

REPÚBLICA DEMOCRÁTICA DE TIMOR-LESTE



DRAFT

Agriculture Policy and Strategic Framework

Towards Nutrition-Sensitive, Climate Smart Agriculture and Food Systems

June 2017

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Abbreviations

ASEAN	Association of Southeast Asian Nations
CBO	Community Based Organization
CSA	Climate Smart Agriculture
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
GIS	Geographical Information System
GDP	Gross Domestic Product
Ha	Hectares
IFAD	International Fund for Agricultural Development
KONSSANTIL	National Council on Food Security, Sovereignty and Nutrition
MAF	Ministry of Agriculture and Fisheries
MOF	Ministry of Finance
MTOP	Medium-Term Operational Plan
NGO	Non-Governmental Organization
NRM	Natural Resources Management
NTFP	non-timber forest products
NUS	neglected and underutilized species
OFDA	Office of U.S. Foreign Disaster Assistance
SDG	Sustainable Development Goals
SDP	Strategic Development Plan
SPS	Sanitary and Phyto-sanitary Standards
UN	United Nations
USAID	United States Agency for International Development
USD	United States Dollar
VCF	Value Chain Finance
WTO	World Trade Organization

Introduction: setting the scene

Background

The 2004 Agricultural Policy and Strategic Framework and the Strategic Development Plan (2011-2030) had been brought into force with the objective of ensuring an overall development of the agricultural sector in Timor-Leste. As more evidence becomes available, there has been a need to revise the policy taking into account the changing context, lessons learned, and aligning the overall agricultural policy to the new Sustainable Development Goals. The Prime Minister of Timor-Leste declared SDG2 “zero hunger” a top priority in the country.

This document highlights the (revised) vision and objectives for agricultural development in Timor-Leste. It describes the main policies and strategies of the Government to increase productivity and production of the agricultural sector that could have congruent positive impacts on food and nutrition security and poverty alleviation and sustainable growth in the context of climate change. The document has purposely been developed as an “overall” agricultural sector policy in order to create synergies and coherence in agricultural policy. **It does not attempt to stipulate an exhaustive and all-inclusive list of sub-sector strategies and actions as they can be found in the sub-sector policy documents.** It recognizes the need for public, civil society, private and community involvement as a shared responsibility through multi-stakeholder and multi-disciplinary approaches.

Methodology

The policy framework has been prepared through a consultative process involving a broad range of key stakeholders including Government, Farmers’ associations, private sector, Academics, NGO’s, UN Agencies, International Financing Institutions, and other development partners. The policies build upon- and have further been informed by analyzing many relevant sectors and sub-sectors’ policy documents¹ as well as relevant studies and other (project) documents. These exercises have guided and stipulated a shift in the policy direction – “sustainable and nutrition sensitive food system approach: as shown in figure 1 below.

¹ Agriculture Policy and Strategy (2004), Revised Forest Policy, (2017), Fisheries and Aquaculture Strategy (2012-2030), Timor-Leste Livestock Sector Review, MAF (2015), Food Security and Nutrition Policy (2017), Draft Gender Equality Policy, (2017), Climate Change Policy & Strategy (2017), National Action Plan for a Hunger and Malnutrition Free Timor-Leste (2014), Action Plan Combat land degradation (2008) National Youth Employment strategy (2009), Policy Framework for Agricultural Extension (2008), Strategic Development Plan (2012-2030), MAF Strategic Plan (2014-2020), MTOP – Agriculture Sector Medium Term Operational Plan (2014), Agricultural Sector Medium Term Investment Plan (2014-2018) MTIP, National Biodiversity Strategy and Action Plan of Timor-Leste (2011-2030), Timor-Leste Nutrition Strategy (2014-2020), National Action Plan for a Hunger and Malnutrition Free Timor-Leste (2010), National Adaptation Plan of Actions (2010), Gender and private sector strategy (2014-2017).

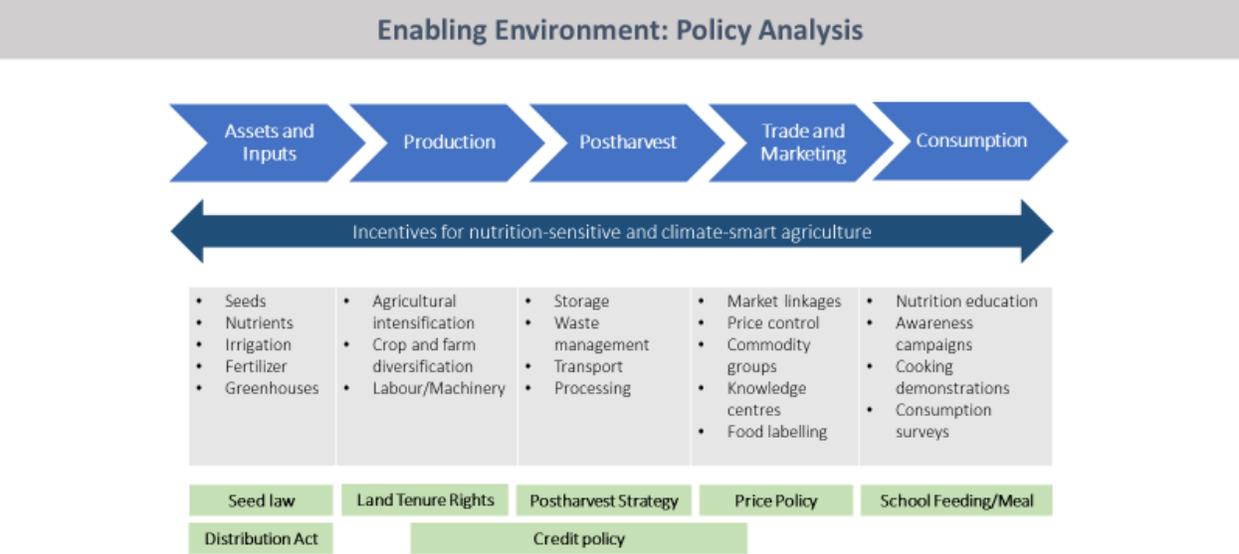


Figure 1: The building blocks of the revised policy and strategies framework (source: FAO).

Importance and potential of agriculture

Despite the economy of Timor-Leste is driven by both offshore petroleum revenues and Government infrastructure contracts, the Strategic Development Plan (SDP) underlines the importance of agriculture as one of the three pillars for economic development of the country. The petroleum revenues are set to decline over the next 5 years while over 70% of the population remains dependent on agriculture. The sector to (non-oil) GDP is around 20%. The main export commodity is organic coffee.

The pathway out of poverty for most of Timor-Leste’s population will depend on agricultural sector as few other economic opportunities exist. In the subsector of agriculture (crops) which includes horticulture, Timor-Leste has the potential to increase food production (rice, maize, cassava, sweet potato, vegetables) to satisfy domestic needs. Of the 15,000 km² land area, about 40% is suitable for crop and/or livestock and only about 80% of this arable land is currently being used. The potential for irrigated rice production is about 71,258ha, of which about 40,000ha is currently functional. The potential for up farming is about 274,000 ha, however only about 80,000ha is currently being cultivated. Most of the production – rice (70%), maize (80%) and cassava (50%) is for households’ consumption. Maize and cassava are also

commonly used to feed livestock, particularly chickens and pigs. The remaining small surplus is sold. Generally, farming households produce small amounts of various other crops for households' consumption. Many also collect wild foods, which are often consumed within the family. There is also potential to increase the production of horticultural crops to satisfy domestic demand. As the capacity of the National Quarantine office improves, the rules for food importation will be more stringently applied. This may have significant impact on large amounts of garlic, onion, potato and apples that enter the country and provide an opportunity to improve production locally.

