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AGRICULTURE WORKING GROUP (AWG)

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The February 2022 Agriculture Working Group (AWG) was co-chaired by the Ministry of Agriculture and Rural Development (MADER) and the Food and Agriculture Organization of the United Nations (FAO). MADER was represented by the Provincial Directorate of Agriculture and Fisheries (DPAP).

In total, 46 participants were present in the meeting including eight government officials (SDAE, DPAP, IDEPA, IIAM, INAM, and INGD), 14 from UN agencies (FAO and OCHA), 23 from national and international NGOs (ADPP, ADRA, Ayuda en Action, NPC, Save the Children, SEPPA, *Swisscontact, Technoserve*, UPC) and one private sector company involved in the agriculture value chain in Northern Mozambique (Quickstart). Felix Martin, technical expert in Fisheries Resources from FAO headquarters in Rome and Sina Lunchen, Regional Agronomists from the FAO's Resilience Team Sub-Regional Office for Southern Africa Johannesburg brought on reflections the subject's blue economy, opportunities for Cabo Delgado and horticulture for food and nutrition security respectively. The meeting was opened by Daúdo Ussuhale, Provincial Director of Agriculture and Fisheries.

Three topics were presented and discussed during the meeting:

I. 2021/22 Agriculture Season: update Cabo Delgado Province.

II. Horticulture Production: potential for Food and Nutrition Security.
   - Horticulture production for income generation.

III. Blue economy and opportunities for Cabo Delgado.
   - Fisheries infrastructure in Northern Mozambique.


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Key highlights:

- Despite the delayed onset of rains, the 2021/22 agriculture season is expected to have good yields in Cabo Delgado.
- The government of Mozambique has allocated land to 154 985 households in Cabo Delgado, out of whom 70 724 are Internally Displaced People (IDP).
- The number of partners implementing agriculture livelihoods interventions in Cabo Delgado has increased, with reports of improved access to agriculture inputs by vulnerable communities. This will require extensive extension support by government to ensure application of Good Agriculture Practices (GAP).
- Fall Army Worms (FAW) and other diseases and pests (invasive worms, aphids and elegant grasshopper) have affected a total area of 99 hectares in the districts of Ancuabe, Balama, Chiure, Mecufi, Meluco, Metuge, Mueda and Muidumbe.[1] While farmers are applying traditional methods to minimize the damage of FAW on their crops, an integrated pests and disease management approach is recommended.
- Horticulture production has the potential to be a secure source for food and nutrition security among IDPs and host communities. This takes into consideration the prevailing conditions, availability of resources such as water through natural sources as well as irrigation technologies. High levels of production can be ascertained throughout the year or minimum land.
- The crisis in northern Mozambique has evidently had an impact on the fisheries sector, specifically the infrastructure. A destruction of the fish market, storage facilities and roads for accessibility has negatively impacted the fish value chain. A rapid stock and fish species evaluation, as well as a market assessment was recommended to determine the sustainability of the possible interventions or investments.
- For effective and sustainable implementation of aquaculture as an alternative to fish production, a market survey is needed to evaluate consumers' preferences and prices of fish in the local market so that business plans can be developed for different sizes of farms (small, medium, large) to ensure that the enterprises will be profitable.

1 FAW control and management will be one of the topics for the March 2022 AWG meeting

1. Main points discussed and recommendations

1. 2021/22 Agriculture Season: Update Cabo Delgado Province

The agriculture season was launched on 12 November 2021 by His Excellency the President of the Republic, Felipe Jacinto Nyusi, with the slogan "*Sustainable agriculture, transforming lives*". In Cabo Delgado, it was launched in Chiure district by the Director of the Governor's Office, Alvaro Gonçalves Junior. All the partners involved in the agriculture sector were encouraged to contribute to better production and productivity by ensuring application of GAPs, strategic planning and coordination with Provincial and District government counterparts.

The Director DPAP informed the meeting that the 2021/2022 agriculture season was promising. A number of farmers were still planting, while those who had planted earlier had their crops at vegetative stage.

