

Republic of Yemen
Ministry of Agriculture and Irrigation



A Promising Sector for Diversified Economy in Yemen:

National Agriculture Sector Strategy 2012-2016

Interim Update May 31st, 2013



This strategy is prepared in cooperation with the United Nations Development Programme , Economic Diversification Support Programme (Agriculture Sector)

All we are aware that agriculture and irrigation in Yemen faces many challenges. Although some of these challenges are outside human control, such as climate change, the limited water and land resources, but still we can develop agriculture and irrigation in spite of these limitations and constraints. Despite all the difficulties faced by the agricultural sector, Yemen still has some important strength. Nature of diversified climate that would help in the diversity of agricultural production which would provide various agricultural products throughout the year, a feature not available in many countries, and the long history of Yemen in the field of agricultural production under difficult natural conditions, and the infrastructure of terraced agricultural etc., all of which are positive elements contribute to the agricultural sector and rural economy. Despite the negative effects of scarcity of resources is still possible to achieve significant gains in improving the rate of agricultural productivity. Through more investment in the sector, these goals can be achieved at economic and social levels while achieving sustainability of scarce natural resources. It is also worth to notice the perseverance and hard work of Yemeni farms in agriculture in spite of limited resources.

When talking about agriculture in Yemen, the attention quickly turn to the issue of rural development in Yemen, which is an essential part of the elements which constitute this sector and vitality. The successive governments of Yemen with the help funders and donors has focused in supporting this sector, either at the level of targeted people or the various institutional levels, which aims to help increase agricultural production and exploitation of natural resources while preserving them and ensuring their sustainability.

With a focus on the importance of sustainable development, it has imposed new directions which have been taken seriously by MAI. Involving the beneficiaries in the decision-making at all levels is a basic guarantee for the efficient exploitation of natural resources available. Also enabling the private sector and cooperative in playing an important role in the production and delivery of services allows the agricultural institutions of the state to focus on the technical aspects associated with the beneficiaries needs, it enable ministry to play its planning, legal and regulatory role better.

It should be noted, that there are many ways and means by which to improve the efficiency of agriculture and irrigation through the development of policies and appropriate environment that will provide the means and tools for large and small farmers, e.g.

improved agricultural inputs such as seeds, fertilizers, agricultural mechanization, irrigation systems, and also through the transfer of knowledge on agricultural techniques, marketing opportunities, business practices, management of crop and yield, and animal health improvement. The provision of improved inputs to farmers and development of their knowledge can improve the livelihoods of rural communities, both those directly working in agriculture or those being engaged in auxiliary services.

Yemen has a long history of developing strategies in the agriculture sector, with the three most current strategies dating from the Aden Agenda, which was started in 1996, but made official in 2000, and followed by Ministry of Agriculture and Irrigation (MAI) agriculture policies and strategies in 2005, and 2009. All of these do a good job in identifying the constraints to agriculture, but remain mute on actual solutions, and lack clear paths on how to achieve the objectives. As we can see, MAI give great importance to re-evaluate policies and strategies for the agricultural sector, and then the developing and updating of these policies, strategies to cope with the economic and political changes at regional and international levels. This strategy is also designed to complement the MAI's current draft strategy as part of the DPPR process, as well as its five-year plan for 2011-2015.

NASS has been developed through a participatory approach either during the comprehensive review and analysis of agriculture sector, review of related strategies, field visits, or the consultative workshops for key participants in the agriculture sector. In each workshop more than 160 participants of experts, stakeholders of different operational and planning levels as well as private and cooperative sectors and donors participated in workshops. Based on the results & recommendations, draft agriculture sector strategy was developed and then a technical committee of multidisciplinary national experts in agriculture and irrigation was established to finalize the strategy. UNPD, in partnership with the MAI, has contributed to this strategy development through the Economic Diversification Support Program (EDSP) in accordance with Yemen's Strategic Vision 2025, and its central concern namely, national economic diversification through promotion of pro-poor growth in four promising sectors: agriculture, fisheries, industry and trade, and tourism. And also in accord with national priorities reflected in the UNDAF and UNDP Country Program Action Plan (2011-2015), with reference to promoting pro-poor economic growth in the country and diversifying its economy.

This strategy includes a comprehensive analysis of the current situation reflecting the challenges and problems of small and commercial farmers in different agricultural subsectors. It also includes, vision and goals, as well as the priorities of the strategic solutions in different sub-sectors (*Cereals and fodders, Fruits and Vegetables, and Livestock*) as well as the priorities of the strategic solutions related to cross cutting issues within the sector or extended to other related sectors.

NASS also includes Implementation Plan for five years 2012-2016 contains a list of programs that are necessary to realize the goals of the strategy, as well as the required funding. A significant commitment to provide adequate resources is needed to move the implementation plan from concept to reality, and it is hoped that the commitment and

resources will become available from local, private and international sources to carry out this ambitious agenda.

More importantly, it requires the activation, enforcement and working with legislation, laws and regulations and the imposition of system of the state for implementation of development plans and programs in general and for the achievement of development goals, whether those related to this strategy or any other sectors. This strategy must also operate in full coordination with the development policies and strategies of other sectors so that all working as an integrated system in accordance with the policy of the State to meet and achieve the objectives of integrated development in all sectors.

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Agriculture and the Yemeni economy

Agriculture is a key sector in the Yemeni economy, providing a main source of employment for 54% of the population and producing 17.5% of GDP in 2010. Since the 1970s, the sector has grown very rapidly, due to the widespread development of groundwater, strategic public investment in water infrastructure and producer services, and the rapid growth of domestic demand in a market economy.

