> <p>Land fragmentation is accentuated as a result of land transmission rules.</p>	<p>Livestock breeding integrated in agriculture as a secondary activity, but specialized pastoralism is predominant.</p> <p>Importance of forest products (e.g. gum Arabic).</p>

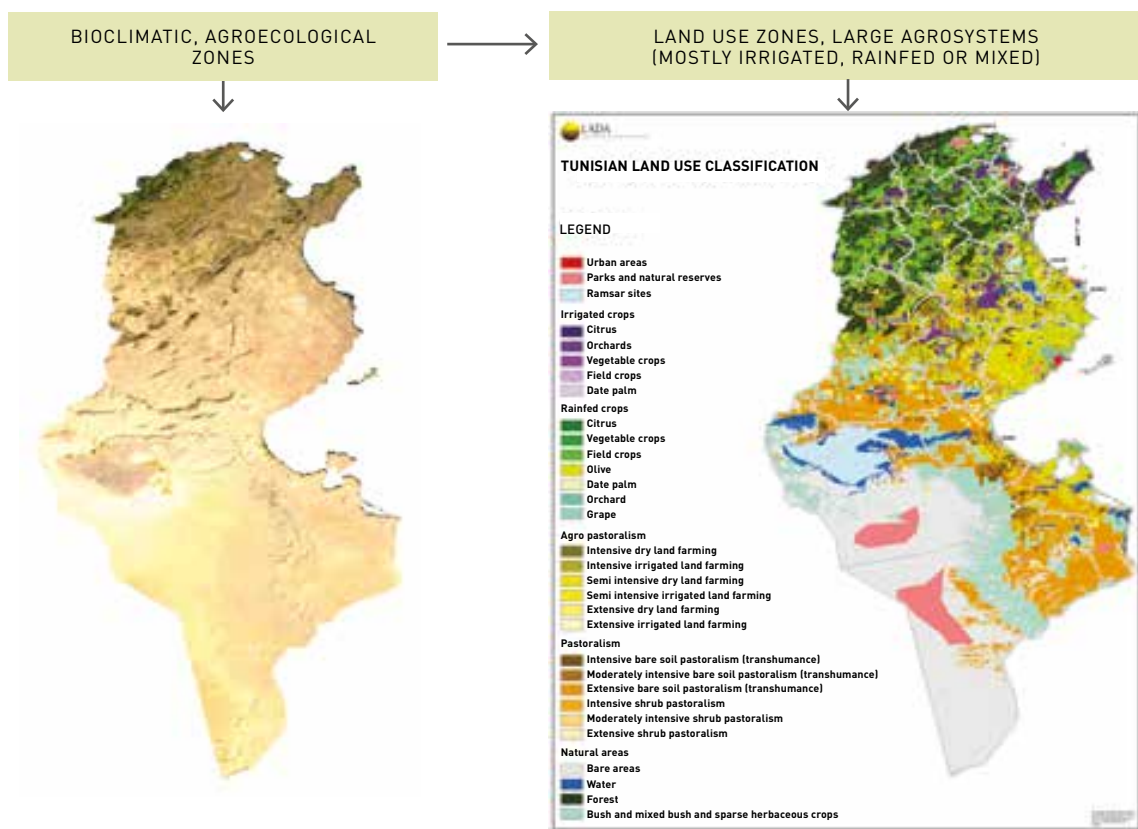
ANNEX 6

Types of zoning with an agronomic or economic role

THAT CAN BE USED FOR STRATIFIED SAMPLING IN SURVEYS TARGETING SMALL-SCALE FAMILY FARMING

A first simple approach to define homogeneous regions from a point of view of territorial resources is to consider stratification by agro-ecological zones or large agrarian region. Figure 30 shows a segmentation of the Tunisian territory combining the agro-ecological (source: GAEZ, ZAE)⁸⁵ and bioclimatic zones, as well as existing large farming systems (see

Figure 30. Geographical zones in Tunisia, as an attribute of farm households and stratification key for the national territory for sampling or aggregated representation of typology results



Sources: FAO LADA, Map Library

⁸⁵ GAEZ FAO <http://www.fao.org/nr/gaez/en/>; <http://gaez.fao.org/Main.html#>

LADA).⁸⁶ Each farm can then be geo-referenced in this zoning, which then becomes one of its attributes.

However, these agro-ecological zones reflect only a portion of the capabilities (endowments) of farm households; those related to natural (bioclimatic) and agricultural capital. Yet, national studies show the importance of **additional income** (multi-activity) whose determinants are more directly related to urban territorial capital and social capital (the ability to leverage networks, including in commodity marketing chains, to get employment in metropolitan areas of influence or medium-sized towns in rural areas). How can this dimension be integrated?

The additional zonings of areas to be considered are those of urban influence and the urban (suburban) to rural gradient (see Table 9, “Classification of the national territory based on the influence of the city” which presents the segmentation of urban influence zones used in New Zealand), representing as many forms of interaction and prioritization of cities. The levels of disaggregation of this factor may be more or less detailed, but the characteristics of NENA countries should encourage differentiating those whose urban influence is predominant (**Egypt, Lebanon**) from those that are still mainly rural.

Table 9. **Classification of the national territory based on the influence of the city**

Urban areas	Rural areas
Main urban areas	Rural areas with strong urban influence
Satellite urban areas	Rural areas with moderate urban influence
Independent urban areas	Rural areas with low urban influence
	Highly rural remote areas

Source: New Zealand⁸⁷

In France, INSEE recommends sampling and representing socio-economic statistics according to several types of relevant zones of the national territory.⁸⁸ In agriculture, beyond agro-ecological zoning, many zones are intended to be used to better aggregate representation of rural farm household types such as **employment areas**⁸⁹ which define homogeneous areas in terms of job mobility, or **living areas** demarcating access to equipment and infrastructure.⁹⁰

⁸⁶ LADA and GLADIS <http://www.fao.org/nr/lada/index.php?lang=en>;
http://www.fao.org/nr/lada/index.php?option=com_content&view=article&id=161&Itemid=113&lang=en

⁸⁷ New Zealand <http://www.stats.govt.nz/methods/classifications-and-standards/urban-rural-profile-experimental-class-categories.aspx>

⁸⁸ France INSEE zoning http://www.insee.fr/fr/publications-et-services/sommaire.asp?reg_id=0&ref_id=IMET129

⁸⁹ France INSEE employment area, see http://www.insee.fr/fr/themes/detail.asp?reg_id=0&ref_id=atlas-zone-emploi-2010

⁹⁰ France INSEE http://www.insee.fr/fr/methodes/default.asp?page=zonages/aires_urbaines.htm or OCDE methodology <http://www.oecd.org/gov/regional-policy/Definition-of-Functional-Urban-Areas-for-the-OECD-metropolitan-database.pdf>

Various techniques exist for defining geographic areas of employment, mostly based on analysing means of travel to work areas, whether urban or rural. While this practice remains rare in the countries under review, where zoning includes **urban areas**⁹¹ or employment areas, it would be useful to link this dimension to complement the zoning of national territories⁹² through GIS tools and according to this dual agro-ecological and socio-economic component. This would reflect more homogeneous areas of agricultural households' dualistic operations (agriculture and off farm) and would aid better stratified sampling.