There is potential to increase livestock production to meet domestic demand as well as tap into regional markets due to a growing meat demand in Indonesia and other ASEAN countries. Most households have some livestock (poultry, goats, pigs, water buffalo and Bali cattle) to support their livelihoods. The livestock is raised on a small-scale and extensive basis and serve as savings, food security reserve and a source of protein. Livestock is also used to meet cultural obligations. The development of intensive pig and poultry production in Timor-Leste remains at its infancy due to the high cost of imported concentrate feeds and cheap imported pork and poultry. Water buffaloes play an important role in the "*rencah*" system of rice field preparation in some rural areas. Livestock numbers generally have returned to pre-independence levels, except for goats. Timor-Leste is considered to have the potential to support over 400,000 ruminants (cattle, buffalo, goats and sheep), compared with current figure, about 350,000. In addition, the poultry and egg consumption in urban areas is dominated by imports. As such, the need to increase access to animal-source foods – livestock and fish – is considered vital for the improvement of the nutritional status of a large proportion of the population that is presently deprived of a nutritionally balanced diet.

The potential for the fisheries sub-sector is similarly substantial. With a coastline of about 735 km and an exclusive Economic Zone of 75,000 km², Timor-Leste has the potential to produce large quantities of fish but the sub-sector remains under-developed. Artisanal fishing satisfies over 85% (6,065 tons) of domestic fish needs in the country. Most of the sea fishing is carried out using small traditional boats, gill nets and long lines. Only about 21% of boats are motorized. Mari-culture and inland aquaculture have only recently been introduced on a small-scale. Commercial offshore fishing is carried out by foreign fleets under license. There are indications of over-fishing and sustainability of wild fish stocks is a major concern. There is no substantial export of marine resources although there are offshore resources that are not yet being utilized. Therefore, commercial fishing and fish-based value chains are considered to be high potential areas for development.

The forestry sub-sector, which also includes coffee and industrial plants, has significant economic potential when having adequate investment. For instance, Timorese coffee (organic) has a good reputation in the world but its production is very low and the quality is decreasing because the coffee plants are old and need rehabilitation (especially pruning). The climatic conditions of the country are also suitable for growing a range of tree species (hardwoods and sandalwood) and fruit trees (rambutan, peaches and plums) as well as spice crops such as

black pepper, ginger, cloves and vanilla. About 52% of the country is covered by light and dense forest. Forest trees include teak, sandalwood, rosewood and mahogany. Most forest is degraded and very little is exploited on a commercial basis. However, in recent years, forests have been severely over harvested and degraded for various purposes including slash and burn farming method.

Other valuable non-timber forest products (NTFP) include honey, which has long been important, although declining recently and a small cottage industry producing bamboo and rattan furniture for local use. Bamboo and rattan grow widely in Timor-Leste and are used for a multitude of purposes. These NTFP are important sources of rural income.

Despite the sector's potential, current Government budget allocations are very low and do not reflect the sector's critical role in national development, receiving about 1.7% of the national budget, while focusing more on short-term infrastructure development (irrigation). In addition, the MAF has seen part of its budget being transferred to the Municipality Level (USD 4.7 million) which may be considered a move towards decentralization. However, overall the budget for Agriculture was reduced by 3.3% and in 2017, receiving only 1.73% of the annual State Budget.

Key National Policy Challenges

Combatting widespread poverty and food security is a major challenge in Timor-Leste.

About 30% of the current population continue to live in extreme poverty especially those in the rural areas (70% subsistence farmers) and face regular periods of food insecurity. The average crop yields in Timor-Leste is amongst the lowest in the world, and this low productivity results in low incentive for farming, reduced number of households farming, less national production and poor nutritional outcomes. To improve production and productivity sustainably, the policy challenge is how to enhance innovative and appropriate technologies suitable to the Timorese context, empower and incentivize farmers, promote private sector and create an enabling environment for trade that links producers to consumers/markets. There should be efforts to increase production and productivity, and reduce post-harvest losses. The provision of market based financial services to farmers is critical thereby reducing dependency on the state as good and services provider. Technical support services, basic infrastructure, ensure water availability need much attention. Developing policy instruments that put all currently idle lands into production that is not under rotation or regeneration is important. In the context of climate change production should be done according – and adapted – to agro-climatic zones: mapping and zoning is important to identify where and what should be grown in a sustainable manner.

Malnutrition, food diversification and securing healthy diets is another major challenge.

Food insufficiency is one of the immediate causes of malnutrition, however other factors, such as diseases, poor health and child care, lack of safe water and improved sanitation, hygiene and housing also affects food security and nutrition. About half of all Timorese children are deprived of a nutritionally-balanced diet. With about 50% of children under five are stunted,

27% undernourished, and 11% wasted, malnutrition is at critical issue. Production should not only focus on staples such as rice, maize and tuber crops but also on other foods such as legumes, underutilized traditional crops and fruits. Diversifying production is therefore very important like creating awareness of preparing healthy foods. In fact, past and present government policies have contributed to an unbalanced sector development leading to a disconnect on malnutrition and dietary diversity due to a strong focus on rice production and consumption and the neglect of crop diversification and use of under-utilized crops.

Market and value chain development is critical for the development of the agriculture, livestock, fisheries and forestry sub-sectors.

Most producers are often unable to sell their products because the value chain is not properly set up. Cash (candlenut, coconut, coffee and high value crops (niche crops, black pepper, cashews, ginger, cloves, cocoa) are important to generate higher incomes. It is imperative that the policy ensures that local, national and regional markets are further developed especially for organic products as these are of higher value added. For example, for coffee, this would include improving regeneration through roasting. Importation should be regulated in order to provide opportunities to local entrepreneurs to develop their business. For several products, importation is currently far cheaper than producing in-country. High value products suitable for the domestic market include vegetables and fruit, such as *rambutan*, peaches and plums. Most of these products are currently imported. This does not help local business.

Timor-Leste needs to aim for exporting processed and packaged products rather than primary products which are often sold cheaply. The high demand for livestock products in Indonesia should be accessed in the future if the country invests in the processing and packaging facilities in order to export only carcasses rather than the live animals. In order to achieve this, a number of issues need to be addressed including investment in the processing and packaging, animal diseases, compliance with international rules and regulations (SPS/Food Quality). In Dili, there is one formal and 11 informal abattoirs that slaughter around 50 cattle per day. Value chain development is necessary in order to translate the aquaculture potential of the country into a practical reality thereby aiming at a lasting impact on poverty alleviation and malnutrition reduction.

Currently many supermarkets have established direct links with smallholder producers that deliver vegetables. This has proven to be rather successful as horticultural production in-country is now able to substitute some imported of the products that are now imported. However, prices of some other imported products including such as garlic and potatoes are still lower than those produced locally and this need to be addressed. In the near future, this may also be the case for fruits and for livestock and aquaculture products if the right conditions are set.

Income generation and (youth) employment

Rural employment, especially for the youth, remains a huge challenge. The importance of rapid progress in creating employment is clearly illustrated by the fact that some 15,000 to 20,000

young people – predominantly from rural areas – enter the labor force each year. As the main driver of the economy, the rural sector can play a significant part in alleviating the job situation. Moreover, micro and small enterprises tend to form the backbone of the economy. In Timor-Leste, numerous impediments prevail for entrepreneurship or self-employment as an alternative sustainable career path for youth. Key impediments include those related to poor practical agricultural skills among youth, regulations, property rights, and the still relatively complicated business registration system. Other key obstacles include the difficulties for youth to access formal credit facilities (no-collateral to qualify for conventional credit schemes), and gender-specific challenges, whereby micro-credit schemes tend to only cater for men.

Water scarcity

Water availability in terms of quality, quantity and stability for agricultural activities remains a big challenge in the country. During the rainy season, water is abundantly available in the rivers and water springs. However, in the dry season water shortages prevents farmers from having second and/or a third cropping seasons. As water scarcity remain a constraint in agricultural production, improved rainfed and irrigated water management (building catchments) must be practiced.

