



## **Executive summary**

### **Report of the End-term Review**

Water Supply and Management  
contributing to Food Security in Gaza  
Province – MOZAMBIQUE

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## 1 Presentation of the evaluation

The purpose of the End of Term Review of the project “*Water supply contributing to Food security in Gaza Province – Mozambique*” implemented by ENABEL (Belgium Development Agency) in partnership with DNAAS (National Directorate of Water and Sanitation in Mozambique) during the period from 2013 to 2018 targeting 55’000 beneficiaries in six food insecure districts<sup>1</sup> in the Gaza province, is to provide an independent assessment of the achievement of the project objective and expected results of the intervention.

More specifically the review intended to assess the following:

1. The relevance of the strategic reorientations of the intervention (solar water system, desalination, river water treatment and digital data collection technology).
2. The financial and technical sustainability of the project (cost-benefit) and the readiness of the private sector to provide good services to clients.
3. The impact of the project in the preparation of the new country’s rural water and sanitation strategy (PRONASAR 2017-30) and the influence of desalination through solar energy on the outputs and impact of the project.
4. The efficiency and effectiveness of project implementation modality (outside PRONASAR common fund).
5. The intervention performance with addition of IBGE (Institut Bruxellois pour La Gestion de l’Environnement) funding/activities.

The evaluation team first reviewed all the project documents, then went on the field visit in July 2018 to collect primary data through semi-structured interviews with involved stakeholders at national, provincial and district level. Some specific project sites were visited in Guijá and Mabalane districts, where they interview some beneficiaries.

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<sup>1</sup> Chicualacula; Chigubo; Guija; Mabalane; Massanigena; Massingir

## 2 Results and conclusions

### 2.1 Performance criteria

#### Relevance

The project addressed the pressing needs identified in the project Technical and Financial File (TFF), and reconfirmed by the mid-term review mission: lack of water for human and animal consumption in an arid region affected by cyclical droughts, with few superficial/ground water sources, profound and saline aquifers and dispersed population.

The project is fully in line with the national rural water supply and sanitation program (PRONASAR 2010-15), namely on its four components: (i) rural supply and sanitation coverage; (ii) technologies and management models; (iii) capacity building and (iv) decentralized management.

The project is also in line with the Belgian Indicative Partnership Programme 2013-17 which focus in support for agriculture and rural renewable energy.

#### Efficiency

While the project achieved most of the expected results, the share of time between preparation and execution was disproportional (approx. 60% - 40%) due to various constraints including procurement process delays and lack of adequate and accurate information to allow decision making concerning appropriate technological solutions right from the beginning of the project. Water systems' construction were undertaken during the last two years after the project results reformulation and baseline elaboration (late 2015).

The country financial contribution (through VAT exoneration) remains an embarrassing aspect given that the project has not manage yet to recover about EURO 600'000 locked at the tax authority.

#### Effectiveness

By June 2018 and according to the project's monitoring tool, most outputs have been achieved. This also corresponds to what the evaluation team noticed on the ground where results were quite satisfactory as mentioned by all involved parties met. Overall the project achieved a consistent result in terms of water access (confirmed in terms of quantity and population coverage – 20l/p/d and about 20% of the province's rural population once all the systems will be complete). Although community sensitization programs show a great improvement in latrine coverage it's not conclusive that it led to communities free from open defecation. The project's influence on the District Economic and Social Plan (PESOD) was not measured but the database and the training provided have most probably contributed positively to it.

#### Impact

The project's impact may be pointed at multiple levels: (i) planning and management – the introduction of a digital water infrastructures database provides real time and accurate information on infrastructures situation and allows informed decision making; (ii) policy influence - the new country's sector strategy encompasses elements brought by the Gaza Water project such as the desalination technique and the request to base all needs' analysis on the new database (iii) public health - during field interviews it came up that due to water availability at their homes (or closer) some beneficiaries increased water use (50% to 100%) with increased availability for laundry and bathing activities, as well as time for economic activities. Women mentioned decrease in water borne diseases, such as diarrhoeas.

#### Sustainability

The systems financial viability looks promising within the current agreements with the private operators as financial earning can reach more than 70%. However, this financial viability depends on many factors, such as: (1) lots size (i.e. number of systems per tender); (2) contract's timeframe (i.e. duration directly influences the operator's interest for investment); (3) roles and responsibilities for both, the State and the operators (ensuring accountability and equal competitiveness among operators). Therefore, it's still very early to pronounce more reliable statements about this topic. Currently the systems are brand new and the likelihood for high maintenance costs is low (and in case they appear they are in most cases still covered by the contractor's guarantee). Moreover, even if willing to pay for water is relatively high

now among the population, some problems of payment default have been identified especially at the shared taps level.

### **Gender**

Women's involvement in the project design was very limited. Community Education Program (PEC) activities aiming to create awareness about the project was the first platform which targeted women. Nevertheless, women appreciate much the benefits brought by the project activities with many mentioning more time to devote to other activities including engagement in income generating activities and increase of self-esteem brought by reliable water availability close to their homes. Regarding water management activities, around 64% of the committee's members are women which is a good indication of their involvement with water provision issues.