However, over the last decade, severe constraints have emerged. The groundwater resources on which more than half of output now depends are fully exploited and reserves are being overdrawn and are dwindling fast. The distribution of land and water resources has become increasingly inequitable, and most farms are very small indeed and incapable of supporting a household. Driven by the need to maximize revenues from tiny plots, farmers have adopted *qat* production as a widespread coping strategy. Climate change menaces, with the prospect of increased aridity and unpredictability of rainfall. There have been improvements in productivity of water use due to the introduction of improved irrigation systems and techniques but there has been no other great improvement in productivity levels which remain low by regional standards. Public resources allocated to the sector have shrunk with successive fiscal crises, and allocation has been skewed towards irrigated production systems. Producer services like research and extension are underfunded and their effectiveness has dropped dramatically. Despite providing three quarters of agricultural labour and all the skills in household management, health and nutrition, women are generally disempowered, with very limited access to land and water resources or services.

The result of these problems has been increased poverty, food insecurity and malnutrition in rural areas. Yemen is one of the ten most food insecure countries in the world. In 2012, about 46 percent of Yemenis – some 10.5 million people – did not have enough food. Of the food insecure, the vast majority live in rural areas - 6.4 million people, 37 percent of the total rural population. About 60 percent of very young Yemeni children are stunted, and the problem of stunting is predominantly rural, affecting two children out of three in rural areas, and severe (life threatening) stunting affects one third of all children.

At the macro level, Yemen is very reliant on food imports, which account for 93% of wheat consumption (2011). The country is also very vulnerable to external shocks. The global food crisis of 2007-8 led to steep rises in the cost of food and placed stress on the balance of payments. The events of 2011 worsened the already grave food security situation, with the economy shrinking by 11% and the agricultural sector particularly hard hit, with an estimated drop in output of 16%, due to shortages of inputs and disruption of markets.

The National Agriculture Sector Strategy (NASS) and the NASS Update 2013

As a result of the above grave and deteriorating situation, the government of Yemen (GoY) prepared the National Agricultural Sector Strategy (NASS). The NASS was initially developed in 2011/2012 through a broad consultation process involving a wide range of stakeholders, principally farmers and rural people but also technical and professional staff and decision-takers (see below). The NASS was adopted by the Council of Ministers in March 2012.

The NASS complements other strategies, in particular the National Food Security Strategy (NFSS) and the National Water Strategy (NWSSIP). The NASS is accompanied by an implementation and investment plan.

The NASS recognizes that Yemen agriculture not only faces challenges but also has strengths. A diverse climate that produces a wide variety of agricultural products, a strong history of farming in difficult environments, and a solid infrastructure all contribute to the agriculture sector and the rural economy. Significant gains in agricultural productivity are possible, even if resource constraints will limit those gains. With additional investments in the sector, these gains can be realized not only economically, but in social benefits, and in sustainable usage of Yemen's scarce natural resources. To realize these benefits, there needs to be a new and strengthened partnership between the farmers, private sector, government, and development partners.

During 2013, MAI led a further consultation process to update the NASS and the associated investment program to reflect a growing emphasis on food security and nutrition as well as other changes affecting the sector such as climate change. The update process also reflected a new political emphasis on poverty reduction and natural resource sustainability, as well as technical and strategic guidance from independent peer reviewers (University of Sana'a and IFPRI) as well as from individual consultants. The present NASS Update 2013 is a product of this process.

Preparation of the NASS and the Update: a consultative process

The NASS was prepared in a highly participatory manner, including workshops throughout the governorates and in the capital with farmers, NGOs and CBOs, elected local government, officials and decision makers. For the initial preparation of the NASS in 2011/2012, field visits were made to 10 governorates, including Hajja, Hodeida, Taiz, Aden, Lahej, Abyan, Ibb, Dhamar, Hadramout, Sa'ada and Sanaa to consult with stakeholders, including smallholders, sharecroppers, landless laborers, community organizations, water user associations, commercial farmers, export centre staff, concentrate producers, a variety of cooperatives, poultry producers, large water projects etc. Consultations were also held with local officials, donor-funded programs, and a wide range of officials in the governorates and at MAI headquarters. Finally two consultative workshops were held in December 2010 and January

2011 with over 160 stakeholders. For the 2013 Update, eight further consultative workshops were held in regional centers, involving 350 farmers and 230 other stakeholders. In all, 200 female stakeholders were consulted. Peer review of the NASS has been provided by the University of Sana'a, FAO and IFPRI and by individual specialist consultants. The quality of stakeholder participation was high. There have been regular participatory design processes for a number of other strategies, projects and activities in the rural areas in the past decade, ensuring that stakeholders had good ability to address issues as required, and the results of these processes have also been reflected in the NASS Update.

The consultation process has benefited from the recent emergence of popular voices and particularly those of young people and women. In the past fifteen years, Yemen has developed a strong participatory approach in its design of public investments in rural development and agriculture. The political and social movements beginning in 2011 have intensified and broadened involvement of ordinary people and encouraged them to express themselves with greater determination. This is particularly true in the case of women and youth. As a result the involvement of ordinary Yemeni male and female farmers of all ages has been far more effective for the design of the NASS Update than would have been the case in earlier years.

The report on the 2013 consultations is attached as an annex.

NASS objectives

The overall goals of the agriculture strategy are to increase growth, sustainability, and equity by raising agricultural output, to increase rural incomes, particularly for the poor, to strengthen climate resilience and to improve food security and nutritional status by improving availability and access to adequate nutritious food and nutrition advice.