Natural resources management and climate change

The natural environment in which Timor-Leste's rural population lives is under severe pressure with rainfed cropped land used for unsustainable small-scale subsistence farming, and large "slash and burn" areas on steep slopes with infertile porous soils. There is virtually no return of organic matter into cropping systems because of annual burning and the need to graze increasing numbers of livestock. The latter could contribute to the return of organic matter to the soil. Land degradation will continue to be wide-spread and destructive. Without major changes in terms of how Timor-Leste is using and managing its natural resources rural livelihoods will not be sustainably improved. In addition, despite being a very minor emitter of greenhouse gases, Timor-Leste is one of the most vulnerable countries to climate change and related risks including natural disasters. Some other sector wide constraints

Other sector wide constraints include: Low productivity of land, labor and production inputs; the majority of subsistence farmers are small landholders with limited formal education; the US dollarization led to uncompetitive agricultural environment; lack of, if not non-existence of input and output markets; Lack of proper management on machinery utilization and low application of productivity enhancing sustainable appropriate technologies; crop and animal pests and diseases; lack of veterinary services; lack of animal breeding program; inadequate agricultural technical support services (including research) and underutilized human resources in all sub-sectors; lack of a gender perspective; lack of land tenure rights, post-harvest technologies, limited knowledge on food diversification and food preparation and healthy diets; inadequate infrastructure for value addition processes, including storage, marketing, distribution and access to feeder roads; mountainous terrain, soil fertility; lack of integrated services (food

quality) inspection/ veterinary); weak farmer organization and limited private sector participation in agricultural industry and other enterprises; lack of information and data on all subsectors impacting on planning process; lack of spatial planning in order to protect productive lands from being used for other activities; illegal export of cattle to Indonesia; limited budget of the MAF's budget.

Lessons learned and opportunities

- ✓ **Conflicting cross-sectoral policies** having negative impacts on agricultural development such as the absence of a clear rice import policy that stimulates paddy production in the country (e.g. through a local purchase scheme);
- ✓ **Most of the existing irrigation systems in the country are not properly utilized and managed.** Farmers lack motivation to further expand cultivation areas, lack of maintenance of existing irrigation schemes, insufficient water availability in the dry season to grow a second crop, and limited markets for local rice. Therefore, limited successes in increasing production have been observed from significant investment in refurbishing and rebuilding irrigation infrastructure.
- ✓ **Mechanization policy did not respond to the needs and economic feasibility and lack of focus on stimulating appropriate sustainable technologies according to each specific context.** The government introduced agriculture mechanization in 2008, when hand tractors handed to farmers and farmers associations while big tractors with implements (disc, plough, rotary) were distributed to each municipality. The latter are still under the control of MAF at the municipal level. However, the tractors are not properly maintained due to limited budget allocation and limited technical knowledge. Such large tractor schemes and “**false agricultural mechanization**” have proven to be generally unsuccessful. Modernization can make a difference but under the right conditions;
- ✓ **Provision of subsidies for inputs**, free land preparation, and subsidized imported rice have not significantly increased food security;
- ✓ Despite having one of the highest population growths in the region, the country has limited labor force in the agricultural sector due to very low income that can be generated, drudgery of work and **provision of pensions and cash-for-work has in some cases** demotivated local investments in agriculture. However, there are opportunities to use the untapped human resources especially those of the youth and get them into agriculture and agri-business;
- ✓ Despite the importance of upland farming systems for food security and poverty reduction, they have **received inadequate attention from the Government of Timor-Leste**, as most food production related policies and actions have focused on irrigated rice and mechanization while 70% of farmers do not have access to rice fields. Given the very high costs of irrigation and its technical difficulties, improvements in rain-fed systems can provide high returns to public sector investment and contribute to country-wide food security.

- ✓ The **public investments** in Timor-Leste have failed to reflect the importance of agriculture. Public investment in infrastructure, agricultural research, education and extension is essential in stimulating private investment, agricultural production and resource conservation; Scarce Government financial resources should be allocated to support sustainable agricultural development instead of measures that have proven to be unsustainable;
- ✓ Limited emphasis on **diversification** of food supply for increasing access to nutritious foods;
- ✓ There has been **a lack of policy coherence between** subsectors within the Ministry of Agriculture and Fisheries. More coherence between, sub-sector policies) will ensure economic and social development while also protecting human health and the environment. Also, the coherence with other government policies such as the industrial policy and investment promotion policies need to be aligned.
- ✓ Practice has shown over the past decade that a **group-based, market-led**, on-farm adaptive research and participatory learning approach is the most equitable and cost-effective for most agricultural extension activities. This should be considered in Timor-Leste as the country is transitioning towards market-based agriculture– in combination with the use of producer-to-producer/group-to-group exchange visits, field days/demonstrations on research station and group-based plots/ventures and mass media.

Opportunities

- ✓ Some success stories relate to new and improved crop management technologies and practices such as: conservation agriculture (climate smart agriculture), sloping agricultural land technology; agro-forestry; “community bio-diversity research centers”; contour planting; home gardens and key hole farming; improved seeds and community-based seed multiplication; intercropping of leguminous crops; seed storage and seed banks; system of rice intensification; water harvesting give opportunities to increase food security and nutrition.
- ✓ Given that most rain-fed farming systems are characterized by low production and productivity there is potential to increase production and productivity and good opportunities for acceptable returns to investments in improved agriculture practices ((e.g. conservation agriculture, integrated plant soil nutrient management, integrated pest and disease management and agro-forestry) and reduction in post-harvest losses;
- ✓ In addition, agriculture in Timor-Leste is mainly organic so there is huge potential for improving productivity through the above mentioned agro-ecological practices.
- ✓ Value chain development of horticultural products may offer another good opportunity to substitute for imports. There is potential for increased production of especially onions, garlic and potato in Timor-Leste. However, as Timor-Leste is preparing to join both ASEAN and the WTO options in terms of raising tariffs and import duties may be limited.

- ✓ Expanding trade/exports (coffee, animal products (including fish), industrial crops/niche products) will contribute to hunger and poverty alleviation and requires more attention from the government and private sector; there are ample opportunities to increase value addition;
- ✓ Investments in reforestation with native species and species of commercial value, particularly in affected areas and along watersheds may offer good opportunities to improve both biodiversity and family income;
- ✓ The (latent) forest sector has potential to be further developed and employ people specifically in the fuelwood industry;
- ✓ Aquaculture (onshore and offshore) as a key sector priority for improved nutrition and income generation.

Policy and Strategic Framework

This revised agricultural policy and strategic framework provides a coherent policy framework for addressing the main challenges in Timor-Leste.

The Government recognizes that there is no simple “techno- fix approach”. The Government will therefore reorient the agricultural and rural development policies that resets incentives and lowers the barriers to the transformation of food and agricultural systems. Particular attention will be given to supporting low-income smallholder farmers in strengthening their capacity to manage risks and adopt effective climate change adaptation strategies.

In summary, a key feature of this agricultural policy is a fundamental change in approach from that of a “techno-fix approach” to that of adopting an integrated food and farming system approach. A move towards agriculture diversification with alternative crops that are nutrition-sensitive and climate resilient with potentials on income generation, as well as the need for self-sufficiency in food (not only rice) is crucial for achieving food security and growth of the sector.

Vision and Policy Objectives

Vision

By 2030 Timor-Leste would have nutrition-sensitive, climate-resilient, economic viable and sustainable agri-food systems that contribute to eradication of hunger and all of forms of malnutrition.

Policy objectives

Based on the policy lessons learned since 2004, the policy objectives have been adapted and updated to fit the countries new realities. One new policy objective (institutional development) has been added. The policy objectives are fully aligned with- and intend to contribute to- the following Sustainable Development Goals (SDGs):

SDG 1: Elimination of Poverty; SDG 2: Elimination of hunger and improving nutrition (the Prime Minister announced SDG 2 as a key priority); SDG 3: Good health and wellbeing; SDG 5: Gender equality; SDG 8: Jobs and economic growth and SDG 15: Protect, restore and promote sustainable use of ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and biodiversity loss.