For the 2021/2022 agricultural season, DPAP reports that a total area of 497 735 ha has been cultivated, and various food crops (cereals, legumes, roots, and tubers) have been planted. Out of this, 106 086 ha were allocated to IDPs (between 0,5 and 1,5 ha per household) for agriculture activities, mainly in the districts of Metuge, Ancuabe, Chiúre, Montepuez, Balama, Mueda and Muidumbe.

With regular rainfall, availability of land, inputs and appropriate provision of technical assistance, the total food production is estimated at 570 490 tons of cereals, 168 289 tons of legumes and 1 274 111 tons of roots and tubers. However, the local authorities and partners are concerned about plant pests and diseases outbreaks which have so far affected 99 ha of land, directly impacting 241 households. The Fall Army Worms (FAW), invasive worms, aphids, elegant grasshopper and rats have been identified as the current destructive pests and diseases.

Most farmers are resorting to traditional methods to contain the spread of plant pests and diseases. Some of these methods include the use of sugar to attract ants - that in turn attack the FAWs, the use of natural pesticides such as *margosa and chili*. Regular rainfall also prevents the development of the eggs of the FAW.

1.1. AWG Recommendations

- Raising awareness of FAW among decision-makers, increasing the capacities of IDPs, host communities and other stakeholders through training and scaling-up of technologies for prevention, early warning and Integrated Pest Management (IPM), especially through field demonstrations.

- Provision of extension services to IDPs and host communities that include training on IPM components is essential. This would enhance their capacity to be prepared in containing the crops damage should there be an outbreak of plant pests and diseases.

- Mobilization of resources and investment in human resources for collective coordination, monitoring and technical assistance on IPM.

2. Horticulture: Potential for Food and Nutrition Security

Horticulture was discussed as an engine for agricultural and economic diversification, and with it a means to enhancing food and nutrition security for IDPs and host communities in Cabo Delgado. During the discussions there was consensus among the technical experts that horticultural production:

- Enables food production throughout the year and therefore increases the availability of food for households and communities;
- Enables production of food on limited land, and may therefore work well in the current context where IDPs have limited land for agricultural activities;
- Enables efficient use of inputs, water and land with relatively short production cycle and higher yields, if GAPs are applied;
- Offers communities an opportunity to produce crops tailored to meet their specific needs through diversification;
- Includes production of crops such as vegetables and legumes are highly nutritious. Their production can therefore contribute to better nutrition for children, mothers and the rest of the family;
- Is an inclusive art of cultivation that can be undertaken by men, women and the youths in equal measure;
- If applied well, increases production, and households can generate income from the sales of surplus produce.

2.1 Horticulture Production for Income Generation – Experiences by TechnoServe

TechnoServe is working with agribusiness partners and smallholder farmers to increase their ability to earn profit from poultry and horticulture. During the meeting, they shared practical experience on horticultural production, drawing off from their project that focuses on developing agribusiness and development.

The project targeting 11 309 households is implemented in the districts of Pemba, Chiure, Metuge, Mecufi, Montepuez, Balama, Ancuabe and Palma. Through the project covers the whole value chain, from provision of inputs to the households, support through production, post-harvest handling, processing for marketing, see **table 1** for more details.

Inputs provided include seeds for production of tomato, cabbage, onion, lettuce, pepper (green, red and yellow), eggplants, yellow pumpkin, green beans, watermelon, cucumber and carrots.

Through the intervention, a total of 21 jobs have been created, with women profiting at 38 percent. A total of 503 people have been trained on horticultural production of which 36 percent are women. Through the year, each female-headed household's production capacity was estimated at USD 5 648, while that of households headed by men is estimated at USD 9 052.

