

Rainwater Harvesting, Floods and Sustainable Development in Dry Areas

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Research Summary

From my reading along with researches focusing on the northwest coast of Egypt I enjoyed This research dealt with the subject of sustainable agricultural development in the northwest coast of Egypt with the aim of presenting a developmental model that can be extended in different areas that depend on rain water for agricultural development according to the concept of sustainable management of available resources (water - land - plant - human).

So, I pleased to summaries some of its main ideas here in this article.

The Kasabah/Bagoush Basin was selected as one of the areas that rely on limited amounts of rainfall and requires economic returns for the beneficiaries of this basin. The main objective of this study is the integrated and sustainable management of natural resources to meet the growing demand for these resources and achieve agricultural, economic and social development in the region. To achieve the objectives, the focus was on how to utilize the flood water and rain through the implementation of appropriate water harvesting technologies, without prejudice to the environmental balance and the specificity of the region, and feeding the aquifers and reducing water erosion and conservation of water and soil by adopting the concept of water basin and its composition and components and its importance in sustainable development. The actual participatory approach methodology has been applied and relying on modern technologies such as hydrological modeling, geographic information systems, processing and analysis of the collected climatic and water data and maps on the study area. Engineering studies in addition to field visits and surveys.

Agriculture in the study area, valley development, is mainly based on rain and depends on water harvesting. In this applied research project, water harvesting and land-use technologies in rainfed agriculture in Al-Kasaba/Bajoush Basin were investigated and the development of water resources through the implementation of water harvesting facilities and floods (barrier dams in the valleys streams) and the improvement of pastures in the areas identified through the implementation of terraces. Or terraces in the plateau were reached the following main results:

- The average rainfall in Matrouh is estimated at 140 mm/year. By bridges or dams, loops in front of dams can receive the equivalent of 500 - 600 mm/year, which are large quantities and are very important for agricultural development and sustainable valleys.
- It has been shown how important it is to study storms and rain intensity rather than annual rates of well-designed water harvesting technologies.
- A pilot model site has been established that includes various elements of integrated development of natural resources.
- The methods used by farmers in the study area to harvest rainwater and floods, and to conserve water and soil to reduce the degradation of natural resources and face the impact of climate change are in urgent need of development, extension, support, follow-up and supervision in implementation.
- Water basin management has become an urgent necessity for rational handling and good management of natural resources.

Based on all the findings and lessons learned from the study, the application of the principles of integrated natural resources management is one of the options that may increase farmers' income and contribute to sustainable development and conservation of these resources. Emphasis should be placed on the optimal use of surface and groundwater and the implementation of wells for artificial recharge of groundwater reservoirs for optimal investment in rainwater and floods. The reliance on rainwater and floods as a single water resource in such marginal areas with dry climates and low and fluctuating rainfall that is exposed to severe climate changes alone is not enough to achieve comprehensive development that achieves an acceptable standard of living for the inhabitants of these areas. Therefore, the search for additional water resources becomes an urgent necessity. Groundwater, both fresh and semi-saline, may play an important role.

We may go in details to the methodology of the applications used in such development of water resource in the upcoming articles.



Figure

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