Netherlands Commission for Environmental Assessment

Advice on quality of Draft Environmental Pre-Feasibility Scoping Study (EPDA) and Terms of Reference by EcoFarm Sugar Plantation

Memorandum by the NCEA

MOZAMBIQUE

21 August 2013

Photo cover: taken from “Final Draft EcoFarm EPDA _ Update 29 July 2013 KWJ (for Client Review)”

Advice of the Secretariat

To	Netherlands Embassy, Maputo, Mozambique
Attn	Ms Celia Jordão, Mr Ton Negenman
From	Netherlands Commission for Environmental Assessment (NCEA) Ms Ineke Steinhauer
Date	August 21, 2013
Subject	**Advice on quality of Draft Environmental Pre-Feasibility Scoping Study (EPDA) and Terms of Reference by EcoFarm Sugar Plantation, July 2013** By: Secretariat of the Netherlands Commission for Environmental Assessment – Ineke Steinhauer/Reinoud Post Advice 2013-02

1. INTRODUCTION

The EcoFarm Sugar Plantation is benefitting from ORIO funding. Therefore, the Netherlands Embassy in Mozambique was asked to react on the above mentioned EPDA-Scoping report. The Netherlands Embassy subsequently approached the NCEA to support the Embassy through providing an advice on whether the scoping report and way forward are adequate. The consultants (Coastal and Environmental Services, CES) will send the report to the Zambezi Valley Agency for comments as well. CES will have to present the EPDA to MICOA by 19 September according to their obligation under the ORIO/Ecofarm contract. Therefore the NCEA advice is asked before August 26 and will be used to improve the EPDA before submitting it to MICOA.

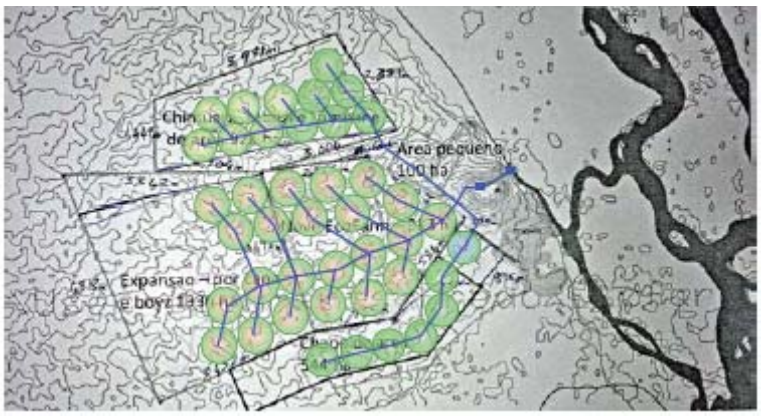
In drafting the advice, use has been made of the following documents in addition to the EPDA of July 2013:

- NCEA EIA country profile for Mozambique
- NL Agency, Appendix I – Project Description, Irrigation infrastructure for organic sugarcane in Chemba, Mozambique, explaining all elements of the project proposal for ORIO financing, 33 p.
- Response to additional questions of 13 September 2012 on land acquisition in the project plan ORIO/MZ/01 Irrigation infrastructure for organic sugarcane in Chemba, Mozambique 4 p.

- Additional information on NL Agency questions regarding the Organic Sugarcane Infrastructure Project in Chemba, 7 p., October 2012
- DUAT 990 ha. for Ecofarm, August 2012
- Acta da Sessao Extraordinaria do Conselho Consultivo do Posto Administrativo Chemba Sede, minutes of meeting, May 25, 2012
- ORIO summary project description, including assessment of environmental and social impacts by Aid Environment, October 2012, 6 p.
- NCEA screening on EIA requirement for ORIO12/MZ/01, Dec. 2012, including correspondence between NL Agency and NCEA about DUAT and its relation to ESIA.
- USAID Environmental Guidelines for Small-Scale Activities in Africa, Chapter 1: Agriculture: Soil and Water Resources including irrigation, March 2009. 50 p.