⁹¹ France INSEE http://www.insee.fr/fr/methodes/default.asp?page=zonages/aires_urbaines.htm or OCDE methodology <http://www.oecd.org/gov/regional-policy/Definition-of-Functional-Urban-Areas-for-the-OECD-metropolitan-database.pdf>

⁹² Geographic Information Systems (GIS) make it possible to map geographical strata of various dimensions to represent multidimensional and homogenous territorial areas, a source of stratification.

ANNEX 7

Multivariate analyses and typology results

Some explanatory multivariate methodologies (discriminant analysis, explanation of one aspect of performance by structural and operating variables) may be distinguished from the majority of purely descriptive tools used in typologies. While all variables are quantitative, the principal component analysis (PCA) is the choice technique associated with hierarchical or non-hierarchical cluster analysis (HC) leading to **typologies**. While variables are qualitative and not ordinal (modalities), cluster analysis (or multiple component analysis) are the choice methods.

An example of research finding and typology combining structural and functional criteria is provided in Figure 31 drawn from a case study in **Egypt** (CIRAD research). This figure shows a factorial design with six homogeneous subgroups of households engaged in agriculture and animal husbandry in the Beni Suef region of **Egypt** (Nile Valley). Four subtypes out of six relate to small-scale family farming, and their structure, functioning and performance characteristics are different depending on the vertical axis of “social features” (education, income diversification) and the horizontal axis of “technical systems and production structures characteristics” (family size/UAA, crops/livestock - heads) (Daburon and Alary, 2015).

BOX 3: Forms of typologies (LSIPT Alive, Alary *et al.*, 2014)

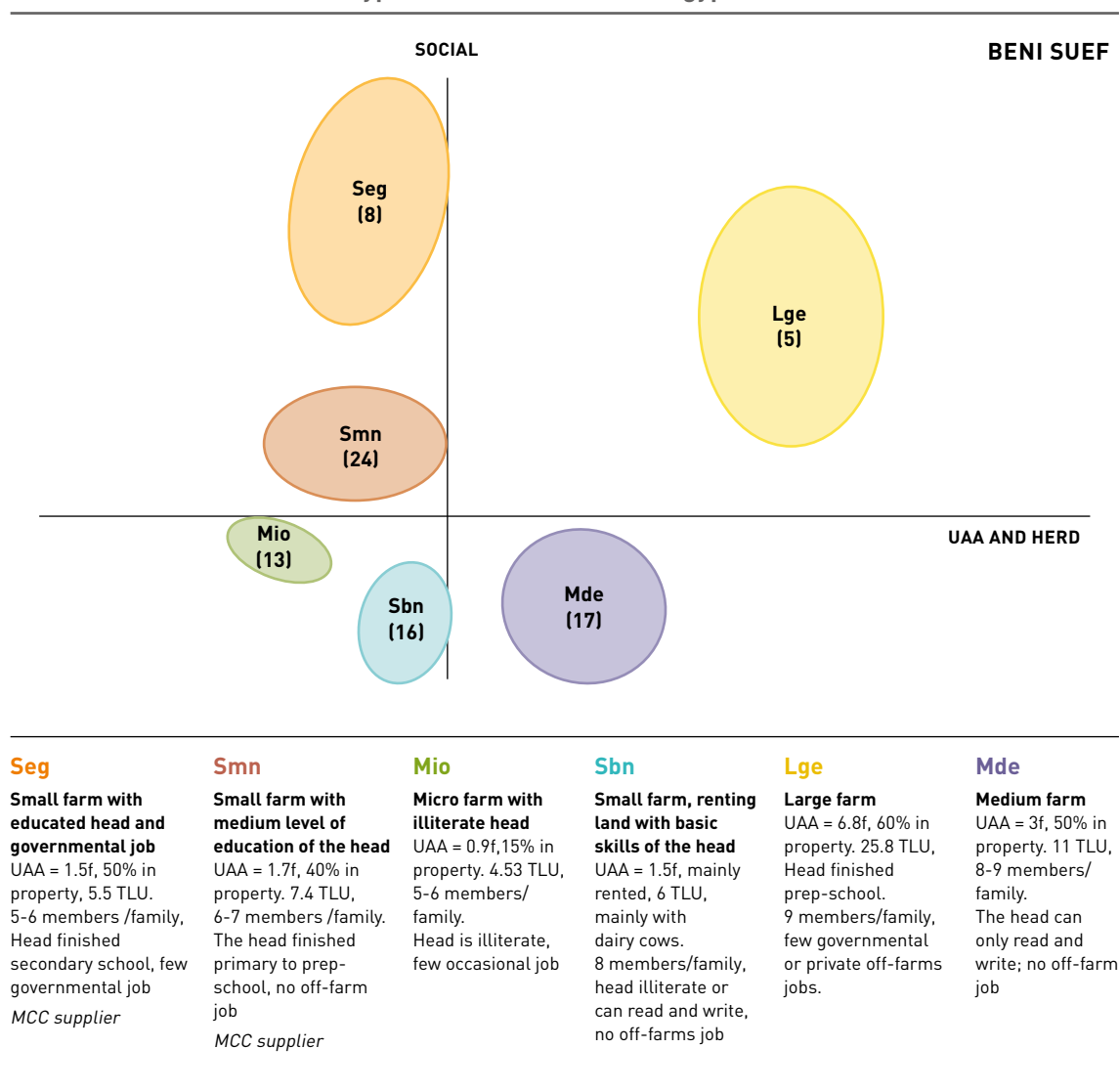
Functional typologies:

They meet the objectives of developing standard profiles based on crop farming and livestock husbandry patterns, with regard to the agricultural aspect of rural households. They most often reflect **practice systems** (typically “traditional low-tech and labour-intensive farms”, “highly-mechanized modern farms” or “high-input farms undergoing intensification”) or farmers’ **socio-economic strategies** regarding assets and finances which reveal different approaches to risk and uncertainties (“savers”, speculators or “diversified”). Functional typologies are better able to translate the **dynamic and adaptive** nature of the **units observed**, and they help to visualize, when repeated, some **practice changes** by farmers, without their structure having necessarily evolved.

Structural typologies:

They meet the objectives of developing types based on the **farm structure**, their size, the composition of the cultivated area and herds. They most often reflect the **land** and **economic weight of farms** (typically, the “large”, the “medium-sized”, and the “small”), or their **main operating pattern** and orientation, and determine their main socio-technical type (for livestock, the “nomads”, the “sedentary”, the “agro-pastoralists”; for farming, the “market gardeners”, etc.). Structural typologies are more **static**, but their design **several years apart** helps in identifying changes i.e. **structural paths**.