More specifically, the objectives in the agriculture sector are:

Sector Objective 1 - Increase production, food security and climate resilience by: (i) raising productivity in both crop and livestock production; (ii) integrated management of land and water resources; and (iii) more efficient use of water in both rainfed and irrigated agriculture

Sector Objective 2 - Fight rural poverty and malnutrition by: (i) promoting employment-intensive and commercial agriculture; and (ii) encouraging community participation, the role of women, and household dietary diversity.

To achieve these two Sector Objectives, the NASS includes the following strategic elements:

1. Given the scarcity of arable land and water, the emphasis will be on **raising productivity** in both crop and livestock production
2. More efficient **agricultural water management** through adoption of modern irrigation techniques and agronomic packages within sustainable water resources management plans, and increased efforts to improve productivity in rain-fed

agriculture through investment in all forms of water harvesting and through adoption of crop packages adapted to the arid environment and resilient in the face of prospective climate change. These elements were all proposed in the stakeholder workshops, with an emphasis on integrating agricultural water management within broader resource management, especially through community governance of water resources.

3. Focus on **climate resilience** through an integrated watershed management approach and through agricultural diversification.
4. An increased role for **rural women** in meeting food needs and protecting the environment
5. A particular focus on **livestock**, a predominant coping strategy of the poor and food-insecure
6. A **demand-driven and participatory approach**, factoring in the needs and views of farmers, particularly the poorest, from the bottom up
7. A **decentralized approach**, adapting policies and programs to local requirements
8. An **integrated approach**, offering a range of support to farming systems, and linking with parallel programs in nutrition, human development and rural infrastructure
9. Reliance on the **private sector** and on **public/private partnerships** wherever feasible
10. Strengthening of key **necessarily-public services** to agriculture
11. Efficient use of scarce **public finances**

Throughout the agricultural strategy there is emphasis on the cross-cutting policy goals of:

- **Food security**: attention to the components of household food security
- **Poverty reduction**: inclusive growth with particular emphasis on the poor's ability to engage and benefit from a growing agriculture sector. The stakeholder workshops strongly emphasized the need for mechanisms to target and deliver to the poor, notably the use of both data-based and participatory approaches, and design of services that the poor can readily access.
- **Nutrition**: linkages between agricultural production and nutrition, and specific measures to improve the nutritional status and dietary diversity of poor households. Stakeholder workshops emphasized the vital links between production, food security and nutrition, and the need for targeted nutrition activities, especially for women.
- **Gender inclusion**: principally through education, health, nutrition, rural water and sanitation, livestock, enterprise development. All NASS measures will have a specific gender focus, and specific gender-targeted activities are included in the PIP.
- **Qat reduction**: a key coping strategy where it can be grown and sold (25% of rural households sell *qat*), hence need for providing alternative high value crops to *qat* production over time. Stakeholders in the workshops underlined the need for strong government and civil society leadership on *qat* reduction, and for programs to support reduction in both demand and supply.
- **Climate resilience**: although unpredictable, climate change is expected to bring a generally hotter, drier climate, and increased incidence of drought and floods, which will require farmers to adapt farming systems and planting material. Farmers in the stakeholder workshops were well aware of trends and risks, and made constructive and practical contributions to the strategic agenda on climate resilience.

The NASS combines attention to both growth and distribution, and prioritizes the poverty reducing and nutrition role that agriculture and agricultural services can play. Although this strategy applies to all farmers, the balance differs somewhat between rainfed and smallholder agriculture and irrigated commercial agriculture. The growth strategy in rainfed and smallholder agriculture focuses more on inclusion and adding value to the assets of the poor and on improving their nutritional status. Growth in commercial, largely irrigated agriculture will be stimulated more through support to private sector development, public-private partnerships and strengthening of key public services such as trade negotiations, animal disease control and plant protection.

Strategies, measures and investments

The NASS has been prepared as a series of sub-sectoral and thematic strategies, policy measures and investment areas to achieve the overall strategic objectives. The logic of this and the contributing strategies, measures and investments are shown in the attached Log Frame together with the relevant key indicators. The strategies, measures and investments are discussed in more detail the following sections. The public investment program linked to the NASS strategies is shown in the Annex Table.

SO 1 - *Increase production, food security and climate resilience by: (i) raising productivity in both crop and livestock production; (ii) integrated management of land and water resources; and (iii) more efficient use of water in both rainfed and irrigated agriculture* is targeted through: SSO 1.1: Rainfed systems, grains and fodder; SSO 1.2: Livestock; SSO 1.3: Agricultural water management; SSO 1.4: Extension, research and inputs; SSO 1.5: Land resources; and SSO 1.6: Service improvement and capacity development.

SO 2 - *Fight rural poverty and malnutrition by: (i) promoting employment-intensive and commercial agriculture; and (ii) encouraging community participation, the role of women and household dietary diversity* is targeted through: SSO 2.1: Horticulture; SSO 2.2: Marketing development; and SSO 2.3 Women's participation & nutrition.