TABLE 1 The horticultural production value chain

	INPUTS	PRODUCTION	POST-HARVEST HANDLING	DISTRIBUTION	MARKETING
The value chain system	Inputs suppliers, i.e., seeds, fertilizers and pesticides	Land preparation and planting	Selection and packaging	Own transport	Commercial consumers
	Inputs distribution	Irrigation	Processing and storage	Aggregators	Individual consumers
		Harvesting			
		Weed control			
		Fertilizer application			
Actors	Agro-dealers	Smallholder farmers, agribusiness, emerging private partners	Agribusiness partners	Agribusiness partners	Individuals, hotels, supermarkets, catering companies, extractive industry
Techno Serve Role	Partnerships with agro-industries with wholesale operations (inputs on credit)	SHF training and technical assistance	Subsidy in logistics	Creating market links to aggregators	Produce and disseminate market research
		Training and business advice		Capacity building for aggregators	
		Testing new varieties, techniques and technologies		Subsidy in logistics	

Source: *Techno Serve*

The lessons learned from this project include:

- Use of manure improves soil structure through addition of carbon and provides plant nutrients.
- The soils are Calcium, Boron and Iron deficient, and therefore where there is no capacity for soil analysis, the nutrients are to be applied sparingly.
- Limestone is available in Mecufi, and experience have shown the possibility of producing lime powder by crushing to incorporate into the soil for improved soil fertility.
- Mulching is a technique recommended to increase soil moisture retention.
- Integrated Pest Management is recommended to contain the occurrence of pests and diseases such as black rot, downy mildew, bacterial wilt, bacterial spot and bacterial canker.

For more information on the work of *TechnoServe* refer to: https://www.technoserve.org/

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2.2 AWG Recommendations on the Horticulture in Northern Mozambique

Sustaining horticulture is challenging due to scarcity of water and lack of availability thereof throughout the year. Due to climate change, in the past few years the rivers do not retain water for a long period of time, hindering horticultural production. One of the recommendations made to address this challenge include:

- Promoting the sustainable use of water through drip irrigation systems associated with boreholes (where applicable);
- Building dikes to retain rainwater or infrastructure for rainwater harvest for home gardening.

Horticultural production with all the right conditions in place, such as availability of water and application of the right techniques, compounded by proper technical assistance has the potential of producing USD 15 000 per year in a ¼ ha. In Cabo Delgado there is very limited availability of vegetables in the winter season and the prices in the local market are very high. Therefore, horticultural production can be a very profitable opportunity for the IDP farmers as well as host communities, while at the same time an agricultural production approach that guarantees food and nutrition security.

3. Blue Economy and Opportunities for Cabo Delgado

With the displacement of people to the coast and the islands, the number of people who are fishing and how much they have been fishing is uncertain. The inshore stocks were under pressure before the conflict; however, the current status is unknown. Before any fisheries intervention, a rapid stock evaluation is needed to ensure that no overexploitation takes place. Furthermore, an indication of the number of fishers, vessels, and gear is needed, including the number of lost gear/vessels.

Activities in support of the fishery sector could include:

- Replacement of lost vessels and gears (if the fishery resources would allow and overexploitation of this resource is prevented);
- Repair and/or upgrading of infrastructures (like landing sites, ice plants, cold storage);
- Analysis of the fish value chain to safeguard the quality of fish products, and to reduce post-harvest losses;
- Conduct a review of the management and governance of these resources to ensure the sustainable use of the fishery resources;
- To reduce the pressure on the inshore resources, capacity to fish further off-shore could be enhanced. However, before this is promoted, exploratory fishing will need to be done, to identify the resources, and where they can be found.

3.1. Fisheries Infrastructures in Northern Mozambique

Cabo Delgado had 430 Kms coastal length with 32 islands, with 46 920 fishermen, 225 fishing centers, 5 615 artisanal vessels, of which only 338 are motorized. Fishing is artisanal, especially in Mocímboa da Praia, Macomia, Pemba, Palma, and Quissanga with an average annual fish catch of 30 000 ton. Until 2017 the fishing sector employed directly about 48 000 people and indirectly 6 108 people, of which 1 250 are women involved in fish processing and gathering.

Two government strategic documents, the Fishery Master Plan (PDP) II and the Strategic Plan for the Artisanal Fisheries Subsector (PESPA) guide all the interventions in the fishery infrastructure sector. The two documents inform the planning and development of programmes by partners that not only address fisheries marketing, but also the implementation of services that promote conservation and processing of fishing products through artisanal fishing.

The conflict that began in October 2017 in the district of Mocimboa da Praia, later extended to other coastal districts of Palma, Macomia, Quissanga and Ibo resulted in loss of lives and livelihoods, as well as the destruction of public and private infrastructure. In the aforementioned districts, the main economic activity of the affected population is agriculture and fishing.