Figure 31. Example of a factorial plan derived from multivariate methods showing the differentiation of 6 types of farm households (Egypt)



Source: Daburon A. and Alary V. 2015. CIRAD APRI, Beni Suef, case study of the SIADDEEP project, 2014 Nile Valley

ANNEX 8

The dairy sector

AN EXAMPLE OF SMALL-SCALE PRODUCTION WITH MULTIPLE FUNCTIONS

Table 10. The dairy activity in small-scale family farms in NENA countries, an example of commodity chain integration and inclusive development

Country	Context
Lebanon	<p>The dominant cattle population in 2010 had a specialized orientation: <i>milk production</i>. The majority of cattle farmers (57%) had holdings of less than 1 ha of UAA, while 12% of average cattle breeders reported no UAA (landless). Dairy cattle farms vary from small agricultural structures such as in the isolated mountain subsistence systems where there are no alternative sources of employment to the medium sized off-soil intensive systems that combine livestock with forage crops, as in the Southwest and central part of the Bekaa.</p> <p>The by-products of the farms provide a great part of the cattle <i>feed</i>. <i>Dairy processing</i> enables small-scale farmers to valorize raw material with butter, cheese, yogurt, <i>Kishek</i>, <i>arich</i> and other traditional Lebanese products. The sale of these products is essentially done within <i>short value chains</i> and provides farmers with additional income.</p>
Mauritania	<p><i>Tiviski</i>, formerly the <i>Dairy of Mauritania</i>: Camel and bovine milk production is organized within Moor or Fulani <i>family farms</i> (homesteads, camps), on two collection areas (milk sheds): Rosso in the Senegal River delta, 250 km from Nouakchott and Bogué, 200 km upstream from Rosso. About 1 000 transhumant livestock farmers provide cow and camel milk twice a day, and 15% of delivery farmers are <i>women</i>. The <i>poorest</i> breeders provide very small quantities of milk, about one litre a day.</p>
Egypt	<p>Several <i>subtypes of small family breeders</i> were reviewed and compared to other types of farms. Their output offers a decent income, thanks in particular to milk production.</p> <p>They practice innovative forms of small-scale family farming with limited land ownership (1-2 <i>feddans</i> and landless, and livestock herd with 5-6 TLU) and are either geared towards the <i>sale</i> of dairy products on the local market or towards <i>home consumption</i>.</p> <p>In the CLIMED research project, it was shown that all the groups surveyed lived above the <i>poverty line</i> (CIRAD/APRI Alary V. et al., NRL CLIMED Project, 2015). Thus, the group of small-scale crop-livestock farms including a casual employee in addition to family labour scores a <i>net income/poverty line ratio</i> of 1.87, compared to the 1.78 score obtained by a young graduates farm group engaged in fruit production.</p>
Morocco	<p>Apart from <i>milk production</i> and local products (recently boosted by the Green Morocco Plan), small-scale family farming has a very limited connection to related commodity chains and professional organizations. Some examples exist however, such as the Women's Dairy Farming Cooperative of IFRAH.</p>
Tunisia	<p>"One of the structural characteristics of livestock breeding in Tunisia is its concentration on farms with low land potential and the importance of small livestock farms. The majority of breeders are <i>smallholders</i>: in 2004-2005, 73% of cattle farmers, 70% of sheep farmers and 67% of goat farmers had holdings of less than 10 hectares". Sixty local <i>Mutual Agricultural Services Organizations</i>, out of 179, are engaged in milk collection and marketing activities.</p>
Sudan	<p><i>Suburban dairy farmers</i> supply fresh milk to the urban consumers market. The herds are fed using crop residues as fodder, and with concentrates derived from oilseed meals. Milk is sold directly in the vicinity (direct sales), or after collection and a <i>short transportation</i> to resort areas.</p>

Source: Extracts from national reports, TLU Tropical Livestock Unit, poverty line set at US\$2 in the study in Egypt.

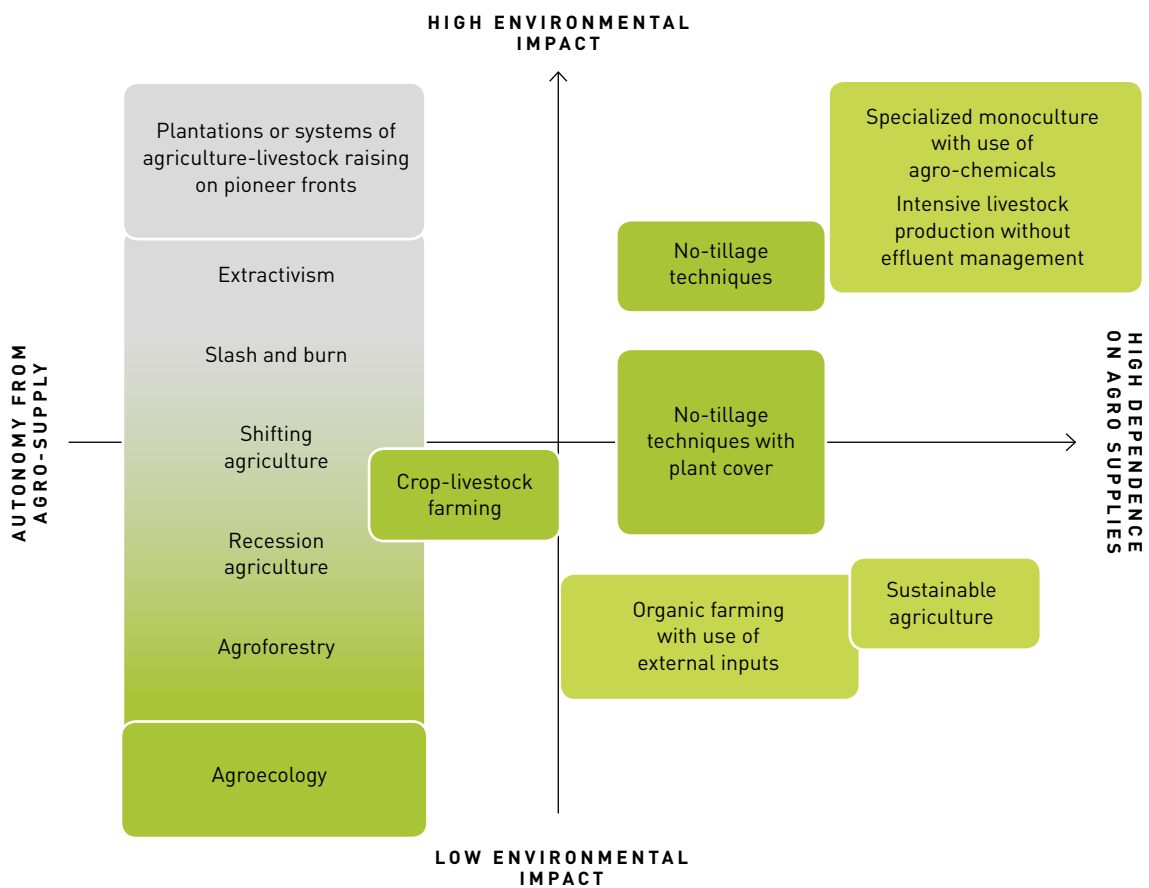
Livestock breeding is a special case in the study because it is two-fold; it concerns landless and land-based small farms. We chose to study the dairy industry as an example of diversification through stockbreeding. Dairy farming is a relevant example of the many performances that are found in national studies because it can support rural households by providing dietary protein coverage for the family and a steady income, without the need to occupy an agricultural area (use the cattle feed market). This is a system providing continuous income, task-sharing and indirect job opportunities within this commodity chain, and a good opportunity for takeover bids between farmers and the market. Table 10 highlights some characteristics of rural and suburban small-scale dairy systems in different national contexts.