The policy objectives are:

1. Improved availability and access to nutritious, diversified and safe food and food security of the rural population;
2. Increased farmers' linkages to markets opportunities through value chain development, as well as improved community and private sector participation;
3. Increased rural income and decent employment especially for the youth and women;
4. Gaining revenue from commodity export and by substituting imports;
5. Sustainable management and use of natural resources including land, forests coastal and marine and biodiversity to provide ecological, social and economic benefits to the Timorese people;
6. Improved agricultural sector institutional development for an enabling environment and support services.

Guiding Principles

The revised overall agricultural policy is founded on the following **guiding principles**, a number of which are derived from previous policy documents and strategic plans while other elements have been added based on the lessons learned since 2004.

1. **Food as a human right** (Food sovereignty): focusing policy instruments for agricultural development on the social responsibility with respect to food security, social security and equity in Timor-Leste; and compelling the government to recognize, protect and fulfill the irreducible minimum degree of freedom of the people from hunger and malnutrition.
2. **Agriculture as key** to long-term economic growth and security: focusing policy instruments to ensure that the commercialization of agriculture includes technologies, financial services, inputs supply chains, and market linkages that directly engage rural poor farmers because rural economic growth will play a critical role in the country's successful job creation, economic diversity, improved security and sustainable economic growth.
3. **Nutrition sensitive agriculture:** focusing policy instruments on addressing the issues of stunting, wasting, underweight and other manifestations of hunger and malnutrition with particular reference to the vulnerable groups, which include children under 5, nursing mothers and persons with chronic illness and disabilities. This requires a multi-sectoral approach.
4. **Factoring Climate change, resilience and environmental sustainability:** focusing policy instruments on the sustainability of the use of natural resources (land and soil,

water and ecosystems) with the future generation in mind while increasing agricultural production, marketing and other human activities in the agricultural sector.

5. **Food system approach:** focusing policy instruments on farm enterprise development across successive stages of the commodity value chains for all subsectors from input supply, production, storage, processing, marketing and consumption, waste management and stimulating supply and demand for agricultural produces by linking producers and traders.
6. **Agriculture as an “enterprise”** – focusing policy instruments on a government-enabled, private sector-led engagement as the main growth driver of the sector. This essential principle was established in the 2004 Agricultural Policy and will remain an important design principle of Timor-Leste’s agriculture policies going forward. However, it should be understood that some services (including extension) might continue, for some foreseeable future, be delivered by the public sector.
7. **A scientific agro-ecological zoning systems approach** for identifying different regions of the country from the economic point of view as the most suitable and profitable for specific crops and cropping patterns and livestock production.
8. **Gender equality, participation and inclusiveness**- Enabling women on an equal basis with men to realize their potentials as key partners in improving food security and nutrition as well as economic development and diversification. This requires gender analysis for all respective topics in the agricultural policy. Focusing instruments on measures to maximize the full participation of all stakeholders including farmer’s associations, women farmers, youth, marginalized persons, private sector, development partners and NGO’s.
9. **Policy integrity** – focusing policy instruments on measures for sanitizing the business environment for agriculture, in terms of accountability, transparency and due process of law, ensuring efficient allocation and use of public resources/funding to enhance agriculture as a key engine for development.
10. **Policy coherence** – Focus on coherence between directorates within MAF and with other relevant sectors in the economy such as environment, infrastructure works, energy, and water. As such, policy making and investment decision should be based on best available scientific data
11. **Fair Trade:** focusing policy instruments to ensure that farmers get fair price and acknowledgment for their products and efforts, and are free of market manipulation.

Key Targets and Indicators

Targets and indicators need to be measured. Currently, there is basic structure for M&E system at sectoral level for each Ministry. An effort should be made to have an integrated Management Information System in Timor-Leste for a better evidence-based and investment decisions making approach. Hence broad national measurable targets are formulated and a M&E system needs to be set-up. Specific sub-sector targets and indicators will be developed as soon as an M&E is in place. To support implementation the budget of the MAF will be gradually increased from 1.7% in 2017 to 10% of the annual state budget by 2030.

By 2030, all the policies and strategies and measures are expected to contribute and/or result in the following;

- ✓ Food and nutrition security for the majority of households with at least 75% of population being food secured. Indicator: number of undernourished people (disaggregated by gender). (Baseline: 50.2%.);
- ✓ The number of people living below the poverty line would have been reduced by less than 25%. (Baseline poverty rate: 46.8% in 2017);
- ✓ Reduced stunting among children below five years to less than 30%, undernourished to less than 20% and wasting to less than 8%. (Baseline: 50% stunted, 27% undernourished, and 11% wasted);
- ✓ Overall agricultural contribution to non-oil GDP would have increased from the current 20% (baseline) to 25%;
- ✓ At least 70% of rice demand would have been locally produced and the remaining imported from abroad. Baseline: 30% (2015 data);
- ✓ The average consumption of local fish would have increased from 6 kg per capita to 15 kg per capita;
- ✓ Livestock figures would have increased from 350,000 ruminants (cattle, buffalo, goats and sheep), to 455,000 ruminants (30% increase);
- ✓ Natural resources would have been sustainably used and managed so that their social, economic and ecological values are preserved and maintained for the benefits of the current and future generation of Timorese people. Indicator: Forest covers now (baseline) 46.1% up to 50%.

Main policies and key strategic interventions

The following policies and strategies need to be addressed to ensure accelerated growth of the agricultural sector.

Land reform

Land reform is the basis for increased food security, investments in the sub-sectors and sustainable natural resources management. The land tenure issue in Timor-Leste is very complicated due to its history and customary governance. The recently approved land law has tried to accommodate various land ownership claims, with the objective of establishing “the real” owners. However, there is no provision in law related to land reform. Timor-Leste’s diverse cultural practices and traditions will continue to guide the Government in promoting communities’ access and right to communal lands and related natural resources. Efforts to modernize the land-administration system includes these practices while ensuring social inclusion and sustainability as enshrined in the Constitution. Before developing policies, investment plans or programs, the Government will consult communities and understand their current practices, needs, and interests with regard to land, water, forests and rangelands and their management. Political will, unambiguous and open communication, participation, careful planning, trust, and diligent implementation are necessary to ensure effective and equitable use

of communal resources. Existing land, water, forest and range rights, legal and customary, are the critical starting point of development programs or investment proposals to decide who must be engaged and at what stage.

Key strategic interventions:

- ✓ A “land lease mechanism” will be established to allow people who want to be a farmer have access to and control over land. Initially, a trial can be established whereby MAF transparently leases land to people interested in agriculture;
- ✓ Land governance at central and decentralized (municipality and *suco* (*village*) levels will be enhanced through strengthening institutions;
- ✓ Designated Watershed Management Councils will be supported to prepare and monitor “watershed agricultural development plans” that identify areas with good production and marketing potential, while taking into account local infrastructure and environment protection;
- ✓ *Suco* Councils will be supported in the preparation of participatory land use plans (that incorporate community-based disaster management plans) and *suco* regulations and *tara bandu* customary laws that legislate those land use plans.
- ✓ The Government will further stimulate land mapping and land use planning to determine appropriate use for forestry, livestock, aquaculture, agriculture and urbanization. Without this, people can still use agricultural lands for activities such as construction houses or leasing to plantations.

Sustainable Natural Resource Management

By nature, agriculture is the major user of resources and bio-diversity. Thus, resources conservation, and development on the agriculture sustainability is an explicit consideration. The Government objective is to use these resources sustainably by recognizing traditional management systems (*Tara Bandu*) amongst others.

Afforestation and the restoration of degraded land is most important for the formation of new forest resources and rehabilitation of degraded forest. Planted and regenerated forests contribute in a positive manner, economically, environmentally and socially, towards sustainable forest management and for helping to achieve food security. Forests play a critical role in sustaining the health of the environment by conserving biological diversity, maintaining clean water resources, providing fuelwood and helping to mitigate climate change.

