

TITLE **Integrated Aqua-Agriculture using Brackish groundwater in Egypt**

Project leader: Andries Kamstra (IMARES)

Requested budget:

Countries: Egypt

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1 Motivation and project aims

1.1 Knowledge requirements for the target group

- Egypt has a strong need for knowledge to develop aquaculture and agriculture methods which use less water and can handle brackish water, preferably in an integrated way
- Viable business cases need to be identified and tested for integrated systems
- These integrated systems must be able to operate in vulnerable and precious ecosystems.

1.2 Definition of the problem

Egypt has become one of the world-leaders in fish farming but relies to a large extent on freshwater from the Nile. Agriculture is in general one of the largest users of freshwater in Egypt and needs to cope with water scarcity and salinisation. However, the desert holds large quantities of brackish water which could be an interesting alternative source of water. The fragile environment of the desert and the limited availability of this water necessitates re-use of water and nutrients. Integration of Aquaculture and Agriculture was shown to be an interesting business proposal in a pre-feasibility study of DLG/Alterra/IMARES in spring 2013. However, there are still many questions to be solved using research input from both fields.

1.3 Aim(s) of the project

- The overall aim of this project is to develop an extensive (4 M€) proposal for "Sustainable Water Fund (FDW)" or "Facility for Sustainable Entrepreneurship and Food Security (FDOV)"

Sub aims are:

- To find private parties both on the Dutch and Egyptian side willing to participate in the project
- To identify and describe the role of the Egyptian government in the project
- To design a pilot system for IAA and develop a monitoring system for a new project and existing activities in the field of IAA
- To identify and describe field research on aquaculture and agriculture needed to develop IAA and to develop cooperation with Egyptian research parties to execute this research
- To develop an outline of a bio-economic model for IAA which can be used in design and assessment of the many options
- To develop a strategy for dissemination of results which targets viable business cases
- To develop a management structure for the project

1.4 Target groups:

The proposal will be submitted at "Sustainable Water Fund (FDW)" or "Facility for Sustainable Entrepreneurship and Food Security (FDOV)" which are managed by RvO. The final target groups of the full proposal are the Egyptian government and the private sector in both The Netherlands and Egypt.

1.5 Economic context:

Egypt needs to decrease the use of freshwater for aquaculture and agriculture which are both important economic players. Aquaculture has grown tremendously during the last decade and Egypt is a world-player in this field. Large pockets of (brackish) groundwater are available in the Oases in the Western Desert between the Nile and Libya. These groundwater reserves are unpolluted by human activities which will make it easier to fulfill export certification requirements.

1.6 Economic Opportunities:

Egypt has large reservoirs of brackish water in the desert which could be used for aquaculture and agriculture. Integration of Aqua and Agri could maximise utilisation of water and nutrients and results in a 'license to produce' for fish farmers. Dutch companies are already active in Egypt and can play an important role in the development of business cases. The business model developed in Egypt can be used as a template in other arid regions.

1.7 Economic Threats:

Integrated Aquaculture-Agriculture has to compete with the traditional production systems and that can prove to be a challenge in some markets and for some products.

1.8 Desired expertise dlo:

Expertise is needed on a wide field from intensive aquaculture systems to agriculture systems using precision agriculture and irrigation techniques. Biological, technical and socio-economic aspects need to be covered in this study.

1.9 Expected results:

The expected result of the SMP will be a full-scale project on Integrated Aquaculture-Agriculture using brackish water. The expertise developed in the full project both serves the Water and Agri-Food cluster and can be a show-case for worldwide application.

2 Work plan

2.1 Approach and time schedule

-April 2014

A consortium from WUR consisting of Alterra, PRI, CDI, LEI, Alterra and IMARES will develop an outline of a project proposal which will cover all the aims mentioned under 1.3. Persons within the organisations will be targeted for input of relevant expertise. On the private side 4 companies have already indicated at this stage to be interested in this proposal. On the Egyptian side, partners from the government, the industry and research will be approached for a contribution to the project proposal. The potential stakeholders on the Egyptian side have already been identified in a mission in early March.

The project outline will be discussed with private parties in The Netherlands on a personal basis. Based on the interest and possible contributions of Dutch private parties the project will be further refined.

-May 2014

A mission to Egypt will finalise the discussion with the Egyptian partners and will start contractual arrangements with relevant parties. Administrative and legal matters will be handled in this period. At the end of the month the proposal will be ready. Part of June will be utilised to solve any remaining financial or technical matters.

2.2 Outputs

-Full proposal for "Sustainable Water Fund (FDW)" or "Facility for Sustainable Entrepreneurship and Food Security (FDOV)" in June 2014

2.3 Dissemination to target groups

Development of this proposal requires intensive discussion with all stakeholders in both Egypt and The Netherlands. The full proposal will contain a dedicated workpackage on targeting dissemination.

3 Project organisation

3.1 Project team (Wageningen UR)

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3.2 Involved parties (besides Wageningen UR)

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3.3 Monitoring and evaluation

The Top sector Water and Agri-Food will be briefed on the proposal.



5 Summary

The objective of this project is to develop a full proposal for "Fonds Duurzaam Water". The target of the proposal is the development of Integrated Aquaculture-Agriculture using brackish water in Egypt.

6 Project keywords:

Egypt, Integration Aquaculture-Agriculture, brackish water