ANNEX 9

Agro-environmental concerns and small-scale farming

Figure 32 shows the status of various agricultural practices on two axes representing autonomy from and dependence on the inputs market, on the one hand, and environmental impacts on the other hand (Bélières *et al.* 2014).

Figure 32. The relative position of different technical systems with regards to their environmental impact



Source: Bélières *et al.* 2014

FAO currently proposes 24 agri-environmental indicators divided into eight areas.

Table 11. **The eight domains of FAO agri-environmental indicators**

Areas of Indicators	NENA Region, considering the Context, Relative Importance, Constraints, Policies	Criteria that may be used in studies on small-scale family farming
Air and climate change (emissions)	Hot spot area of climate change, drought, extreme events, temperatures (Navarra <i>et al.</i> , 2013), ruminant farming and greenhouse gas (GHG)	Fight against desertification, adaptation through livestock and mobility, migration, effluent management and GHGs
Energy (use in agriculture and bio-energy production)	Used with equipment and mechanization Fossil or renewable energy support policies (solar in Morocco , fuel in Egypt , etc.)	Intensity of use of mechanical energy (versus animal), diversification of energy sources (fossil or renewable) Short commodity chains within short distance / transport
Fertilizer Consumption	Support policies, access to fertilizers through intermediary organizations (cooperatives)	Fertilization with green manure, agro-forestry, crop-livestock integration, recycling and integration of animal manure
Land (area, use-change, irrigation, conservation, cropping patterns, organic, protection)	Monitoring of the conversion of agricultural land at the territorial level Elements on agro-biodiversity, level of adoption of conservation farming, rate of penetration of organic chains	Increasing and maintaining biodiversity, % of monoculture versus mixed farming, fight against surface erosion
Livestock density	Livestock data (censuses), indications on the level of crop-livestock integration versus mono-specific livestock	Diversification and multi-specific composition of herds, conservation of pastures (levels of degradation)
Pesticides use	Support policies, access through intermediary organizations (cooperatives), little information on the alternatives used (push pull, monitoring of bio-agents)	Natural plant care products, service plants associations, resistant local species
Soils (erosion, degradation and carbon storage)	Anti-erosion and anti-desertification measures Soil Fertility maps, monitoring of carbon storage	Rate of zero-tillage practices [mulching], type of tillage, degree of permanence of plant cover, maintenance of traditional know-how
Water use	Key interest (irrigated systems), various governance techniques and institutions	Optimization of water use, efficiency

ANNEX 10

Recommendations made by country in broad categories

Recommendations in 7 broad categories (from national reports):

1. Statistical tools, methodologies and evidence to better understand, characterize, measure and represent the contribution of small-scale family farming
2. Institutions (public, private or mixed), governance and public policies
3. Productivity and efficiency of small-scale family farming (labour and land productivity)
4. Sustainable agro-food systems, territoriality, small-scale family farming links with markets and sectors (value chains)
5. Rural employment, professionalization of smallholdings, integration of young farmers and intergenerational transfer of holdings, youth and women employment, conditions for exiting small-scale family farming
6. Strengthening the resilience of small-scale family farming in the face of climate change
7. Others

1. Statistical tools, methodologies and evidence to better understand, characterize, measure and represent the contribution of small-scale family farming	
Tunisia	<ul style="list-style-type: none"> • Define the social and economic unit that makes up the small-scale family farm in the national statistical system in order to: (1) monitor its operating patterns and (2) encourage its promotion. • Redefine and recognize small-scale family farming by including its contribution in (1) the structuring of the economy and rural areas (2) the conservation of the natural and cultural heritage of the country. • Conduct, in the short and medium term, studies on small-scale family farming • Encourage surveys • Promote research to increase knowledge of small-scale family farming in Tunisia.
Lebanon	<ul style="list-style-type: none"> • Stabilize the definition of small-scale family farms taking into account specific criteria; in this perspective, consolidate the status of small-scale farms through appropriate studies, using bioclimatic criteria, characterising crop or livestock systems within the various sectors. • Indicate in the law that the majority of farm households and agricultural assets fall under Small-scale family farming. • Define the small-scale family farm in the national statistical and surveys system. • Regularly assess the situation of small-scale family farming to improve and adjust public interventions.

Morocco	<ul style="list-style-type: none"> • Precise data from the field would inform the typology and help to redefine concepts. • The “area” criterion is simplistic: it does not capture the strengths and vulnerabilities of small-scale family farming and its ability to change and adapt. This typology of small-scale family farms will only be meaningful if it is combined with a typology of territories. To get there, some case studies can serve as illustrative examples. • Integrating mobility (family labour/cash flow) is an important factor. • Need to define typology in relation to capital: the land/financial capital duo serves as a good indicator. • Redesign the GAC (general agricultural census) methodology, paying particular attention to the territorialization of data, and to the place of youth and women on farms and in the community. In this sense, the project of an agricultural register can substantially improve the result of the census. • Beyond the production of statistical data, there is a growing interest among development actors and researchers to easily access the data produced. Furthermore the GAC should be coupled with surveys of samples or types of agriculture. In this sense, regional typologies or socio-technical change observatories are excellent tools.
Egypt	<ul style="list-style-type: none"> • Improve the methodology of agricultural census in light of the experiences of developed countries. • Develop monitoring and evaluation statistical tools and methods, more suitable rural household surveys and agricultural census systems to assess the multiple performances and operating methods of small-scale farms, as compared to other models. • Represent the diversity of farm categories through multivariate statistical analyses, rather than using categories based on a variable.
Mauritania	<ul style="list-style-type: none"> • Carry out an agricultural census (pastoral systems, cropping systems). • Carry out specific surveys on SFF in order to collect, analyse and disseminate disaggregated data relating to SFF: household features, direct and indirect employment, income, access to markets, access to production factors, access to credit, conservation, tenure types, etc. • Establish a comprehensive inventory of socio-professional organizations (SPO), including their main characteristics. • Establish a database on SFF: components, features, projects and programmes, funding sources, number of farms, acreage, production, etc. • Strengthen statistics services in the departments of animal husbandry and agriculture (skilled human resources, equipment, and training).
Sudan	<ul style="list-style-type: none"> • Strengthen research and survey capacities. • Strengthen statistical offices and the Ministry of Agriculture. • There are a variety of small livestock farmers. A study is required to characterize them (this is of paramount importance for any planned intervention).
2. Institutions (public, private or mixed), governance and public policies	
Tunisia	<ul style="list-style-type: none"> • Legislate, in priority, and in the short term, on the status of the farmer in order to rehabilitate the agriculture sector and its contribution to the national economy. • Agricultural legislation, in ways that remain to be defined (Agricultural Framework Law, Agricultural Charter, Decree-Law), should adjust to the social, economic and cultural realities of small-scale family farming. • Formally recognize the social rights of farmers, particularly those of the most vulnerable (small-scale farmers) • Use the principle of national solidarity to provide at least part of the financial resources dedicated to upholding the rights to social protection, insurance against occupational accidents, etc. • Support policies (1) for the emergence and strengthening of small-scale farmers’ organizations; (2) for the participation of small-scale farmers in the structures representing the agricultural profession or in agricultural unions in defence of their material and moral interests. • Enhance policies to ensure economic stability and fight the inflation of inputs, equipment and service prices. • Secure land for small-scale farmers in order to ease access to financial resources. • Replace or take over from family investment with indirect public investment (in management and service structures). • Allow subsidized credit, mobilization of loans from donors.