The extent and severity of forest degradation impedes significant production of building timber that is required for a growing economy. The country is not self-sufficient for timber and must rely upon importation for construction and other purposes. As an important part of the new forest policy (2017) a specific afforestation objective will be to produce 50% of the nation’s timber supply for building construction, furniture manufacture and for other uses from locally grown forest plantations and from community forestry and agroforestry programs by 2050.

There is special concern over the decline in sandalwood resources and the implications for loss of genetic diversity in this valuable species. Sandalwood has been harvested from Timor for more than 1,000 years and, of all the forest products of Timor-Leste, it may offer the best prospect for profitable forestry activity.

Key strategic interventions

- ✓ Effective participatory land use plans (using GIS systems) will be developed;
- ✓ New investments that will lead towards greater self-sufficiency in wood supplies for general construction purposes and for the production of higher value species for furniture manufacture and craftsmanship will be stimulated to enhance income generation;
- ✓ Illegal harvesting will be reprimanded and rules and regulations will be enforced through support to forest and game guards;
- ✓ Studies will be undertaken to how and under what ecological conditions firewood, sandalwood and redwood can be established as forest or agroforestry crops, and establish marketing arrangements that maximizes the return to individual people and to the nation;
- ✓ The provision of accurate market information will be improved as and inventories and research support;
- ✓ A community based integrated watershed management approach will be adopted to improve community empowerment and participation;
- ✓ The conservation of national and cultural heritage will be promoted with a focus on national parks and protected areas through enhanced collaboration with other ministries.
- ✓ An adequate legal framework for sustainable marine resources management will be set-up to develop cost effective monitoring, control and surveillance;
- ✓ The Government will promote the cooperation of regional parties to improve joint management and conservation of the marine environment and its ecology, including the protection of Timor-Leste's exclusive economic zones; and encourage domestic and foreign investments that deliver tangible benefits to the country and to ensure local ownership of inshore marine resources.
- ✓ The Government will introduce a permit scheme for reducing unsustainable large- scale fishing, in favor of supporting local and traditional fisherfolk;
- ✓ The Government will conduct a viability study to facilitate the establishment of fishery industry in the south coast and including the establishment of Marine Protected Areas in the north coast.

Diversification

The Government of Timor-Leste recognizes the importance of reducing the risk of over-reliance on a few major staple crops especially rice, and is therefore embracing a Nutrition Sensitive Agriculture approach with the objective to improve availability, diversity, and reliability of supply of nutritious food across the entire span of the year.

Generally, there is a perception of rice as an upper-class food, which signifies modernity and coupled with the use of white rice through humanitarian assistance and market interventions, many people are now totally dependent on white rice. The overall objective is to improve the availability of varied nutritious foods through diversification in agricultural production to improve nutritional health status and reduce malnutrition. Focus will be on locally adapted varieties rich in micro-nutrients and protein with increasing food from horticultural, animal (including small scale fish farming/integrated homestead farming) sources and underutilized native food crops and plants. These approaches will transition local diets back to a diversified and balanced diet.

Key strategic interventions;

- ✓ Identification, prioritization and integration of nutrition valuable crops in the farming system such as pulses (e.g. mung bean) and stimulate other crops such as soybeans, peanuts, onions, potato and fruit trees, locally appropriate millets or other (traditional, under-utilized) nutritious crops will be emphasized. An, initially, assured procurement will be considered as this would lead to encourage farmers to increase production and subsidize the consumption of these crops for low income groups (women, children);
- ✓ Availability and access to food from animal sources at household level and the development of household kitchen gardens and backyard fish ponds will be increased and supported and new technologies explored to reduce women's workload.
- ✓ Identify and promote the complementarities of "Future Smart Food"² i.e. neglected and underutilized species (NUS) that are nutrition dense and climate resilience with high economic potential and local availability with existing staple crops.

Production and Productivity: Climate Smart Agriculture (CSA)

Significant improvements in production and productivity, as well as resilience to climate change will be achieved through stimulating climate smart agricultural practices and sustainable intensification of production systems. Wide adoption of practices such as integrated crop management, zero or minimum -tillage and integrated soil fertility management will boost productivity and farmers' incomes. Also, the objective of the Government of Timor-Leste is to see farmers progressing from subsistence farming to market-oriented agriculture will be achieved through promoting the sustainability of farming systems by new and improved CSA technologies and practices that incorporate sustainable natural resource management practices. Successful examples in Timor-Leste are in box 1.

² FAO's Regional Initiative on Zero Hunger: Policy brief on Agricultural Diversification for a Healthy Diet: Future Smart Food: Unlocking Hidden Treasures in Asia and the Pacific

Examples of new and improved CSA technologies and practices applicable to Timor-Leste.

Leste. agro-forestry; conservation agriculture; heat, drought and wind tolerant crop varieties; small-scale fish farming (integrated with irrigated horticulture and paddy rice);, integrated homestead farming; integrated pest and disease management; integrated soil fertility and nutrient management, permaculture, community-based range management, community-based reforestation and protection of catchment areas & water sources; renewable energy sources; community-based soil and water conservation/water harvesting and efficient irrigation delivery and on-farm water management systems; stall-feeding of livestock/zero grazing; community-based sustainable marine capture fisheries management; system of rice intensification; post-harvest management and public-private-community partnerships for inclusive and efficient value chain development.

Key strategic interventions:

- ✓ **Irrigation:** The Government will pursue a fundamental change in policy namely putting less emphasis on investing in new large irrigation schemes for rice production to a diversified food system approach while also maximizing the use of existing irrigation infrastructure to stimulate sustainable agriculture in the country. In addition, more emphasis should be given to develop small to medium scale irrigation schemes that can be used for horticulture, fruticulture and aquaculture production.
- ✓ The Government will phase out the offering of unsustainable agricultural subsidies to rice farmers and puddling, seeds, fertilizer, pesticides and irrigated water delivery much of which has been harmful to the Timor-Leste natural resource base especially regarding soil health, food safety/pesticides residues and diminishing water resources, all of which will be alleviated through enhanced CSA and NRM. This can be achieved without jeopardizing the national food security objective, with the assurance that special needs and vulnerable groups are supported, and with a clear understanding of the need to increasingly stimulate private sector involvement in agricultural development.
- ✓ The government will provide financial credits to farmers with zero interest rate as a replacement to subsidies with adequate training on management and monitoring and at the same time stimulate commercially sustainable financial providers to service the agricultural sector so that government subsidies can be reduced;
- ✓ Enhanced soil fertility and restoration of degraded lands through the adoption of CSA technologies and practices such as conservation agriculture, agro-forestry, soil and water conservation and water harvesting will be leading to improve crop production. Since a large proportion of farmers do not have access to irrigated farmland increased attention will be given to improving rainfed food production systems particularly the abandoned lowlands along the south coast and the degraded uplands.
- ✓ Support will be provided to set-up a national seed bank. Seed savings systems will be stimulated through Public-Private-Community partnerships including production, quality certification and marketing of seeds.
- ✓ Livestock production and management will be improved through the development of stall-feeding/zero grazing systems (where appropriate), animal feed processing, cold

chain development, marketing and strengthening animal health services including vaccination programs. This will include a network of government and private veterinarians and para-vets/community-based animal health workers) effective surveillance, reporting and control of trans-boundary animal diseases and support to quarantine and animal/meat inspection facilities (through public-private-community partnerships) for both domestic processing and marketing and trade in animal products.

- ✓ Sustainable fisheries and aquaculture will be promoted through marine capture fisheries and marine culture management, brackish water and freshwater fish ponds) development, product processing through cold chain systems, linking producers to markets. Setting up effective partnerships between Government, fish farmers, seaweed farmers, and fishermen communities, NGO's, development partners and the private sector will be key partners;
- ✓ Water availability will be improved through CSA techniques such as small water facilities and rainwater harvesting including simple techniques and instruments that are suitable for both men and women. It is also important to conduct a feasibility study for dam construction to ensure water availability and stability for agricultural activities.
- ✓ Natural resources (forests and wood products, marine, will be managed in a sustainable way through implementing the forest policy (2017) and the National Aquaculture Development Strategic Plan (2012-2030) as well as the Ocean Policy (2017).