NASS Log Frame

Objectives	Strategy	Main measures and investments	Key indicators
<p>SO 1: Increase production, food security and climate resilience by:</p> <ul style="list-style-type: none"> - Raising productivity in both crop and livestock production - Integrated management of land and water resources - More efficient use of water in both rainfed and irrigated agriculture 	SSO 1.1: Increase production and incomes sustainably from rainfed systems, grains and fodder	<ul style="list-style-type: none"> ▪ Increasing agricultural diversification ▪ Research and extension ▪ Seed multiplication and distribution ▪ Availability of agricultural inputs 	❖ Increase in grain yields
	SSO 1.2: Increase production and incomes sustainably from livestock	<ul style="list-style-type: none"> ▪ Animal health and animal husbandry extension at community level ▪ Promote fattening and dairy ▪ Promote apiculture and backyard poultry ▪ Disease control 	❖ Increase in meat production
	SSO 1.3: Improve productivity and sustainability of agricultural water management within an integrated watershed management approach	<ul style="list-style-type: none"> ▪ Climate change adaptation ▪ Improve irrigation efficiency and sustainability ▪ Promote water harvesting, small-scale spate and watershed management ▪ Community-based water governance and management 	<ul style="list-style-type: none"> ❖ Climate resilience plan under implementation ❖ Groundwater area under improved irrigation ❖ Number of households benefitting from improved agricultural water availability
	SSO 1.4: Provide efficient, demand-driven extension, research and input supply	<ul style="list-style-type: none"> ▪ Research focused on productivity, diversification and sustainability ▪ Strengthened extension, especially at community level ▪ Improved plant protection, including IPM 	❖ Expenditure on research and extension
	SSO 1.5: Enhance productivity and sustainability of land resources within an integrated watershed management approach	<ul style="list-style-type: none"> ▪ Terracing and soil and water management ▪ Rangeland management and anti-desertification ▪ Land tenure and access for the poor and women 	❖ Terrace area under cultivation
	SSO 1.6: Ensure efficient delivery of essentially public services	<ul style="list-style-type: none"> ▪ Adequate funding of public services ▪ Change management ▪ Development of AFPPF ▪ Coordinate work with SFD, EOF, PWP, CAC Bank and Amal Bank ▪ Work in tandem with the Pilot Program for Climate Resilience (PPCR) 	<ul style="list-style-type: none"> ❖ Key points of the 'Aden Agenda' implemented ❖ AFPPF reoriented and program aligned with NASS

SO 2: Fight rural poverty and malnutrition by: - Promoting employment-intensive and commercial agriculture - Encouraging community participation, the role of women and household dietary diversity	SSO 2.1: Increase production and incomes from high value crops, especially horticulture, and reduce <i>qat</i>	<ul style="list-style-type: none"> ▪ Promote small farmer horticulture ▪ Public-private partnership to increase value added in commercial horticulture ▪ <i>Qat</i> substitution 	❖ Reduction in area under <i>qat</i> cultivation
	SSO 2.2: Increase value-added through processing and marketing development	<ul style="list-style-type: none"> ▪ Develop coops and associations, including for small farmers 	❖ Number of active members of functioning cooperatives
	SSO 2.3 Enhance food security and nutrition through greater women’s participation	<ul style="list-style-type: none"> ▪ Increase female participation and access to assets and services ▪ Integrate nutrition into all programs with delivery at community level ▪ Coordinate all nutrition-related interventions under the NFS Council within the NFSS 	❖ Nutrition themes integrated into agricultural extension work

Strategic Objective 1 - Increase production and food security

SSO 1.1: Rainfed systems and the grains and fodder subsector: strategies, measures and investments

SSO 1.1 is to: Increase production and incomes sustainably from rainfed systems, grains and fodder.

- **Rain-fed research:** Adaptive research to identify new varieties and agronomic packages for more productive grain and fodder crops that utilize less water, are more drought resistant, have increased production, and have greater tolerance for salinity.
- **Extension for rain-fed agriculture:** Develop an aggressive extension program to disseminate information on seed varieties and agronomic techniques to expand production of rain fed grains and forages.
- **Expand seed industry:** Develop and expand improved seeds and encourage and establishment of specialized associations in improved seeds. Help establish and expand private sector seed multiplication industry. Develop further the identification of land races and local community-based seed multiplication. Activate the role of quality control and National Seed Certification system.
- **Food security:** Study the rationale and economics of a Strategic Grain Reserve in Yemen (working with the Supreme Council for Food Security, SCFS).

Because rainfed systems are the mainstay of the poor, all of the above measures were strongly supported in the stakeholder workshops.

SSO 1.2: Livestock subsector: strategies, measures and investments

SSO 1.2 is to: Increase production and incomes sustainably from livestock

Particular emphasis will be given to livestock as they are: (i) the primary coping strategy of the poor and a key element in improving food security and dietary diversity; and (ii) primarily tended by women and girls. All elements of the livestock program will therefore be specifically adapted to the needs of the poor and to ensure female access. These approaches received the strongest endorsement in all stakeholder consultations.

- **Promote private sector development:** Foster private sector investment in pasture and fodder, dairy, poultry, small ruminants etc. with the public sector playing a partnership role in e.g. R&D.
- **Breed Improvement:** Genetic improvement and cross breeding research to improve the local breeds, and introduction of artificial insemination techniques.
- **Fodders:** Research and develop fodder crops with low water requirements and resistant to drought & high salinity; introduce integrated animal feed concentrates production based on local raw materials.

- **Input quality control:** Strengthen quality control inspection for inputs, including feed concentrate, vaccines, and veterinary medicines.
- **Combating animal diseases and veterinary services:** Developing early emergency/warning network for animal diseases and rapid reaction capability. Extend veterinary services to remote areas and areas of extensive livestock production. Animal health was strongly supported as a priority intervention in the stakeholder workshops.
- **Expand extension services and veterinary communication:** Expand extension program in partnership with the private Veterinary Association through male and female community animal health workers; implement animal health and animal production extension programs; introduce technologies and the usage of balanced feed concentrates to small scale producers; introduce techniques to help in reducing losses of animal feeds and water; establish livestock demonstration centers and programs. Because of the key role of community-level interventions in accessing the poorest and women for whom livestock are a major resource, these measures received strong support in all stakeholder workshops.
- **Small livestock programs specifically adapted to the needs of the poor:** This measure has been added to the NASS on the recommendation of the 2013 stakeholder workshops, and could include: honey bees; micro-fattening units; and backyard poultry for women.