	<ul style="list-style-type: none"> • Foster (1) the creation of collective tools (small-scale farmers' organizations) and (2) the participation of small-scale farmers in the structures representing the agricultural profession or in agricultural unions in defence of their material and moral interests. • Strengthen social and territorial cohesion. • Ensure economic stability and fight the inflation of inputs, equipment and service prices. • Facilitate access to material and natural resources (water and agricultural land), as well as financial resources: <ol style="list-style-type: none"> 1. The state should promote land laws that provide for the redistribution of lands in its private estate in order to improve the farm structure on the one hand, and the living conditions of small-scale farmers and their family on the other hand. 2. The investment efforts of small-scale family farms should be replaced /taken over by indirect public investment in management and service structures, in subsidized credit, in mobilising loans from donors. 3. The state should implement land security measure. • Strengthen the instruments of territorial governance by involving all local stakeholders (elected officials, businesses, farmers).
Lebanon	<ul style="list-style-type: none"> • Legislate, in priority, and in the short term, on the status of the farmer to rehabilitate the agriculture sector, and its contribution to the national economy. • Establish legal and regulatory frameworks in order to grant a special status to small-scale family farming. • Government should engage in the short term in the fight against poverty which affects small-scale farm households: development projects targeting underdeveloped areas and the poorest farm households (Aakar, South and Baalbek-Hermel). • Mobilize the state budget, international aid or international donors to fund projects. • Projects should be aimed at: strengthening (1) basic infrastructure, (2) building the capacity of local players; creating economic activities to improve employment and incomes for the poor, targeting, as a priority, women and young farmers from small-scale farms. • Support: <ul style="list-style-type: none"> • the emergence and strengthening of small-scale farmer organizations; • the participation of small-scale farmers in the structures representing the agricultural profession or in agricultural unions in defence of their material and moral interests. • Specify, in consultation with farmers' representatives, the social rights of farmers, particularly those of the most vulnerable (small-scale farmers).
Morocco	<ul style="list-style-type: none"> • Redesign accelerated approaches for creating cooperatives and associations (economic interest groups, joint-trade organizations, etc.) - The accelerated approach applied in creating such entities results, in most cases, in barely functional structures. Only an identification and follow-through pedagogy of community projects can ensure ownership of organizations by small-scale producers. • Land challenges (3-pillars): <ul style="list-style-type: none"> • User right: 7 million people depend on forest resources whereas they use such resources without ownership rights. Moreover, in the forest and pastoral areas, this user right differs from one zone to another. • Inheritance systems that lead to the splitting and parcelling of the farm. • Conversion of agricultural land by urbanization. • Promote social and inclusive economy and take into consideration the views of the farmer. • Allocate the subsidy based on global characteristics (small/ large and not irrigated/<i>Bour</i>) • Technical support should be renewed and reviewed, including ease of access to credit and other forms of funding for the network of associations and cooperatives.
Egypt	<ul style="list-style-type: none"> • Address the issue of small-scale family farms following a multi-dimensional approach, which should integrate social, economic and political aspects in the different dimensions of action, through strategies that combine all of these aspects at the centre of policies, programmes and projects that we develop. • Design and develop sets of direct and indirect support policies tailored and dedicated to these categories of smallholders. • Develop and expand the range of supports and services for agriculture, regarding research, agricultural extension, marketing and agricultural information. • Allocate a portion of investment proportionate with the stakes involved in the development of the agriculture sector i.e. for agricultural research, and the expansion of basic services. • A special effort is necessary for the development of rural infrastructure and basic services in the rural areas.

	<ul style="list-style-type: none"> • Develop agricultural credit policies and systems adapted to certain farming systems that hardly benefit therefrom. • Implement policies on land consolidation and apply structuring and crop rotation models based on the needs of local farmer communities. • Review and adapt agricultural policies and regulations in support of small-scale family farming. • Finalize implementing decrees deriving from the amendment of the law on cooperatives and implement the new operating rules to effectively apply the law. • Implement reforms on health insurance, the rules of contract farming, crop insurance, and farmers' retirement laws. • Review credit policies in support of small-scale family farming. • Survey the sustainability of bread and energy subsidy policies in order to adapt same to the new environment and socioeconomic situation of the country. • Strengthen NGOs which, in rural areas, provide support to small-scale farmers. • Encourage government to make the necessary investments in agriculture and rural development. • Increase targeted investment on rural infrastructure, agricultural research and extension and basic services. • Improve infrastructure in rural areas and support the emergence and sustainability of off-farm diversification activities to control rural-urban migration.
Mauritania	<ul style="list-style-type: none"> • Create special structures (agencies, directorates, units, etc.) for the development and modernization of SFF at the level of departments in charge of livestock and agriculture. • Implement and improve the land policy. • Establish specific agricultural loans for youth with appropriate access conditions. • Improve and diversify the sources of funding of SFF.
Sudan	<ul style="list-style-type: none"> • Place more emphasis on small-scale farmers and build a separate strategic plan targeting small-scale family farming and facilitating systematic, prioritized and budgeted interventions. • Enhance the strategy, the policy and the institutional framework. • Address issues of access and management of natural productive assets (water, land). • Promote human and social capital. • Establish a political and administrative structure taking into account all economic activities. • Have a truly representative political system for accountability and participation in decision-making. These representatives will influence national choices. • Political will is needed to address thorny issues of access to capital, particularly land, and to undertake measures to combat regional inequalities. • The budget process should ensure favourable public spending tilting towards the rural economy. • In addition, the tax rate on agriculture will not overburden small-scale family farming. • Encourage citizen participation and collective decision-making. • Apply a land policy involving communities to resolve conflicts related to the absence of property rights - <i>which deny farmers the guarantee to access credit</i> - and speculation; possible solutions include: leasing the land to the farmer, starting a registration system and enforcing property rights. • For the livestock sector, delimit and trace livestock routes and impose the use thereof. • Envisage a positive development of SSFF and do not leave it solely to the chance of success of a few: consequently, implement specific interventions in favour of small-scale family farming and estimate their cost. These substantial, systematic and multi-dimensional public interventions should aim to bridge the gap between farming and off-farm economic activities • Capitalize past lessons. • Break the logic of a financial system that favours large farms, and help smallholders who are more vulnerable to climate variability (lack of water), to price fluctuations resulting from the lack of marketing infrastructure, and to the low elasticity of food demand. • Increase access to financing and loan guarantees for small-scale farmers. • Strengthen the micro- finance capacity of businesses offering insurance products, which believe in group financing and most of all, establish a better system of property rights and land ownership rights. • Ensure that farmer organizations give voice to smallholders and empower them by involving them in agricultural policy: budget supervision and monitoring of commitments in the implementation of the policy.