Nonetheless, both the project and the operators do not disaggregate their clients' databases by sex.

### **Environment**

The project has extensively used solar energy to power the pumping systems (20 water supply systems out of 23, covering 42% of the beneficiary population). In addition, the solar-powered desalination units do not require any battery reducing not only the maintenance cost but also the very harmful battery disposal. The other 3 water supply systems are grid powered meaning no direct emissions and less parts replacement (when compared with a diesel generator).

However, the project did not address the issue of the defect of the desalination process. Even if it is now still considered a minor issue, it will grow with increased water production, namely with the new PRONASAR 2017-30. As further investments on this technology are foreseen in this new program, meaning an increasing number of desalination facilities in the country.

## **2.2 Specific questions**

### **Relevance of the strategic reorientation of the intervention**

The reorientation was very appropriate to an initially inaccurate and unreliable information-based project design. The reorientation was rooted on a baseline allowing to divert more funds from rehabilitation to major water systems construction; the digital database setup and a new focus on communication of good-practices.

### **Financial and technical sustainability (private sector)**

The water supply systems are financially viable as private sector only deals with operation & maintenance. On this regard, earnings have been positive since the beginning of operation this year. Both operators are technically competent in this very specific sector with relevant technical expertise although to a less extent on systems' management. The challenges for the near future are to clarify definition of roles and responsibilities between State and operators; an appropriate contract duration allowing sufficient duration for private companies to get their investment back as well as allowing a sufficient system's lot size per concession (economies of scale).

### **Impact on PRONASAR 2017-30**

The project has influenced the new PRONASAR through its digital database which contributed to more informed decision-making and became now a country-wide priority as well as through its new technology adapted to remote areas where salty groundwater is the unique available source. In fact, desalination became part of the technologies that this sector strategy now foresees.

### **Execution outside PRONASAR common fund**

Taking into consideration the current macro-economic/political situation in Mozambique, recently classified by the World Bank as country in "fragile situation" the execution outside the common fund was very adequate. It ensured time-bounded decision process resulting in achieved expected delivery with the forecasted investment that otherwise would have been harder to achieve.

### **IGBE funding**

IGBE contributed not only to scale up the use of desalination (increasing coverage) to make it financially viable for a private operator to manage it.

### 3 Recommendations

- **Extend project Technical Assistance** for at least 6 months to allow consolidation of the project achievements (it should include the design of the O&M contracts monitoring and the technological toolboxes for water systems).
- **Extend the database system** to other provinces to allow informed decision making at national level (and update of the actual database on due time).
- **Consolidate O&M contracts** models, define monitoring, refine indicators, establish common benchmarks for all operators and explore the possibility of providing the private sector water systems operators with long term contracts (10 years or more) to allow room for reinvestments and have time to recover the costs, hence make profits.
- **Expand water distribution network** including domestic connections to avoid misunderstanding of clients around volume of used water versus sharing of invoice payment that threatens long term financial sustainability of the water systems.
- **Extend PEC** duration and content for at least 3 months after construction to allow more clients mobilization around new connections and unit costs of water.
- **Share good practices** by the taskforce on solar desalination water systems (“elaboration of technologic chart or toolbox”) to sustain the process and mobilise more investments to the country.

### 4 Lessons learned

- **Pilot desalination deject reuse:** the desalination deject is an environmental hazard for both the soil and the groundwater and will become a constraint as the country builds more desalination plants in future. Solutions should be piloted for the reject reuse/recycling such as using the waste from the desalination for fish farming of red tilapia (*Oreochromis sp*) and water of the tanks used to irrigate (*Atriplex nummularia*) land, which in turn feeds livestock (with protein of up to 24%, like alfalfa, one of the best forages for livestock).
- **Centralized sanitation:** the same approach the project used, to move beyond the handpump to water systems, should be used for sanitation: go beyond the latrine. Around the world there are multiple examples of decentralized wastewater treatment systems, e.g. constructed wetlands; membrane biological reactors; anaerobic digestion systems.
- **Governance:** governance, institutional strengthening are very important topics for any project of this size that involves public administration. It would be more recommendable in future interventions to foster synergies with other projects.
- **Productive water:** in semi-arid regions, where livestock units are higher than the human population and where it constitutes the main source of income for the population, it is very important to find solutions for livestock pressure on water to avoid compromising water human access.
- **Water and food security:** there's a clear relationship between water and food security. But it is only one factor among many others. The project took adequate decision on reinforcing its focus on water supply for human consumption (with undirect benefits on food security). In any other intervention if the subject is to be addressed the all picture should be taken in account so that unmet expectations are not created.
- **Logical framework:** it is mandatory to design a logical framework based on a relevant Theory of Change with specific, measurable, achievable, realistic and time-bound indicators. It is important to have baseline measure and to make a feasibility study to allow appropriate technical solutions' choice.
- **Gender & Environment:** they are cross-cutting to every intervention. They should be taken into consideration at all stages of the project, namely considering women and men specific needs – monitoring results with disaggregated gender data and environmental impacts (example: pilot a solution for the desalination waste).