2. THE INITIATIVE

The project intends to facilitate households' access to, and productive use of, irrigation infrastructure for organic sugarcane production and for small irrigated vegetable and food crop plots in Chemba. The irrigation infrastructure takes the risk factor of the livelihood away: the erratic and low rainfall. It allows the households to gain a good, reliable income, grow enough food and improve their diets. The irrigation system comes with all the required infrastructure: water inlet and pumping station, the main water distribution line, the temporary water storage and its sediment filter, the secondary water distribution lines with their auxiliary pumps, 38 irrigation centre pivots, equipped to function over 2,126 hectares of cleared and prepared land. The land will be connected to their field and farm roads and to the electric reticulation that is fed by an energy island that produces electricity out of waste. There will be 37 pivots (of 50 and 60 hectares each), for each cooperative and the farm, plus 1 additional pivot for small vegetable and food crop gardens (of 0.1 hectares each) close to Chemba town. The households will have secure access to the equipment and inputs that are necessary for organic sugarcane production and will have a secure market with a high guarantee price.
The project also includes the technical and business capacity to operate and maintain this infrastructure adequately and sustainably, and the business and technical capacity to productively use the system and to collectively participate in the organic sugar value chain, using compost, zero-chemicals and zero-burning and having the sugarcane processed.



The project includes five productive entities:
1) **The utility company** that owns the public infrastructure (water and energy), operates and maintains it and leases it out to the four companies below.
2 and 3) The **agricultural cooperatives of Lambane and Chapo**, incorporating small-holder farmers from 6 communities and 3 neighbourhoods of Chemba town.
4) A **third cooperative** of 15 well-trained, qualified and committed **re-migrating youth** who establish themselves as emerging organic sugarcane farmers.
5) And, **Eco Farm Moçambique**, using pivots to produce organic sugarcane. This entity also supplies the cooperatives with compost made out of the manure of its herd of 4000 cattle, straw and grass, makes its technical expertise and equipment available for them and buys the produce at a guaranteed high price and a 25% profit-sharing post payment. It processes all the sugarcane and ships it to the European market.

The ORIO transaction and the project differ from each other.

The ORIO part entails the establishment of irrigation infrastructure, the creation and strengthening of a utility company (with the users and the government as shareholders) to operate and maintain it and the strengthening of three agricultural cooperatives to use the infrastructure and attain income and food security.
Specific components are:

1. Bush clearing and land preparation for 950 of the in total 2,126 hectares
2. Installation of water inlet, pumping station, sediment filter, water reservoir and bulk water supply for 19 of the 38 pivots
3. Installation of 18 of the 37 organic sugarcane pivots
4. Installation of 1 vegetable and cash crop gardens pivot
5. Upgrade of 65 of 150 kilometres of field road (in and around the pivots) and 22 of 50 kilometres of farm road (connecting the pivots to access roads)
6. Procure a grader for road upgrading
7. Install a 3MW energy island to generate power from waste (43 percent of the costs is ORIO budget, the remaining part is funded by Eco Farm)
8. Install the electrical reticulation to connect 19 pivots

9. Overseeing the infrastructure installation
10. Monitoring, management, administration, banking costs, etc.

Eco Farm intends to establish organic sugarcane production technology in 50 to 60 hectare central irrigation pivots. These are sprinkler lines at 6 meters above the ground that slowly turn in circles and evenly irrigate the cane. It also brings in organic fertilising (based on cow dung and grass compost), zero-burning and disease-free genetic material. The farm has already set up a good cattle herd in open stables; fed with irrigated lucerne (a nitrogen fixing fodder crop) and sugar molasses, which will in turn, feed the composter. It has designed a simple processing plant and energy island, that combusts the sugar mill's waste and generates the electricity to power the irrigation pumps and pivots. Specifically, Eco Farm will install a sugar mill, a storage, a bagging installation and a container loading station. It will sign a contract with a transport company to forward the sugar to the port of Beira and subsequently ship it to Germany. These are major investments, that allow for integration into the value chain and access to the interest prices of the organic market and the security of a guaranteed off-take agreement.