Agricultural technologies

Mechanization

Since 2006, MAF and other Ministries have provided group of farmers (cooperatives) and selected farmers, mainly from the rice-producing areas, with two-wheel tractors while the large tractors with implements remain under the auspices of the government for free tilling. As of 2016, the government has distributed 292 big and medium size tractors out of which 83 are in unrepairable condition. The government has given more emphasize on the distribution of medium to large tractors on the areas where the new irrigation scheme locates for new land opening and rice cultivation. These tractors were supplied with limited implements like disc plough, rotary, leveler and cutter/chopper. Although government has distributed significant number of tractors and its implements to provide free service to the farmers, due to lack of knowledge and proper training of operators and mechanics, these machineries are in depleting conditions. The major failure of the sustainable use of these tractors is due to its limited operating areas and are targeted mainly for rice production. Other factors contributing to the under-utilization of this scheme are unreliable fuel supplies, unavailability of spare parts in the domestic market and above all lacking the sense of ownership among farmers. In addition, the challenging geographical configuration of the country is also contributed to underutilization of tractors in some areas.

The government realizes that mechanization covers all levels of farming, postharvest and processing technologies, from simple and basic hand tools to more sophisticated and motorized equipment and increasing levels of mechanization does not necessarily mean big investments

in tractors and other machinery. The simple hand tools such as manual seeder, manual maize sheller etc. should be promoted realizing the lack of energy use (electricity and fossil fuel) in the rural areas. The diverse landscape of the country which comprises of flat land in the northern and southern coastal areas whereas hilly areas in the mid-range of the country hinders big machineries (tractors) to operate in all part of the country. Therefore, the appropriate level of mechanization (e.g. North & South coast - potential for medium size 4-Wheel Tractors for new land opening followed by 2 - Wheel Tractor (power tiller) with appropriate implements for land preparation; mountainous region – small size equipment and machinery such as hand tools, manual seeder, mini tillers etc.) suitable for specific agro-ecological zone and diversified crops/livestock/fisheries will meet the farmers need effectively and efficiently. It will ease and reduce hard labor especially for women, relieve labor shortages, improve productivity and timeliness of agricultural operations, improve the efficient use of resources, enhances market access, contribute to mitigating climate related hazards and create employment opportunities for rural youths. The coordination among different ministries and sectors to enable favorable policies on agricultural mechanization is important for implementing these strategies

Key strategic interventions;

- ✓ The existing large tractors will not only be used for opening up new lands for rice production in the newly established irrigation schemes but will also emphasize on multi-purpose use of these tractors and the Government will avoid “one fit all” policy for mechanization approach and giving more emphasis to the rice bowl approach;
- ✓ Appropriate 4-wheel tractor implements not only suitable for rice cultivation, but also for other crops such as maize, soybean, legumes including neglected and underutilized crops grown in the country (Direct Seeder, Trailer etc.) will be further stimulated;
- ✓ The Government will promote sustainable agricultural mechanization appropriate to the Country’s economic and geographic conditions for optimum utilization to increase productivity;
- ✓ The Government will promote and establish community and market-based appropriate post-production processing machineries and equipment (harvesters, small combine harvesters, threshers, mills, etc.) for the selected crops, fruits and vegetables grown in the country;
- ✓ The Government will promote sustainable use of agricultural mechanization across the entire agro-food chain, from land preparation and crop/livestock husbandry covering harvesting to post-harvest handling and processing (rice harvester, small combine harvester, thresher, storage, packaging and distribution);
- ✓ Public-Private-Community partnership business model will be leading for the management of Agricultural Machinery utilization. However, due to high initial investment costs, a public investment in sector should be initiated by the government, later it can be privatized or managed through partnership arrangement;
- ✓ Public, private and community partnerships will be developed to promote agricultural mechanization and equipment services including spare parts and market access to farmers and for the management of semi-autonomous mechanization service center

which is operated by private sector under the supervision of government. (e.g. Contract farming, custom hiring schemes);

- ✓ The private sector will be provided with appropriate taxes/duties facilities for the import of necessary raw materials to encourage the import of agricultural machines so that the farmers can procure machines from the market according to their choice and convenience. This is expected to keep the machine prices within the purchasing capacity of the farmers;
- ✓ The government will identify, preserve and develop the existing local ways of farming including cooperative farming system that contribute to agro-tourism industries;
- ✓ The Government will promote women and environment friendly sustainable agricultural mechanization and equipment;
- ✓ The Government will create an enabling environment for empowering youth and fresh graduates from the Agricultural Technical School in agricultural mechanization sector;
- ✓ Capacity development for extension officers, mechanics, operators, local workshops and farmers on operation, repair and maintenance of agricultural mechanization. Provide training or capacity development to farmers, especially on: tractors utilization, transplanting, mechanization for sowing maize, rotary and weeders for maize will be pursued.

Post-harvest technologies and management

High post-harvest losses are a major problem in Timor-Leste. For rice, most losses occur during threshing and milling and frequently exceed 30%, i.e. about 5% lost during harvesting and 25% when stored as paddy. Factors contributing to high losses in maize include storage losses of between 25 and 30% – with losses reduced to 15% when grain was stored in airtight metallic silos and drums. Losses of between 20 and 25% in beans have also been reported and drying was highlighted as the main problem. Post-harvest losses in fruits and vegetables are higher at 30%, reaching up to 35% in bananas, mangoes and tomatoes.

In Timor-Leste, farmers rely on a range of simple hand tools, techniques and structures for crop harvesting, handling and storage. Traditionally, farmers store maize cobs on tree branches or large piece of wood on the farm or near the house, and in the kitchen (above cooking spot) thereby exposing them to the vagaries of the weather and attack by pests and rodents. Many farmers are now turning to metal silos and drums provided through subsidized programs supported by the International Fund for Agricultural Development (IFAD), FAO and International NGO's.

In synergy with the mechanization strategies, the following apply for post-harvest:

Key strategic interventions;

- ✓ Appropriate post-harvest management strategies and group-based cleaning, shelling, drying, milling, processing and packaging technologies and practices will be introduced;

- ✓ Storage capacity will be improved by introducing new storage facility and support market-based approaches for locally manufactured storage systems (e.g. metallic silos fabricated by local blacksmiths);
- ✓ Women friendly storage technologies for easy utilization and management will be developed;
- ✓ The import of post- harvest tools and equipment will be stimulated through providing the private sector with appropriate taxes/duties facilities for the import of these equipment. This is expected to keep the prices within the purchasing capacity of the farmers;
- ✓ Processing and packaging technologies for all agricultural products will be introduced and/or improved and, where necessary cold chain storage facilities will be set-up in order to reduce food loss and waste and control food quality;
- ✓ A national grading system will be set up for the coffee sector to improve quality.

Linking farmers to markets: from subsistence to market orientation

Value chain development

The development of sustainable value chains offers important pathways out of poverty for the people of Timor-Leste and is a main objective of the Government namely linking farmers to markets: from subsistence to market oriented agriculture. Supply chain coordination is the biggest constraint to commercializing agriculture production. There is no horizontal coordination between smallholders to aggregate volumes of produce to attract traders at the farm-gate, resulting in high transport costs and speculative selling on local market days. There is some vertical coordination between farmers and traders, especially in horticulture, however this need to be improved and expanded into other commodities. Farmers sell small amounts of produce on an ad-hoc basis to get cash, resulting in low prices and traders receiving unknown quantities of poor quality. These multiple challenges have to be tackled simultaneously in order to truly break poverty cycles. This implies the need for collaboration among the various stakeholders in a value chain, including farmers, agribusinesses, governments and civil society. Further compounding the challenge, improvements to the value chain must be economically, socially and environmentally sustainable.