From the surveys carried out by the government, the findings indicate that 15 447 fishermen were displaced. The assets destroyed included 2 194 boats, rowing canoes and motorboats and 5 646 fishing gear destroyed. Several fish handling infrastructure and markets were destroyed (**table 2**).

TABLE 2 Fishing infrastructures destroyed in Cabo Delgado (Source: DPAP Cabo Delgado)

DISTRICTS	FIRST SALE MARKETS	RETAIL MARKET	ICE MACHINES	COLD STORAGE CHAMBERS	THERMOKING VEHICLES	STORAGE UNITS	EXTENSION AGENTS HOUSES
Palma	1	0	1	1	0	0	3
Mocimboa da Praia	1	0	1	1	0	2	1
Macomia	1	1	1	5	1	0	1
Quissanga	1	0	1	1	1	1	1
Total	4	1	4	8	2	3	6


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First Sale Market: located near the fishing centers or the fish landing centers, with adequate conditions for the reception, handling, processing, and packaging of the fish to be sold.

Retail market: located in the main trading centers (cities and towns), with appropriate facilities for selling fish (fresh/processed) to consumers.

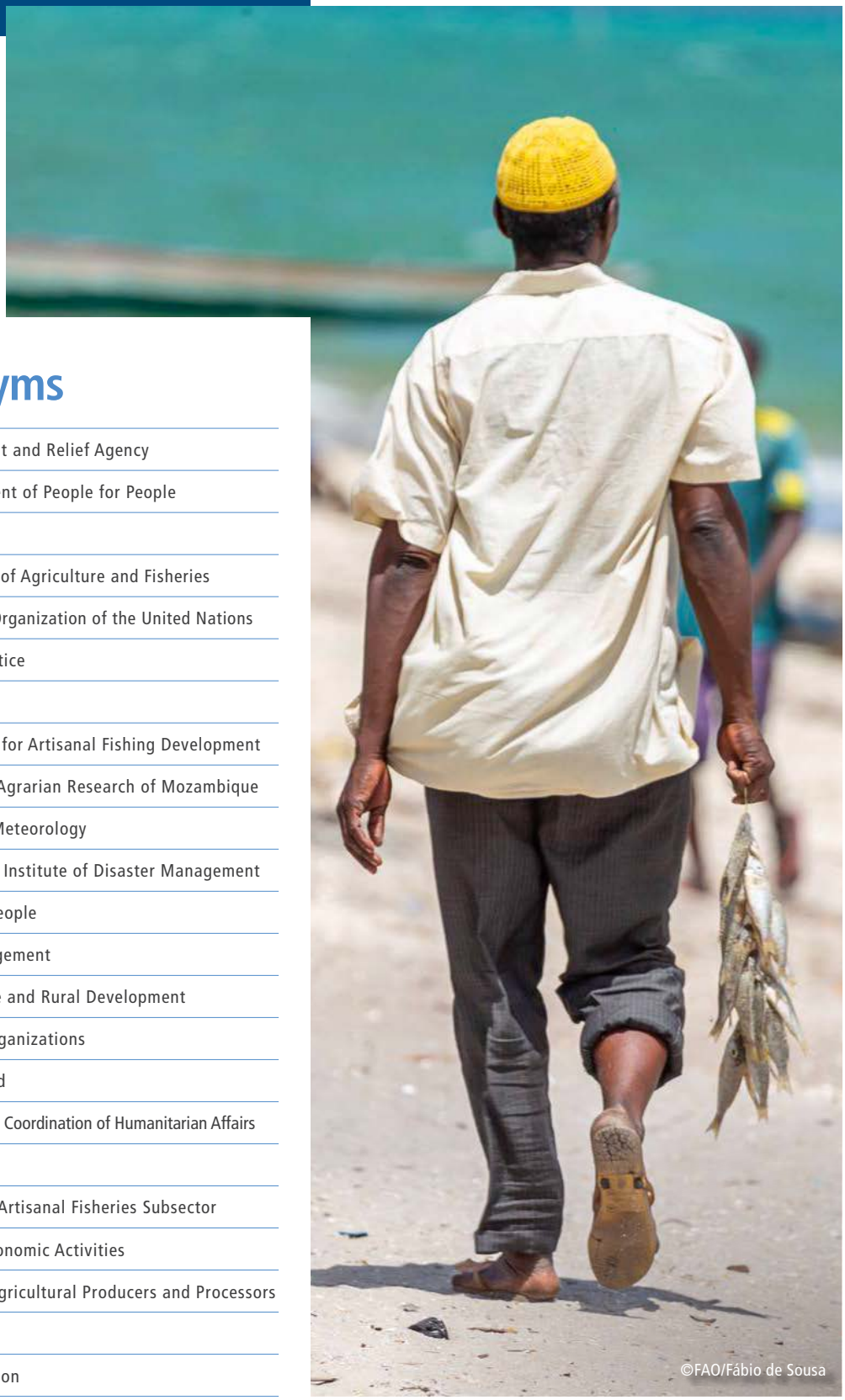
Extension agents' houses: located near the fishing communities built with the intention of guaranteeing technical assistance to the fishermen.