3. MAIN OBSERVATIONS FOLLOWING THE EPDA STRUCTURE

3.1 Introduction (Chapter 1 of EPDA)

3.1.1 Proponent

From the EPDA it is not entirely clear whether the proponent is only Eco Farm Mozambique and/or whether other stakeholders are also co-proponent (the agricultural co-operatives, Chemba irrigation utility SA, Zambezi Valley Development Agency?).

- NCEA recommends the to clarify this in the EPDA.

3.1.2 The consultants

The expertise in the team (4 persons) seems to be very much (marine) environment focussed and less on social impacts. This could be a handicap in relation to e.g. the public participation process and sound assessment of socio-economic impacts. Chapter 8 of the EPDA provides ToR for specialist studies in 8 areas. It is unclear whether these 8 studies are carried out by the CES expert team or whether these are (partly) subcontracted.

- NCEA recommends to pay due attention to ample experience in socio-economic impacts (not obvious now from summary CV's of experts)

3.2 ESIA process (Chapter 2 of EPDA)

The EPDA describes the Mozambican EIA requirements and applicable Mozambican legislation. Also the international standards applied to the project are described, namely the IFC performance standards, IFC General EHS guidelines and International conventions applicable to the project.

3.2.1 ESIA requirements

For the ESIA and Environmental and Social Management Plan (ESMP), a budget is available of 160.000 Euro. According the information in the ORIO project description, the ESMP is directly integrated into the implementation and the Operation and Maintenance phase's planning. It is unclear whether the implementation of the ESMP will have to be financed from the 160.000 budget.

- NCEA recommends to clarify in the EPDA and subsequent ESIA how implementation of the ESMP will be secured and financed.

3.2.2 Water use licence

The EPDA states on p. 9 that a water use licence will be required for this project and will be applied for from the Regional Water Administration (ARA Zambeze) once an environmental licence has been issued.

On the same page it says: *'The Zambezi River will be the primary water source. Minimum water flows in the Zambezi are 1,600 m3 per second. The maximum water requirement of the proposed EcoFarm development as described in this document is 2m3/sec which is less than 0,001% of the minimum flow. As such, it is not expected to impact on ecological reserve or any potential water users further downstream'*

It is unclear where these figures (1600 and 2) are based on and moreover the percentage mentioned is incorrect (should be 0,125%, over 100 times higher). Although 0,125% still seems to be a minor impact on the water flow and environmental and ecological equilibrium, the incorrect percentage used poses some doubt on whether this critical issue is dealt with in an adequate manner. (Nb. p. 58 < 0,02 % is mentioned),

- NCEA recommends to provide clear data and percentages with references to sources as to water requirements for the project, as sugar cane plantations are known to absorb great water quantities.

3.3 Project description (Chapter 3 of EPDA)

3.3.1 Scope of EPDA too narrow

Chapter 3 of the EPDA, project description, largely focuses on a description of the sugarcane production process. It explains the management organization, the agricultural operations and project lay-out detailing plantation specifications, manual labour, harvesting and hauling.
It also describes the subsequent stages of project activities, namely:

- Land clearing
- Soil preparation for plant cane (including primary and secondary tillage, erosion control and terracing)
- Commercial cane fields, including planting, weed control, sugarcane pests and disease control, harvesting plant cane and ratoon cane cultivation.

It describes required buildings and infrastructure, such as a composting facility, soils and foliar analysis laboratory, workshops and fuel storage sheds, warehouses for agricultural equipment, roads and road maintenance and water supply.
Finally it describes the livestock production component.