SSO 1.3: Agricultural water management: strategies, measures and investments

SSO 1.3 is to: Improve productivity and sustainability of agricultural water management within an integrated watershed management approach.

The water resource constraint of water is the most critical. Key elements of the national agriculture sector strategy are to:

- ❖ Promote community-based management of water resources (and land resources, see below SSO 1.5) within an integrated watershed management approach
- ❖ Improve productivity of water use in all production systems
- ❖ Focus public investment and services on sustainable improvements in production and productivity from *rainfed* and *spate-based systems*
- ❖ Work with the private and cooperative sector to improve 'income per drop' from *groundwater-irrigated systems* within sustainable local water resource management arrangements
- ❖ Transfer progressively to the private sector, including private providers of irrigation equipment and investment capital, responsibility for groundwater irrigation improvement

- ❖ Conduct all NASS initiatives on agricultural water in conjunction with ~~MWIMWE~~ and NWSSIP. The stakeholder workshops emphasized the need for agricultural water management to be within the context of local-level water management plans and of basin-wide plans, and for MAI and water user associations to work with basin committees and NWRA on this.

Priority NASS measures and investments are:

- **Community- and gender-based water and land governance and management:** Build the institutions and capacities to promote sustainable water and land management within an integrated watershed management approach through community-based associations and local-level plans and institutional mechanisms, ensuring that the role of women is systematically built in. This measure received strong support in stakeholder workshops (see above).
- **Water harvesting:** Continue infrastructure development for sustainable and equitable agricultural water management at the local level, including support to community-based water harvesting.
- **Large-scale spate irrigation improvement:** Continue and expand the irrigation improvement and management program for large scale spate schemes which was successfully implemented in 2001-9. In workshops, stakeholders emphasized the need for users to be involved and responsible for management on the larger spate schemes to as high a level as practicable.
- **Groundwater irrigation improvement and sustainability:** Continue support to improved groundwater irrigation through the MAI Field Units, but only within sustainable water resource management plans and with increasing reliance on the private sector. Continue and expand the Irrigation Advisory Services (IAS), in conjunction with the private sector. Regulatory incentives for water conservation, with a rebalancing away from diesel subsidies towards productive and sustainable investment.
- **Watershed management:** Invest in watershed management, wadi bank protection, tree planting in watersheds, and rehabilitation of agriculture terraces and existing water structures including construction of subsurface dams.
- **Drought and climate change resilience planning and action:** Develop data base and information system including geographical information systems; activate water monitoring, data collection and analysis including agro-climatic data; monitor climate change related data and its effect on agriculture; develop early awareness systems in main wadis. Promote the production of rain-fed and drought tolerant crops, and provide support to research to develop new varieties of drought resistant crops or alternative crops. Develop policies, strategies and investment plans for climate change, drought resistance and combating desertification.

SSO 1.4: Improve productivity through extension, research, and inputs: strategies, measures and investments

SSO 1.4 is to: Provide efficient, demand-driven extension, research and input supply.

- **Renovate research and extension** to: (1) make all research demand-driven and responsive to economic challenges and opportunities; (2) focus on risk management through increasing agricultural diversification by enhanced selection of crops and livestock and related integrated farming systems, particularly those which are resilient to increasing variability in climate conditions; and (3) promote community-based approaches to knowledge transfer, including farmer field schools and community-based extension. This approach was strongly supported in stakeholder workshops, with a particular emphasis on improving delivery efficiency through technology and new approaches and on meeting the needs of the poor and their production systems.
- **Increased plant protection**, including support to integrated pest management programs IPM.

SSO 1.5: Land resources: strategies, measures and investments

SSO 1.5 is to: Enhance productivity and sustainability of land resources within an integrated watershed management approach

Because labour is the principal asset and income source for the majority of the poor, the NASS prioritizes activities which are labour-intensive. This approach will build on labor-intensive approaches under existing programs and will be applied systematically to public interventions in land improvement, including paying the poor to rebuild/rehabilitate terraces, small-scale wadi protection and other minor anti-erosion structures, and promoting the growth of small local contracting capacity for such works. Because of their importance to the production systems of the poor (rainfed agriculture, livestock), these measures were strongly supported in all stakeholder workshops.

- **Improving access to land:** Improve secure and equitable access to land as a key component in developing a strategy for food security.
- **Terraces:** Major program to continue current initiatives to reclaim and improve terraces.
- **Limiting degradation of land resources:** Programs to ensure agronomic techniques conserve the soil quality, to preserve terraced agriculture, and to introduce water control measures.
- **Rangeland:** Programs to rehabilitate rangeland and improve rangeland management.
- **Desertification:** Interventions to combat desertification, including establishing wind breaks, raising and dispersing desert plants, and water management.

SSO 1.6: Service improvement and capacity development: strategies, measures and investments

SSO 1.6 is to: Ensure efficient delivery of essentially public services.

In consultations, stakeholders emphasized the capital importance of strengthening key public services both through partnerships between private and public sectors, and (primarily for poorer farmers) purely publicly-provided services.