3. Productivity and efficiency of small-scale family farming (labour and land productivity)	
Tunisia	<ul style="list-style-type: none"> • Build the capacities of family production structures and make them enjoy economies of scale without having to resort to concentration – notably land concentration, by encouraging the creation of collective tools (cooperative for the use of machinery, seed supply, producer groups for marketing produce, etc.). • Encourage collective marketing initiatives of small-scale farmers. • Valorize the productions of small-scale farms through contracts with schools, community catering, and “farmers’ shops”.
Lebanon	<ul style="list-style-type: none"> • Improve technical supervision through agricultural extension and vocational training. • Encourage the creation of collective tools (cooperatives for the use of machinery, seed supply, producer groups for marketing produce, etc.). • Encourage any form of resource pooling offered to small-scale producers, of producers’ association or groups. • Valorize produce through labelling systems.
Morocco	<ul style="list-style-type: none"> • Rethink extension services in favour of SSFF which, in addition to the technical difficulties, grapple with management issues. Developing management advisory mechanisms, particularly for cooperatives, would bring in useful added value to SSFF and would help producers to better target their markets and sustain their technical and economic choices.
Egypt	<ul style="list-style-type: none"> • Apply structuring and crop rotation models based on the needs of local producer communities (collective plantation and crop rotation plans). • Improve added value in commodity value chains by applying adapted processing technologies and a better use of agricultural by-products. • Develop agricultural extension and information systems suitable for helping small-scale farmers to adopt good farming practices.
Mauritania	<ul style="list-style-type: none"> • Modernize, intensify and diversify crop productions. • Apply and improve land policy. • Strengthen agricultural extension and supervision services. • Valorize livestock farming, reinforce the organization and build the capacities of stockbreeders. • Develop livestock-specific sources of financing and increase investment for the development of this sector. • Promote crop-livestock complementarity.
Sudan	<ul style="list-style-type: none"> • Improve the conditions of supply of farmers’ production: infrastructure (roads, telecommunication, etc.). • Increase production: accessibility to improved seeds, fertilizers, etc.; initiation to models of agricultural practices: rotation of crops, ploughing and harvest, etc. • Increase animal production by providing health services in addition to counselling on managing nomadic herds. • Invest in human capital to build the capacity of the rural population and small-scale farmers to use new technologies, enable best agricultural practices and improve sales. • Regulate marketing facilities and infrastructures. • Encourage the reduction of post-harvest losses by building warehouses and cold chain facilities, particularly for perishable farm produce. • Promote technology development and transfer, as well as technological innovations.
4. Sustainable agro-food systems, territoriality, small-scale family farming links with markets and sectors (value chains)	
Tunisia	<ul style="list-style-type: none"> • Ease access to material, natural (water and agricultural lands) and financial resources. • In tune with area development policies, correct territorial inequalities through the development of off-farm activities in order to offer employment opportunities conducive to multi-activity. • Support labelling or certification (“local products”, “organic products”) or other signs of the quality products which small-scale family farming often supplies.
Lebanon	<ul style="list-style-type: none"> • Encourage the creation of collective tools (cooperatives for the use of machinery, seed supply, producer groups for marketing produce, etc.). • Encourage any form of resource pooling offered to small-scale producers, of producers’ association or groups. • Valorize produce through labelling systems.

Morocco	<ul style="list-style-type: none"> • Adopt a buyer-centred and territory-oriented approach. • Treat the rural society in its entirety, agriculture certainly being at the centre of this society. • Introducing territorial analysis in order to leapfrog the traditional analysis will enable a change of paradigm. • Move toward diversification of subsidy programmes and encourage good practices. • Work on the commodity chain and especially the marketing channels. • The support and supervision potential of joint-trade organizations should be of better use to SSFF, particularly around commodities chains where this type of agriculture is quite dynamic (milk, honey, dates, WFP, sheep and goat farming). This would require strong technical support to control production costs and especially guarantee quality production. • Reinforce technical support and awareness-raising/communication on local products in big cities with a high potential of absorption of produce from suburban small-scale family farming.
Egypt	<ul style="list-style-type: none"> • Improve food systems and adapt them to diversified food demand and to the specific needs of the various marketing chains which supply the various urban neighbourhoods. • Organize small-scale business agriculture in a value chain system (commodity chain), reinforce knowledge-sharing systems between these farmers and other players. • Develop associations of small-scale farmers. • Reinforce the added value of agricultural produce through processing and a better use of agricultural by-products. • Develop extension and popularization as well as market information systems.
Mauritania	<ul style="list-style-type: none"> • Formulate a policy to fight the abandonment of agricultural land by youth and encourage their integration into small-scale family farming by establishing modern vocational training centres in subjects relating to agriculture and stockbreeding at the level of <i>moughataas</i> (districts). • Institute rational and participatory natural resource management for the sustainable development of livestock and crop farming: through the structuring, training and empowerment of socio-professional organizations for the sustainable management of natural resources. • Encourage the development of dairy industrial units. • Develop aviculture. • Modernize slaughterhouses. • Reinforce veterinary services. • Encourage access to market for products of small-scale family farming.
Sudan	<ul style="list-style-type: none"> • Reinforce the negotiating capacity of smallholders and support information sharing (via producer groups and organizations). • Promote the penetration and diversification of foreign markets. • In the long term, improve training, health facilities, food security and nutrition. • Farmers may be directly targeted by vocational training. • Make markets reliable because they signal shortages, reinforce value sequences and enable farmers to control risks, access credit and exchange information. • Encourage links to markets and improvement of the supply chain.
5. Rural employment, professionalization of smallholdings, integration of young farmers and intergenerational transfer of holdings, youth and women employment, conditions for exiting small-scale family farming	
Tunisia	<ul style="list-style-type: none"> • Improve technical supervision: agricultural extension and vocational training support structures. • Public intervention should prioritize the fight against poverty which affects the households of smallholders. • Reinforce, through incentives (tax, credit, training, services), the capabilities of rural economies to create jobs and improve the absorption capacity of active youth and women from small-scale family farming. • Enhance the local environment through the provision of community-based facilities, basic infrastructure, the creation of services in rural areas, and the creation of economic activities in disadvantaged areas to meet the critical job and income needs of the poor • On marginalized territories (centre and south of the country): strongly mobilize state financial resources and those of its decentralized bodies, those of international aid or international donor organizations.