Key strategic interventions;

- ✓ Access to market information will be enhanced by facilitating the establishment of national agricultural information system that provides easy access to information on markets, regulations, prices (modern communication tools such as mobile phones, e-marketing" data collection and information management systems to enhance intelligence on the supply and demand and current wholesale prices), for informed decision making;
- ✓ The Government will revisit the price support mechanism for imported rice thereby aiming at encouraging producers and traders to respond to market signals through introducing import quota;

- ✓ Value chain analyses of preferred agricultural commodities such as coconut, palm oil, candlenut, fruit trees, vanilla and spices, red rice, vegetables, beef, pork, chickens, fish products will be conducted and feasibility studies of setting up producer marketing groups will be carried out;
- ✓ Government and partners will prepare bankable business development plans for those value chains proving to be financially and economically feasible;
- ✓ The development and strengthening of contract farming and producer groups will be improved (marketing groups) and be linked to relevant government agencies (e.g. MAF's National Directorate for Commercial Agriculture and the Ministry of Commerce, Industry and Environment), chambers of commerce, credit organizations/commercial banks, agricultural input suppliers and private sector traders, agro-processors, wholesalers and exporters;
- ✓ Quality control of crops, livestock, fisheries, forestry products will be improved;
- ✓ The government will promote the establishment of a commercial animal feed and cattle breeding program through the establishment of cooperatives and national campaigns on basic animal health care;
- ✓ Collection centers, infrastructure / feeder roads to access markets will be further developed;
- ✓ Export market support teams will be created to work with other key agencies and development partners to provide guidance and support to the livestock (meat) and coffee sector to increase access to selected markets and substitute the import (e.g. Portugal ((organic coffee, meat Indonesia); special care should be given to biosecurity issues as part of any meat export effort;
- ✓ Agricultural exports and access to local markets (industrial crops such as coffee, livestock products) and the development of niche markets (e.g. vanilla, spices, candlenuts, palm oil) will be promoted;
- ✓ The government will initiate the processing and packaging center for agricultural produces in order to provide added value to farmers produces and generate more income for farmers as well as assuring supply stability to the markets.

Rural employment (focus on rural youth)

Agriculture will remain the main source of employment and income for the majority of the population for the foreseeable future. About 15000 youth finish schools every year and look for employment opportunities. Therefore, investment in agricultural and related agro-industries provide jobs to these people and contribute to increase the agricultural contribution to the GDP. Every effort should be made to transform agriculture onto a profitable business. To retain the youth in the rural areas the following strategies will be pursued:

Key strategic interventions;

- ✓ Training in technology, small business and farm management, agribusiness, marketing and financial management, at a vocational level will be strengthened to complement the new directions being introduced for higher studies in agriculture at university level.

- ✓ The government will invest in and subsidize “start-up” small scale, agro-businesses (including e.g. carpentry) along the chains;
- ✓ Innovative and field-tested approaches: e.g. the Junior Farmer Field and Life schools’ approaches will be developed;
- ✓ Support, to the establishment of fish ponds (and rice/fish farming) will be given to youth using a market based approach.

Private sector participation and public-private-community partnerships

The policy objective of increasing farmers’ linkages to markets through value chain development (in all sub-sectors), requires improved private sector participation. This entails that a private sector-based business environment should be developed and maintained. Equally important is that rural communities will be encouraged over time to acquire the knowledge, skills, experience and confidence to successfully participate in markets. A principal role of government will be to provide the best possible enabling environment for private sector development and community partnerships. NGO’s are to provide networks, services and staff that is often capable of facilitating complex social processes and the Government will provide legitimacy and coordination mechanisms as well as formal power.

Key strategic interventions;

- ✓ Incentives (all sub-sectors) to the private sector for investments in innovation (inputs, materials etc.) and management that support agricultural development will be provided in line with the new Private Investment Law (April, 2017);
- ✓ Farmers, livestock farmers, fish farmers and fishers will be encouraged to establish “producer groups” to facilitate the transfer of new and improved climate-smart technologies and practices and maximize the benefits of bulk purchasing of agricultural inputs and collective marketing of agricultural produce in cooperation with the private sector and Government extension services;
- ✓ Sustainable community agricultural development plans will be developed;
- ✓ Smallholders Organization Development Facilities will be established that provide technical assistance and matching grants to farmers’ groups;
- ✓ Public and private sector extension services to communities and smallholders will be improved to enhance their liaison role between farmers and private sector;
- ✓ Rural communities will be trained to perform private sector roles;
- ✓ Agriculture cooperatives will further be developed and supported to actively participate in agriculture development in the country.

Rural finance

Rural finance is critical in support of the development of all subsectors in Timor-Leste. Demand for rural finance is projected to grow, conservatively, from the “demand met” level of \$2.9 million in 2014 to \$9.5 million or approximately three times the current level over the next five years

(i.e. 2019). Therefore, in consultation with the Ministry of finance, an efficient, effective, demand driven and sustainable credit and rural finance system will be developed.

Key strategic interventions;

- ✓ Market-driven, private sector agribusiness value chains will be encouraged and expanded as the key means to accelerate agriculture and rural development in Timor-Leste, following best practice models of value chain development and including diversification of investments in all agricultural subsectors; However, the Government can initiate a public enterprise (“start-up” company”) to cater for the absence of still he still private investments in the sector; the enterprise will become a public-private entity or be privatized in the future when the conditions are right;
- ✓ Value chain finance (VCF), linking commercial banks or other financial service providers with lead firms, commercial smallholder producers, input suppliers, traders and other value chain participants, will be pursued as an integrated credit delivery mechanism, along with the development of financial products geared to the requirements of each category of agricultural enterprise.
- ✓ The network of ***Usaha Bersama Simpan Pinjam*** (Joint Village Savings and Loan Groups) will be strengthened and supported by providing entry-level financial services and financial literacy orientation to “non-commercial subsistence smallholders” in rural communities;

Consumption for a healthy diet

Food use and preparation are crucial for human health and reducing malnutrition under the Timorese population (especially children). The objective of the Government is to increase access and consumption of a broad range of food products to increase health of the population.

Key strategic interventions;

- ✓ Increase awareness raising campaigns, nutrition education and training programs (cooking demonstrations) to promote behavioral change in diets preferences will be initiated. This should focus on experimenting with local recipes to improve nutrient uptake and increased research will be conducted;
- ✓ The establishment of school feeding programs and school gardens for improving children’s nutrition and eating habits will be stimulated in close collaboration with the Ministry of Education and local farmers’ groups;
- ✓ Nutrition sensitive agricultural production systems will be incorporated in education curricula at secondary school levels;
- ✓ Support local market development and further accessing supermarkets as well as delivery of nutritious foods to potential outlets such as the military police, hospitals will be enhanced;
- ✓ Increased productivity and production of small animals (pigs and poultry including egg layers) be further pursued to diversify and increase availability of different nutritious

foods (e.g. ongoing public awareness to promote consumption of one local egg per day for children under five and pregnant women);

- ✓ In line with the National Aquaculture/Fisheries strategy, the development of sustainable aquaculture will be promoted and supported and improve the management of coastal and inland fisheries and focus on increasing catch from traditional fishing activities to improve access to fish products.

Strengthening extension, applied research and education

On the whole, agricultural research and extension systems in Timor-Leste need much strengthening. Success have been achieved in sucos where support has been provided to setting up farmer field schools (FFSs), promoting conservation agriculture through group-based adaptive research and participatory learning methodologies.