- **Adequate funding of key public services:** GoY will make a commitment to finance key public services, in partnership with development partners and adopting also new models of public-private partnerships
- **Development of AFPPF:** GoY will reorient AFPPF, preferably by linking it to a donor-funded program that can improve transparency and governance, and programming AFPPF funds within the NASS and its investment program..
- **Coordination:** Coordinate with other financing partners working on agriculture and rural development, such as SFD, EOF, PWP, CAC Bank and Amal Bank, and also with the PPCR.¹
- **Change Management Program:** including an assessment of the ministry's current functions, and assessment of personnel needs to meet expanded functions of the ministry; assessment and strategy to ensure the support functions of the ministry in finance, procurement, HR, communications, IT, policy, and planning.
- **Capacity development of the public and private sectors:** training in technical and managerial skills for both public and private sectors, conducted in partnership with the private sector.

¹ The Pilot Program for Climate Resilience (PPCR) will include piloting of activities which contribute to the NASS, including the integrated watershed management approach, risk management and knowledge sharing. Lessons from the PPCR will be progressively integrated into the NASS agenda as they show positive results. This may, for example, include payments for environmental services (PES) for watershed management.

Strategic Objective 2 – Fight rural poverty and malnutrition

SSO 2.1: Horticulture subsector: strategies, measures and investments

SSO 2.1 is to: Increase production and incomes from high value crops, especially horticulture, and reduce *qat*.

- **Small farmer orientation:** Promote specialty crops for small farmers, with a focus on improving dietary diversity through: (1) high value products with sure markets; and (2) high-nutrition products for household consumption or sale. Stakeholders in the consultative workshops proposed: (i) medicinal and aromatic plants (henna, frankincense, aloe); (ii) locally-adapted tree crops (almonds, dates, citrus, coffee); and (iii) high nutrition crops for food processing.
- **Qat substitution:** promote alternative high-value cash crops to *qat*, adapted to local conditions and ensuring services and markets. In workshops, stakeholders emphasized the need for major campaigns for *qat* substitution with strong leadership.
- **Improved seeds and other inputs:** Establish and support private sector industry development for seed and nursery material quality improvement; develop program to allow low income farmers to have access to these improved inputs.
- **Grades and standards:** Establish national grades and standards for major fruits and vegetables, including also enforcement and inspection protocol, especially for exported products, and a communications strategy to disseminate the information.
- **Marketing organizations:** Support setting up of product-specific private trade associations and of marketing cooperatives for small scale growers by product.
- **Water usage of horticultural crops:** Conduct comparative study on water usage of major horticultural crops, and utilize study to develop policies to encourage or discourage production of various crops based on local water availability.
- **Modern and improved technologies:** Support and encourage use of modern and improved production technologies.

SSO 2.2: Marketing system improvements: strategies, measures and investments

SSO 2.2 is to: Increase value-added through processing and marketing development

- **Strengthen and expand cooperative services:** legal and institutional reforms; and training and institutional development to and through the ACU.
- **Improve productivity of small farmers through expansion of community based cooperatives:** a major push to extend the cooperative movement to poorer and more remote farming communities.
- **Increase production and quality of agricultural products:** encourage development of industry associations, agricultural fairs etc.

SSO 2.3: Women's participation & nutrition: strategies, measures and investments

SSO 2.3 is to: Enhance food security and nutrition through greater women's participation

There is a need for rural women to be empowered to the point where they can exert influence and participate in decision-making on issues that affect their lives. In fact, real development of agriculture and improvement in household food security and nutritional status is impossible without women's empowerment.

Throughout, there will be emphasis on female empowerment through inclusion of women systematically in all committees etc., priority to widows and single women households, female staff to address females in agriculture. Linkages between production guidance and nutrition will be systematic and paramount. Specific focus on nutrition will be provided through nutrition awareness and education, nutrition-specific agricultural extension, school food programs, vegetable home gardens etc. Stakeholders strongly supported the mainstreaming of gender, youth and nutrition issues across the entire NASS as well as the following specific measures:

- **Improve participation of women in agriculture:** Strengthening the role of the Rural Women Development General Directorate (RWDGD) within the MAI for mainstreaming, and advocacy for amendments to land legislation and more equitable access to land for women.
- **Increase income generation, productivity and food security for rural women:** Training and extension programs, and community-based pilot and investment programs. Focus on nutrition and dietary diversity, including through livestock and horticulture. The provision of agricultural services to women farmers will be enhanced through equipping female extension staff with relevant skills and incentives.
- **Capacity building:** Capacity building in business management skills, leadership, project management, gender and entrepreneurship, access to financial resources, and information.
- **Measures to improve nutritional status and dietary diversity:** Including nutrition education, nutrition-specific agricultural extension, school food programs, vegetable home gardens etc. Nutrition themes will be strengthened in agricultural extension and research, as well as having demand-side nutrition awareness work targeted to women and households to complement household gardens and other measures to diversify diets.

NASS Implementation

Framework for implementation

Under the NASS, the private and cooperative sectors and the banks take the lead on market-oriented agriculture, coordinated and supported, where needed, by public services, typically in partnership with the cooperative or commercial private sector and with a view to catalyzing and leveraging private sector services and farm and supply chain investments.

The majority of rural households are poorer food-insecure rainfed and smallholder farmers. The focus of public sector interventions and investments will be on this predominant group, in pursuit of NASS objectives of poverty reduction, food security and improved nutritional status of the rural poor. Public services and investment under NASS will therefore be targeted in priority to poor and food-insecure populations.

Because labour is the principal asset and income source for the majority of the poor, the NASS adopts a labor-intensive approach, prioritizing activities which are labour-intensive.

The NASS adopts a community-based, demand-driven approach. Community and farmer organization is key to access to public programs and services and is promoted under the NASS in the form of cooperatives, water user associations, and community and farmer groups and associations. Community mobilization is a specialized skill set which will be progressively built in to local level capacity of MAI services and partner organizations, including community organizations.