Remarkably, some project activities as part of the ORIO funding do not or only partially feature in the EPDA document, namely:
Irrigation infrastructure:
In par. 3.5.13 just a few lines are written about water supply: *All water will be acquired from the Zambezi River at an access point approximately 5kms from the main project site. The water will be transported initially along canals which will run parallel to the main road after which water reticulation will be via pipes. In addition to the water required for sugar processing and irrigation, there will also be the need for drinking water, water for restroom facilities and emergency showers, and for fire fighting.*
There is no mention of a water reservoir, pumping stations, sediment filter etc. as planned by the ORIO project, which contains a much more detailed description of the anticipated irrigation infrastructure layout and design.
Road and road maintenance
Par. 3.5.12 indicates that there will be 10-15 km. of main roads, whereas the ORIO project activities mention upgrade of 65 of 150 kilometres of field road (in and around the pivots) and 22 of 50 kilometres of farm road (connecting the pivots to access roads). This seems to be a considerable inconsistency.
Energy supply
The planned 3MW energy island to generate power from waste and instalment of the electrical reticulation to connect the pivots are not mentioned clearly in the EPDA,

although p. 59 mentions in one line that *'a sugar production operation on the neighbouring property will incorporate a power plant'…)*

Also some parts of the Eco Farm activities are not mentioned in the EPDA project description such as the sugar mill, the storage, the bagging installation and container loading station (not clear whether on-site or off-site.).

- NCEA recommends to include a complete description of all project activities in the EPDA chapter 3 and subsequent ESIA. This also holds true for the Appendix A to the EPDA, Background information document for MICOA (in Portuguese), which also seems to be limited to sugar production and processing activities only.

3.3.2 Inconsistencies in data

The EPDA introduces the project as a 2400 (or sometimes 2500) irrigable hectares of land which will be irrigated using a pivot system. Also it indicates that 1200 ha. of expansion is already planned for. This is not in line with the ORIO project description that mentions 2126 ha. and does not speak of a possible expansion.

The same holds true for the number of km. of road upgrading or construction (see 3.1.1) and inconsistencies in the number of cattle; the ORIO project description mentions a herd of 4000 cattle, whereas the EPDA mentions other numbers (P. 17, 8000 cattle and later on p. 27: 6,000 breeding cows and 240 bulls, and 6,000 ewes and 120 rams). Finally, there is also a difference in numbers of pivots (38 in the text, 42 on the map).

- For NCEA it is impossible to judge which numbers are the correct ones. Therefore it is recommended to include the most recent information in the EPDA or explain the differences in numbers.

3.3.3 Alternatives

Chapter 3.7 of the EPDA elaborates on alternatives and starts with a quick scan of 'fundamental alternatives' such as a different type of development, a different location and the no-go alternative. This is then followed by design alternatives, layout alternatives, technology alternatives and scheduling (or operational) alternatives.

Different type of development

As to a different type of development, the EPDA states that Eco Farm was established specifically to produce organic sugar and organic beef, reason why a different type of development has not been considered and will not be part of the ESIA.

However, 'state of the art' ESIA should also contain a sound problem analysis which leads to the rationale for the proposed activity. The EPDA seems to part mainly from the Eco Farm interests and objectives, whereas the ORIO project description tries to justify the activity from a broader perspective; namely the dry and harsh climate being one of the main determining constraints of the households' livelihood strategies, reason why irrigation infrastructure development for organic sugar cane is at the centre of the project. As such the project is expected to enhance human development and lead to more employment.

In the ORIO description also an intent is made to briefly explore alternative elements of livelihood strategies such as fishing, farm work on other people's plantations and by increasing more drought tolerant crop varieties and expanding the number of small livestock.

- NCEA recommends to include in the EPDA and subsequent ESIA a chapter on problem analysis, proposed objectives to solve these problems, including a justification why other forms of livelihood improvement or development are not considered feasible. It is in any case strongly recommended to make sure that the ORIO and EcoFarm proposals are fully in line with each other.

Different location

Again Eco Farm argues that a different location is not reasonable in this case because Eco Farm now has been issued a DUAT for the land under assessment and therefore cannot consider alternative locations where they do not possess a DUAT. However, there may be alternatives for the locations of the local co-operatives if some of the local communities object to having the sugarcane plantations on land which they utilise. The site was specifically selected due to the favourable conditions for growing sugarcane; however these conditions are not restricted to the selected site.