Lebanon	<ul style="list-style-type: none"> • Create economic activities to improve the employment and income situation of the poor, prioritizing women and young farmers from small-scale holdings. • Improve technical supervision through agricultural extension and vocational training.
Morocco	<ul style="list-style-type: none"> • Public policies have led to move from “lifestyle” agriculture to “professional” agriculture integrated into the capitalist market. • In considering family agriculture, do not do so only from the point of view of the family head, but also by taking into account the emergence of youth who are not always business-minded. • Take into account agricultural wage-earners who are becoming increasingly poor and or spectacular importance of SSFF (7%/year/ha/added value). • Consider the impact of informal agriculture as compared to capitalism (different arrangements): this sector itself is innovative and is showing proof of its capacity to survive. • Technical support should be renewed and reviewed, including ease of access to credit and to other forms of financing for the network of associations and cooperatives. • Integrate gender issues: paradoxically, women work a lot in agriculture whereas policies focus on men. • Envisage financial incentive mechanisms (loans, support/subsidy) to halt the process of splitting of land ownership. • Encourage youth access to land ownership (issue of retirement from agriculture) • Rural development projects should make rural territories more viable and also fit to live in. Otherwise, the youth will legitimately look for greener pastures.
Egypt	<ul style="list-style-type: none"> • Develop agriculture extension and information systems adapted to small-scale farmers for the adoption of best agricultural practices. • Promote and support small-scale agricultural businesses for the benefit of rural youth and women. • Improve infrastructure in rural areas and generate off-farm activities to check immigration to urban areas.
Mauritania	<ul style="list-style-type: none"> • Promote socio-professional organizations by building their capacities • Improve and diversify sources of financing small-scale family farming • Formulate a policy to fight the abandonment of agricultural land by youth and encourage their integration into small-scale family farming by creating modern vocational training centres on subjects relating to agriculture and stockbreeding at the level of <i>Moughataas</i> (districts). • Set up farmers’ cooperative banks targeting the youth with adapted access conditions. • Identify the information and supervision needs of small-scale family farming and put in place a strategy for same.
Sudan	<ul style="list-style-type: none"> • Stimulate the interest of youth in agriculture and empower women. • Make it possible to encourage farmers and communities to create organizations and groups which can help them earn income and improve sales by negotiating collectively and by disseminating stock market information.
6. Strengthening the resilience of small-scale family farming in the face of climate change	
Tunisia	<ul style="list-style-type: none"> • Natural resource (water, soils and forests) protection is a major challenge to small-scale family farming. Land use methods in areas prone to climate hazards have enhanced erosion, loss of soil fertility and even desertification. • By striving to identify, validate and disseminate local knowledge and best ecological practices implemented by smallholders, government should pool, for the benefit of small-scale family farming, the resources and techniques needed to address the risks induced by climate change. • Governments should, on the basis of studies and research findings, establish specific programmes for small farm adaptation and resilience to climate shocks. • The state should, in the medium and long term, define actions directed towards this category of farms, and mobilize all technical structures for water, soil and forest conservation in their favour.
Lebanon	<ul style="list-style-type: none"> • Improve agricultural potential by optimizing all available land and water resources and by setting up a special enhancement programme, coupled with incentives in favour of smallholders.

Morocco	<ul style="list-style-type: none"> • Strengthening the resilience of small-scale family farming entails technical support to community water and soil conservation practices. • Support cooperatives with collective equipment by reviewing the level of subsidies to agricultural machinery. • Support access to groundwater for small-scale producers. • Monitor the establishment of large agricultural businesses around fragile territories (oasis, plains where water is overused) with regard to environmental and socioeconomic impacts. • Manage natural resources, particularly water, to ensure the sustainability of fragile systems.
Egypt	<ul style="list-style-type: none"> • Strengthen research and extension activities related to the resilience of small-scale farming in view of expected global and local climate change.
Mauritania	<ul style="list-style-type: none"> • Prevent and manage the negative effects of drought. • Develop irrigation infrastructures. • Enhance environmental protection (fight against desertification, reforestation, protected areas, etc.). • Identify the training and supervision needs of the SSFF, and implement a related-strategy. • Improve and diversify the funding sources of SSFF.
Sudan	<ul style="list-style-type: none"> • Treat water as a scarce resource and promote more efficient use of same. • Manage access to water by taking into account the multiple features of the various regions of the country: use (1) seasonal rains and streams outside the Nile basin; (2) groundwater; (3) adaptation of crops based on the low and variable level of rainfall (drought-resistant varieties). In irrigated agriculture, the strategic issue is to leave more water to smallholders: greater water use efficiency in irrigated agriculture will attract attention. The impact of the dam constructed at the Blue Nile in Ethiopia on small-scale family farming should be studied more thoroughly. • Protect fishery resources and ensure their rational use.
Others	
Tunisia	
Lebanon	
Morocco	
Egypt	<ul style="list-style-type: none"> • A synthesis report, enriched with information, which should be published in an FAO serial in Arabic and English, as a baseline report.
Mauritania	
Sudan	

ANNEX 11

Short executive summary

This report provides an overview of a study conducted in the NENA region in 2015–2016 in partnership with the FAO, CIRAD, CIHEAM-IAMM and 6 national teams who had previously prepared 6 national reports. The study was supervised by the FAO regional office in Cairo under its regional initiative dubbed *Small-scale family farming in the NENA Region*.

The study focused on small-scale family farming in six countries in the Near East and North Africa (NENA) region (Egypt, Lebanon, Morocco, Mauritania, Sudan and Tunisia) and the synthesis report is built on the national reports from these countries.

In the statistics systems of the countries under review, definitions of small-scale family farming are usually non-existent, vague or based on inadequate criteria. National data are generally outdated (Morocco's last census dates back to 1996) and do not allow development paths to be identified. Furthermore, they often only focus on the agricultural component of smallholders' activities. Such a partial vision makes it difficult to assess small-scale family farming and understand small-scale farmers' strategies. The line that strictly demarcates small production structures from the others is either non-existent (Mauritania and Sudan), limited to the size of the land area (10 *donums* in Lebanon, 3 *feddans* in Egypt) or a little more sophisticated (there is a distinction between irrigated lands and rain-fed farming areas in Morocco; income and investment capacity are taken into account in Tunisia). It is mostly researchers who introduce additional criteria such as bioclimatic stages, agro-ecological zones or other differentiation factors. However, the size of the agricultural area is not enough to explain the rationalities of small-scale farmers and their very different production and operating methods. The knowledge-based corpus should be improved by considering the agricultural household as a benchmark, by using a conceptual model of small-scale family farm operations that combines the study of production structures, the operating patterns of the family farm and off-farm system of activities, and lastly the economic, social and environmental performances of the various activities (farming system, on-farm consumption, capital used, time put into farm and off-farm activities, various sources of income, agricultural intensification practices and levels, provision of ecosystems services, etc.).

For the most part, agriculture in the six countries under review is carried out by small-scale family farmers, the majority of whom run the risk of falling into the poverty trap due especially to the fragmentation of their hereditament. Although accurate quantitative data cannot always be made available for each of the countries, one can safely say that small-scale family farming provides a significant share of food supplies to domestic markets. It is particularly active in short value chains where it has a comparative advantage. It is indispensable to creating both rural jobs in the services sector and an added value reinvested in a virtuous dynamics in rural areas. It is also able to position itself in export-oriented niche

markets, as long as there is a favourable environment and adequate supervision (tobacco in Lebanon, mint in Morocco, sheep in Mauritania and gum Arabic in Sudan). Most rural employment is related to agriculture. Studies agree on the fact that the great majority of family labour is involved in agriculture although members of the family all too often have to resort to multi-activity (multiple jobs). Where the small size of holdings combines with the lack of irrigation, small-scale farmers partially integrate a seasonal labour market (in large-scale holdings, irrigated areas, towns, etc.). Small-scale family farming provides a significant portion of family on-farm consumption and highly variable monetary excesses. Although unattractive, it is a pole of stability for active youth who see small-scale farming as a fall-back option in the event of unemployment. In some studies (notably Tunisia), we learn of growing reliance on female labour for farm work. There is very limited quantified data to illustrate the environmental dimension, even though small-scale family farming generally maintains sustainable practices that contribute to agro-biodiversity; it is less intensive or specialized than industrial agriculture. This notwithstanding, a combination of the pressure on land resources and the absence of other sources of income may lead to less sustainable intensification.