All investment in land and water for agricultural production is in the context of sustainability of the resources at the local and watershed level. MAI will work with other partners, notably community-based organizations, local government, MWE, the Basin Committees and NWRA, on ensuring that all land and water for agricultural production activities are integrated within land and water management planning at the micro-catchment and watershed levels. Typically, all land and water interventions at the local level will be conducted in partnership with community level associations and sustainable and integrated local land and water management plans.

Implementation structures

At national level, NASS implementation is coordinated with the Supreme Council for Food Security, and with the Food Security Technical Secretariat and Steering Committee within MoPIC.²

NASS implementation is the direct responsibility of MAI's specialized programs; i.e. the National Irrigation Program (NIP) and the Agricultural Improvement Program (AIP).

² These bodies were established in May 2013.

NIP coordinates all activities and investments in the field of irrigation and land and water conservation; AIP coordinates all activities and investments in the field of crop and livestock development and improvement.

Adequate financing of key public services, especially to allow local level institutions to operate, is a priority under the NASS.

Implementation of the strategy is primarily through decentralized, local-level demand responsive programs tailored to the requirements and potential of each governorate and district, working with community-based organizations (see above).

Governorate and local level programs are delivered by:

- The local MAI offices and services, strengthened as needed, or by specialized institutional structures in place, such as the Tehama Development Authority (TDA)
- Local units of national programs (in particular, the Field Units of the National Irrigation Program, and the central and local staff of the national veterinary services)
- Community-based organizations, community mobilizers, community-based extensionists etc.

Local level structures and programs are supported by AREA and by key services at MAI headquarters.

Capacity building of farmers and community organizations, of public services and of the private sector is a key element throughout the NASS.

Coordination amongst agencies and programs working on agriculture, rural development and environment is central to the NASS, including with SFD, EOF, PWP, PPCR, CAC Bank and Amal Bank.

Investment program

In order to present farmers at the farm and community level with services and support adapted to mixed farming systems and to varying levels of assets and socio-economic status and capacity, the primary delivery vehicle for the NASS is investment in local multi-functional and demand-driven services. This approach has been tested and proven in Yemen in a number of area-based agricultural and rural development programs, and will be mainstreamed as the primary approach for the future.

The current pattern of a mix of 'projects' will be phased out, and all development partners will be requested to support implementation of the NASS as follows:

- Progressive consolidation of existing area-based projects within the NASS approach
- Financing of the NASS 'community-based' approach in selected governorates not covered by ongoing 'projects'

- Scaling up of the NASS community-based approach nationwide over the next five years (by 2018)
- Investment in strategic 'national' programs for development of key sub-sectors (cereals, livestock, land and water management) and for essentially public services (statistics and information, plant protection, animal disease etc.)

The investment program (see Annex Table) is thus a mix of ongoing 'projects' which will be progressively consolidated within the NASS and proposed new financing of investments in the NASS. Proposed investments are at varying stages of preparation and financing, ranging from those that have been presented for external financing and where appraisal and negotiation is underway, those where feasibility studies or other preparation materials are ready, and those where preparation is underway or is being initiated.

Through consultations with stakeholders in workshops, investment proposals have been **prioritized**, based on four principal criteria:

- What would have a measurable impact on the incomes and nutritional status of the largest possible number of poor rural households?
- What activities have been shown to work and are ready for scaling up?
- What activities, geographical areas and institutional mechanisms are most likely to demonstrate how the NASS community-based approach can be rapidly scaled up?
- What can be implemented rapidly through existing structures?

As the NASS is further updated during 2013/2014, and as the availability of resources from the Government budget, the private sector and development partners is firmed up, the investment program will be updated. It is expected that by the end of the period of Yemen's transitional administration (2012-2014), the investment program will be fully aligned and prioritized with the NASS and the availability of financing will have been confirmed.

Financing

At present, MAI's priority agriculture investment program totaling \$668 million has attracted firm financing of \$370 million, leaving a financing gap of \$300 million. Further pledges were received at the 2012 Friends of Yemen conference, but these have yet to translate into firm commitments. Government is financing a number of investments on its own resources through the public investment budget and through the Agriculture and Fisheries Production Promotion Fund (AFPPF) and the Social Fund for Development (SFD). Filling the remaining financing gap could require a significant increased contribution from government, which is a challenge at a time when post-crisis fiscal receipts are constrained and oil revenues on which the budget is largely reliant are declining. However, programs under SO2 supporting commercial agriculture are being partly financed under partnerships between the private sector and USAID.

Monitoring and Evaluation

With inputs from stakeholder workshops, preliminary indicators for NASS results have been identified. These will be confirmed through further consultation and will then form the basis for results reporting and M&E by the AIP Technical Secretariat in the MAI minister's office.

NASS M&E follows the overall TPSD PIP M&E strategy of expanding the participation base in all stages of the M&E process. Throughout the NASS stakeholder workshops, great emphasis was placed on the role of community participation in M&E, and this will be systematically generalized throughout the monitoring of the results of the NASS and the investment program.