The Governments' objective is to introduce a "modern" agricultural extension strategy which is based on the success story of FFS approach to applied research and participatory extension tested and demonstrated by USAID/OFDA-funded and FAO-implemented project, "Enhancing Food and Nutrition Security and Reducing Disaster Risk through the Promotion of Conservation Agriculture" (2013-2017). The fact that the recently launched World Bank-funded "Sustainable Agricultural Productivity Improvement Project (SAPIP)" prioritizes the "development and strengthening of farmer groups by facilitating farmer-to-farmer learning through FFSs" across three watersheds of Timor-Leste shows some degree of institutionalization. This should be further pursued by the Government. The National Agricultural Extension Strategy will promote the research and extension of new and improved CSA technologies and practices applicable to the agro-ecological zones found in Timor-Leste.

The overall objective is to develop and implement a strategy to improve agricultural research and extension services from the more centralized station-based research and top-down training of farmers to more on-farm adaptive research and group-based and market led participatory learning. Special attention will be given to the empowerment of women in recognition of their critical role in family farming systems, family household management, food preparation and food production.

The following will apply to the agricultural extension service:

- ✓ Cost-effective services, provided by well-trained extension workers, must be provided to assist farmers addressing their problems. Cost effectiveness will be improved by active co-operation between all institutions (i.e. government, NGOs, community-based organization (CBOs) and the private sector) which provide agricultural support services;
- ✓ Agricultural extension services should ideally be determined locally because agricultural conditions and farmers' needs will be different according to location, agro-climatic conditions and social customs and Government policy to decentralize its administration to municipality and administrative unit levels;

- ✓ Working with groups of farmers, livestock owners, fishers and forest users offers the opportunity for more cost-effective use of limited extension resources, improved sharing of information, and the opportunity for grassroots' decision-making, inclusive and authentic participation and empowerment;
- ✓ Agricultural research and extension activities cannot function independently. There must be free flow of information between research and extension staff to deliver effective agricultural support services to farmers, livestock owners, fishers and forest users;
- ✓ Advice and information provided to producers must follow an integrated farming systems perspective, e.g. crop/livestock, crop/fisheries and agro-forestry. Public and private extension agencies with differing expertise must collaborate if they are to provide whole farm advice;
- ✓ Co-ordination underlines all components of the National Agricultural Extension Strategy. Extension services provided by different public and private agencies must be co-ordinated by MAF at all levels in order to optimize the use of resources.

Key strategic interventions;

- ✓ Undertake an institutional assessment of government and non-government agricultural support service providers operating in Timor-Leste. This will be done through a collaboration with a tertiary or international organization. Additionally, a capacity development programme will be designed to strengthen the capacity of the identified service providers in terms of updating their knowledge and skills for the implementation of the National Agricultural Extension Strategy;
- ✓ Awareness creation will be improved among Director Generals and National Directors of the Ministry of Agriculture and Fisheries General Directorates of Agriculture, of Livestock and Veterinary Services, of Forestry, Coffee and Industrial Crops and of Fisheries and directors and managers of private sector agricultural support services and NGOs in the principles of the strategies mentioned in the policy framework.

Policy formulation, implementation and monitoring and evaluation

Roles and Responsibilities

To implement the revised agricultural policy, collaboration between the different directorates of in the Ministry of Agriculture and Fisheries and between the different ministries and development partners and other stakeholders is required through multi-stakeholder cooperation. This includes joint planning, joint resource mobilization and joint monitoring and evaluation. The MAF will implement the stated policies and enable the private sector, civil society, community-based organizations, NGOs and development partners to actively engage in and contribute to agriculture development in Timor-Leste.

It is not possible for the government, NGOs or the private sector alone to solve the whole range of problems and/or to fully explore the prospects of the agriculture sector. Since the problems

are complex and widespread in agricultural sector with limited resource base, the activities of government, private, farmers and non-government organizations will have to be coordinated or synchronized to provide maximum results in the sector. It is essential that all stakeholders, especially the private sector agencies, development partners and NGOs will have the opportunity to participate in any programme related to the development of the agriculture sector but should align their interventions to the new agricultural policy. The following different roles and responsibilities will be considered by a range stakeholder when carrying out activities related to agriculture developmental activities in the country:

- ✓ The government: create enabling environment and facilitate development, regulating, coordinating, extension, training and research. A participatory method will be promoted in order to ensure an inclusive and authentic participation of the stakeholders and the concerned levels (municipality, *suco (village)*, *aldeia (community)*) in the process of formulating, monitoring and evaluating plans connected with the agricultural sector. MAF will gradually move towards cost-sharing arrangements and implement a modified system for nation-wide service delivery;
- ✓ The private sector: import, improved value chain development, supply inputs, distribution, transport, marketing, service providing;
- ✓ Financial intermediaries: easy access to credit for the private sectors and farmers;
- ✓ Academics: Research and Publication roles to feed into agricultural development;

NGOs and other development partners: cooperate with Government, private sector, farming communities and other stakeholders in “facilitating” service provisioning to the target groups.

Governance

MAF will be a key agency to ensuring effective implementation of the agricultural policy in close cooperation with other ministries, National Parliament, and development partners as well as the existing structure including KONSSANTIL as this body retains the oversight for Food Security and Nutrition policy in the country. The Development Partners Support Management Unit (DPSMU) of the Ministry of Agriculture and Fisheries will be strengthened for implementation, coordination and effective communication with the other ministries, development partners, NGOs, private sector and KONSSANTIL.

Operational and Financial Planning: next steps

The new policy directions for MAF as described in this document depend crucially on support from the Government budget and from development partners. When the medium-term operational plans (MTO) are detailed, taking into consideration the existing MTO, the Government will identify who is responsible for implementation of specific priority activities and costs should be included in the incumbent ministries budget lines. This MTO will also enable a measure of prioritization among the internal MAF’s responsibilities and expectations. If the budget of the MAF does not increase then only a limited number of priority activities can be

funded. In line with this policy (food security, nutrition sensitive and climate smart) these would include diversified and improved crop and horticulture production and productivity, animal feeding and vaccinations, extension and research, fish pond development, rehabilitation of coffee plantations, reducing post-harvest losses, reforestation and capacity development. Therefore, much will depend on the Government budget re-allocation in the near future to support the implementation of the policies.

The strategic interventions should be translated into a concrete and fully costed investment plan. Once, the investment plan has been finalized, funding can be mobilized from the public, private sector and development partners for implementation. Close working relations between (and within) the Government, development partners, private sector and civil society organizations and farming community will be essential for achieving the desired development outcomes. In short, it is important that the MAF is to hold detailed consultations with the development partners and other concerned stakeholders to discuss how the major issue with recurrent costs and cost recovery might be addressed and to determine how the MAF and its partners can work together to implement the new directions in the most effective and efficient manner. It is also essential to note all development partners' programs in Agricultural sector should align with the strategic interventions set in this policy document.

Monitoring and Evaluation

The lack of data and the weak monitoring and evaluation (M&E) system need to be addressed. An effective and low-cost operation M&E system of the Ministry of Agriculture and Fisheries is necessary to ensure that strategic actions are achieving desired outcomes. Monitoring facilitates necessary adjustments on the implementation plan and resource mobilization. Activities of the government, private organization and NGOs involved in agricultural development will be brought under a well-organized monitoring system and will be coordinated from the national to field level.

The PMU, in close collaboration with the Directorate General of Statistics Office (MOF) , istry and PlanninNational Directorate of Polg Ministry and National Directorate of Research of the and Fisheries of Agriculture will be responsible for establishing the monitoring and evaluation framework, monitoring and evaluating the progress, and preparing periodic implementation reports. The policy will be subject to a mid-term evaluation no later than three years after its publication. An effective and timely monitoring and evaluation allows would provide opportunity to reflect on polity implementation and feed these lessons into future planning and prioritization.

The system requires a set of baseline data. A minimum set of core indicators that already are established will serve as the starting point and further be elaborated overtime. Results from various surveys will be utilized in the establishment of indicators (e.g. Household Income and Expenditure Surveys, Demographic Health Surveys, Nutrition Surveys, and Population Census).

Once the investment plan for the policy has been complemented, it will be used as the basis for the monitoring and evaluation reports. They should be carried on regular basis in order evaluate about the achievement of the targets and indicators.