Although agriculture continues to play an important role in the economy of each of the six countries surveyed, its contribution to GDP and employment has reduced. Productivity per hectare of crop has increased over the last 50 years. But as the total population of these countries grew at the same rate, the number of inhabitants fed by a farmer does not vary much over time, although it varies significantly between the countries (from 4 people per farmer in Morocco to 45 in Lebanon). Labour intensification on small-scale holdings explains why labour productivity has not increased much and why the level of remuneration of farmers tends to fall as compared to other sectors, with the notable exception of Lebanon. There is a long-term trend common to the six countries: a faster reduction of agriculture's contribution to the added value of the economy than to its share of the labour force. Hence the major challenge of increasing the income of small-scale farmers (which cannot be reduced to mere intensification of land productivity), all the more as the traditional solution of migration may be more difficult to implement in the decades ahead.

The demographic and economic patterns of the six countries under review helps to underscore three determining factors affecting small-scale family farming: (i) growing urbanization, which can benefit smallholdings as it generates accrued monetization of food demand; (ii) active youth entering the labour market, a massive and more or less advanced phenomenon depending on the countries: in the six countries under review, four million active youth will enter the job market in 2025, and five million in 2055. Yet, youth unemployment is already high. It is therefore necessary to consider the issue of decent jobs for youth as an absolute priority; (iii) these countries are already in, or are entering into the demographic dividend phase, when the number of non-working-age population depending on the working-age population is lowest (one non-worker for two workers). However, whether a country is entering (Mauritania, Sudan) or exiting (Egypt, Morocco, Tunisia) the demographic dividend period, public policies must prioritize different objectives: minimising unemployment rate, labour productivity gains, specialization in innovation, etc. It is therefore necessary to design agricultural development patterns depending on the kind of transition at play.

In a globalized environment, the world's farmers compete against one another regardless of their different levels of competitiveness and public support. As a result of the challenges associated with globalization, assessing national situations in isolation from the international context is impossible. The dualism of agriculture is intensifying with, on the one hand, land concentration with national or foreign capital in the most productive regions and in more mechanized forms of production, supported by public policies and, on the other hand, a continued fragmentation of smaller holdings, or even the emergence or strengthening of landless farmers. Because they are fast integrating into the global economy, the six countries under review are particularly dependent on the international environment. Changes in production and technical paradigms that have accompanied the globalization of economies and trade in the 1960s and 1970s challenged the former political, economic and social order inherited from independence and/or national revolutions. The era of agrarian reforms (Egypt, Morocco, Tunisia), of social reforms and of national economic projects was followed by a period of liberal reforms and structural economic adjustments. The crisis of 2007-2008 compounded the effects of adjustment policies on local economies and societies (poverty, food insecurity, social infrastructure deficit and public services, etc.). These common characteristics are affected by country-specific constraints and challenges. Mauritania and Sudan suffer recurrent climatic shocks, especially droughts which have a significant impact on the relations between nomadic and sedentary people, stirring up conflicts over resource use (water and rangelands). They have also heightened difficulties in small-scale stockbreeding and family farming in rain-fed areas. Egypt, Lebanon and Sudan are faced with local and regional community and geopolitical conflicts, which are a source of institutional instability and impact their economies and territories. Morocco and Tunisia weather economic shocks in their drive to integrate the trade globalization process.

Overall, this study showed flagging interest in formulating policies on small-scale family farming, which is generally unknown and poorly supported, except for in some countries where it is addressed under a rural poverty reduction perspective. Where specific policies are defined, concrete implementation is often problematic due to the lack of resources on the ground. Yet, it is not only food security that is currently the major global and Mediterranean concern, but security in general, employment, climate change, conflicts and migration caused by deteriorating living conditions, particularly in rural and marginalized areas. One of the long-term political responses to these problems is increased support for small-scale family farming and the development of decent livelihoods in rural areas. The idea is no longer only to boost agricultural productivity in order to increase the availability of foodstuffs and foreign exchange reserves through exports, but also to provide employment and decent income opportunities to millions of people. Agricultural patterns must – at least for the time being – encourage multiple sources of income and job diversification (including off-farm) in rural areas. Agricultural policies can therefore no longer be reduced to intensifying agricultural practices, they should also focus on: (i) access to resources (water and land); (ii) sector organization in such a way that a substantial portion of the added value would remain at the level of farmers; (iii) social policies (the right to retirement for older farmers, insurance, access to quality education and healthcare, support for systems of values - gender equality, child labour, etc.); and (iv) regional development policies (emergence of secondary towns, roads, social and cultural infrastructure in rural areas, safety of people and property).

Recommendations were made in national studies and workshops on the following topics:

- **Statistical tools, methodologies and evidence to better understand, characterize, measure and represent the contribution of small-scale family farming:** Agricultural policies should be based on a regular assessment of the situation of small-scale family farming in order to define, improve and readjust relevant policies. To do so, it is necessary to better understand small-scale family farming at the national level.
- **Institutions (public, private or mixed), governance and public policies:** It is necessary to better recognize small-scale farmers and their contributions, including by granting them a legal status. A policy mix (agricultural, nutritional, financial, social, tenurial policies, etc.) and measures specifically targeting small-scale family farming should be implemented, building on strong government institutions and on stakeholder participation in decision-making, adequate territorial governance and support for small-scale farmers' organizations.
- **Productivity and efficiency of small-scale family farming:** Agricultural productivity issues are generally well dealt with in agricultural policies. Therefore, productivity should be assessed not necessarily with regard to cultivated areas but with regard to the time spent by small-scale farmers and their family on their holding, and policies should be tailored to their rationalities by promoting advisory, research, extension and vocational training systems.
- **Sustainable agro-food systems, territoriality, small-scale family farming links with markets and sectors (value chains):** Food systems must be supported to enable sustainable development by adapting to consumer needs and market requirements and by enhancing their resilience. Territorialized food systems (short value chains) should be recommended because they are likely to capture maximum added value at local level.
- **Rural employment, professionalization of smallholdings, integration of young farmers and intergenerational transfer of holdings, youth and women employment, conditions for exiting small-scale family farming:** The idea is to design a policy mix adapted to the structural transition phases of the national economy and demography, geared towards the creation of rural jobs, using a holistic approach to target mainly off-farm jobs. It is absolutely necessary to diversify and develop all the livelihoods of small-scale family farmers, under conditions that enable youth and women to become empowered, and by considering options to exit agriculture as well as social measures to encourage intergenerational transmission.
- **Strengthening the resilience of small-scale family farming in the face of climate change:** The objective is two-fold: enhancing the profitability of small-scale family farming on the one hand, and adopting sustainable environmental and natural resource management practices through the transfer of agro-ecological best practices on the other.

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