Investment program (1): Area-based integrated poverty reduction programs (US\$ million)

Strategy	Priority measures and programs	Investments	PIP	New proposals in NASS	Priority investment program	Stage of implementation or preparation	Status of financing
Integrated delivery of community-based investment and services	Area-based integrated poverty reduction programs	Dhamar RDP	19.50		19.50	Ongoing	IFAD
		Al-Dalia' CDP	19.25		19.25	Ongoing	IFAD
		Hadramawt Coastal	24.90		24.90	FS	
		RALP	13.30		13.30	Ongoing	IDA
		Northern RDP II	41.00		41.00	FS	
		Hodeidah ADP	25.00		25.00	PFS	
		Ta'iz ADP	20.00		20.00	FS	
		Shabwa ADP	20.00		20.00	FS	
		Ibb ADP	20.00		20.00	FS	
		Lahej ADP	15.00		15.00	FS	
		Abyan ADP	17.50		17.50	Ongoing	
		Al-Bayda' ADP	16.15		16.15	PFS	
		RALP II	24.62		24.62	FS	DCR 2012
	Community-based Agricultural Development Program (implementation of NASS in four governorates)			49.28	49.28	FS	Requested from GAFSP
TOTAL (1): Area-based integrated poverty reduction programs			276.22	49.28	325.50		

Note

FS/PFS: Investment is at feasibility/pre-feasibility study stage

DCR 2012: Investment where financing has been agreed in principle at the Friends of Yemen donor meeting in Riyadh in October 2012 and which are under appraisal or negotiation.

Investment program (2): Programs and projects supporting specific NASS objectives

Strategy	Priority measures and programs	Investments	PIP	New proposal in NASS	Priority investment program	Stage of implementation or preparation	Progress on financing
1.1 Grains and fodder	<ul style="list-style-type: none"> ▪ Improved seed availability ▪ Research and extension 	Improve grain productivity in rainfed areas	18.00		18.00	FS	DCR 2012
		Wheat and grain expansion program	33.75		33.75	FS	DCR 2012
		New proposals in the NASS		54.50		FS	DCR 2012
1.2. Livestock	<ul style="list-style-type: none"> ▪ Animal health and extension at community level ▪ Promote fattening and dairy ▪ Disease control 	Improve dairy production in rainfed areas	4.80		4.80	FS	DCR 2012
		Livestock quarantine and vaccination	30.40			FS	DCR 2012
		Livestock development	20.00			FS	
		Animal health care	159.00			FS	
		Honey production	8.00			Ongoing	
		Livestock development support	17.00			FS	
New proposals in the NASS		60.00		FS			
1.3 Agricultural water management	<ul style="list-style-type: none"> ▪ Climate change adaptation ▪ Improve irrigation efficiency and sustainability ▪ Promote water harvesting, small-scale spate and watershed management 	Conservation of groundwater	16.00		16.00	Complete	DCR 2012
		Modern irrigation program	146.00		66.00	FS	
		National irrigation program	66.00			Ongoing	
		Hassan dam	97.00			Ongoing	
		Small dams	18.00			Ongoing	
		Water harvesting	11.50			FS	
New proposals in the NASS		201.10		FS			
1.4 Extension & research	<ul style="list-style-type: none"> ▪ Research focused on productivity and sustainability ▪ Strengthened extension, especially at community level ▪ Improved plant protection, including IPM 	New proposals in the NASS		53.00		FS	
1.5 Land resources	<ul style="list-style-type: none"> ▪ Terracing and soil and water management ▪ Rangeland management and anti-desertification ▪ Land tenure and access for the poor and women 	Rehabilitation of terraces	38.00			FS	DCR 2012
1.6 Service improvement and capacity development	<ul style="list-style-type: none"> ▪ Adequate funding of public services. ▪ Change Management Program ▪ Capacity building, including of private sector advisors 	New proposals in the NASS		19.50		FS	
Sub-total SO 1: Increase production, food security and climate resilience			683.45	388.10	138.55		

Strategy	Priority measures and programs	Investments	PIP	New proposal in NASS	Priority investment program	Stage of implementation or preparation	Financing required
2.1 Horticulture	<ul style="list-style-type: none"> ▪ Promote small farmer horticulture ▪ Public-private partnership to increase value added in commercial horticulture ▪ <i>Qat</i> substitution 	Mango development program	12.00		12.00	FS	For financing by private sector/USAID
		Date palm development program	9.00		9.00	FS	
		Coffee development program	11.00		11.00	FS	
		Olive development program	5.60		5.60	FS	
		Sunflower development program	7.50		7.50	FS	
		Ag. marketing and export development	8.50		8.50	PFS	
		Economic diversification	8.00			Ongoing	
		New proposals in the NASS		65.00	65.00	FS	
2.2 Marketing development through cooperatives	<ul style="list-style-type: none"> ▪ Training and development (working through coop movement, NGOs etc.) ▪ Industry associations ▪ Promote community cooperatives and associations 	Quality control	0.60			Ongoing	For financing by private sector/USAID
		Development of agricultural coops project	7.15		7.15	FS	
		New proposals in the NASS		51.50	51.50	FS	
2.3 Women's participation and nutrition	<ul style="list-style-type: none"> ▪ Increase participation ▪ Income generation ▪ Access to land 	Rural women's economic empowerment	1.60			Ongoing	
		New proposals in the NASS		27.00	27.00	FS	
Sub-total SO 2: Fight poverty and malnutrition			70.95	143.50	204.25		
TOTAL (2): Programs and projects supporting specific NASS objectives			754.40	531.60	342.80		

Investment program (3): Other sector-wide programs

Strategy	Priority measures and programs	PIP and proposed NASS investments (US\$ millions)					
		Investments	PIP	New proposal in NASS	Stage of preparation	Financing required	
	Other sector-wide programs	AFPPF		31.00		Underway	Financed
		SPCR		6.00		FS	Financed
		USAID/USDA		28.50		Underway	Financed
		SFD		443.00		Underway	Financed
		PWP		124.00		Underway	Financed
TOTAL (3): Other sector-wide programs				632.50			