The government fisheries expert reported that the conflict and subsequent crisis in Northern Mozambique negatively impacted fishing industry and reduced the fish catch. The fish catch amount has been deteriorating as follows: 36 508 tons in 2018, 34 551 tons in 2019, 34 272 tons in 2020, and 25 182 in 2021. This implies that from 2018 to 2021, there has been a decrease of 31 percent in fish catching. The government recommends investment in the rehabilitation and/or replacement of the fishing infrastructure.

Aquaculture could be considered for fish production, however only if an assessment is done, and the results indicate that there is overfishing. This would be an alternative means to meet the demand for seafood by the IDPs that were displaced from the fish-producing areas to inland districts.

3.2. AWG Recommendations for the Fishery Sector in Northern Mozambique

- A rapid stock evaluation and market survey should be undertaken to assess whether there is overfishing;
- Aquaculture is an alternative approach for fish production, however a feasibility study is required to ascertain that this would be an approach that contributes to the socio-economic empowerment of fisher-folks;
- Based on the results of the aforementioned market survey, business plans may be developed for different sizes of farms (small, medium, large) to ensure that the enterprise will be profitable;
- Inhibiting factors for aquaculture development should be addressed. These could be Fingerling production, Feed production, and Finance (3Fs);
- It is important to note that a large part of the production cost in aquaculture is related to feed. This can be more than 50 percent of the total cost of a production cycle. The majority of these costs are made at the end of a production cycle, as that is the time when feeding is highest.



List of Acronyms

ADRA	Adventist Development and Relief Agency
ADPP	Aid for the Development of People for People
AeA	AyudaenAction
DPAP	Provincial Directorate of Agriculture and Fisheries
FAO	Food and Agriculture Organization of the United Nations
GAP	Good Agriculture Practice
HC	Host Communities
IDEPA	The National Institute for Artisanal Fishing Development
IIAM	National Institute for Agrarian Research of Mozambique
INAM	National Institute of Meteorology
INGD	Mozambique National Institute of Disaster Management
IDP	Internally Displaced People
IPM	Integrated Pest Management
MADER	Ministry of Agriculture and Rural Development
NGO	Non-Governmental Organizations
NPA	Norwegian Peoples Aid
OCHA	United Nations Office for Coordination of Humanitarian Affairs
PDP	Fisheries Master Plan
PESPA	Strategic Plan for the Artisanal Fisheries Subsector
SDAE	District Services of Economic Activities
SEPPA	Economic Society of Agricultural Producers and Processors
UN	United Nations
UPC	Farmers Provincial Union

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Contact:

Dalilo Ambasse
Head of Agriculture Department,
Provincial Service of Economics Activities

Email: Daliloambasse@gmail.com

Lacerda Albertino Nema
Head of Agriculture and Rural Development,
Provincial Directorate of Agriculture and Fisheries

Email: nemalacerda@gmail.com

Manuel Daniel
FAO Agriculture Working Group Coordinator

Email: manuel.daniel@fao.org

Brasilino Salvador
FAO Agriculture Working Group Coordinator

Email: Brasilino.Salvador@fao.org