- NCEA recommends to include in the EPDA and subsequent ESIA an assessment of alternative locations for the local co-operatives as well as a justification of the site selection in relation to the policies of the Mozambican Min-

istry of Agriculture and the Zambezi Valley Development Agencies' policies and programs in terms of allocating land for sugar cane production.

Design, lay-out, technology and operational alternatives

The EPDA briefly elaborates some of these alternatives, sometimes indicating that these alternatives are being investigated, and sometimes already explaining the selection of a certain alternative.

- NCEA recommends to include in the EPDA and subsequent ESIA a further and more detailed assessment and comparison of these kind of alternatives if relevant for all project activities (see comment 3.1.1.), also taking into consideration environmental and social impacts.

3.4 Description of biophysical environment (Chapter 4 of EPDA) and Description of socio-economic environment (Chapter 5 of EPDA)

No comments

3.5 Stakeholder and community engagement process (Chapter 6 of EPDA)

This chapter of the EPDA describes the IFC and Mozambican requirements concerning public participation. Also it provides some 'textbook' like information on the goals and importance of stakeholder engagement. It provides initial information on who national, provincial and local stakeholders are and a short paragraph on proposed stakeholder consultation.

There is a line stating *'client to provide summary of engagement to date and meetings that have been held'.* According to a 4 page letter 'Response to additional questions of 13 September 2012 on land acquisition in the project plan ORIO/MZ/01 Irrigation infrastructure for organic sugarcane in Chemba, Mozambique', there has indeed been a whole series of stakeholder meetings in the project preparation phase.

- At the stage of EPDA, one would expect a more detailed public participation plan, including budget building on consultation meetings and minutes already held in the past. NCEA recommends to make an overview what meetings already have been held, what were main observations and concerns and outlining what still needs or is planned to be done.

3.6 Initial environmental and social risk assessment (Chapter 7 of EPDA)

This Chapter describes the Risk Assessment methodology and subsequently, the risks associated with the project are discussed in accordance with the requirements of the IFC performance standards 1-8. Performance Standard 1 is on Social and Environmental Assessment and Management Systems and just mentions that an ESIA will be carried out.
The initial assessment of the other Performance Standards leads to a table for each Performance Standard summarizing impacts and risks associated with that particular Performance Standard, including a rating whether these are minor, medium, major or extreme risks. Also some positive impacts were identified.
Obviously, these impacts, risks and opportunities will need to be further assessed in the ESIA.

The ORIO project description paragraph 6.3 on Social and Environmental risks, shows overlap with the risks already identified in the EPDA, but also mentions some additional risks: e.g. on health impacts related to the stocked water reservoir (waterborne pathogens, afflicting plants, livestock and humans), and on gender impact (the project apparently strives towards 20% female-headed farmers in the irrigated sugarcane cooperatives and 80% female members in the irrigated vegetable/food crop gardens club).

Other potential impacts not yet identified in the EPDA are:
- the effects of lighting for full night operations during harvesting
- it is stated on p. 47 that the district has enormous potential for tourism, because it is rich in wildlife, and there are already a number of safaris and tourist accommodations. Will the sugar cane production interfere with this potential?

In general, irrigation generally benefits outside investors or entrepreneurs more than communal land users. While women and children may benefit from higher income and improved nutrition, they may also los access to land traditionally used to collect fuel wood or grow vegetables. Also irrigation project may involve pastoralists with little or no experience with irrigation farming techniques.

- NCEA recommends to include in the EPDA and subsequent ESIA the potential impacts as mentioned above. Especially the social impacts should be carefully addressed through addressing issues like:
  - how will the project guarantee equitable access to irrigated lands and equitable shared benefits from production to avoid social disruption? How is legal certainty arranged for male and female farmers through the cooperatives?

- Are there differences in men's and women's roles that may affect the long term future of the project and the environment?
- Is there any risk of soil salinization or other long term cumulative effects?
- Is the potable water supply (now groundwater boreholes) somehow affected by the project?
- What are long term prospects for maintenance of the irrigation infrastructure and what may realistically happen when the project ends? What will the project area look like? How will members of the cooperatives be assured of a reasonable income in the long term taking into consideration potential high costs for maintenance?