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Egypt: Prosperity and Demise by Water

Egypt is gaining over one million people per year, putting huge strains on its natural resources. In Egypt, less than ten percent of the land is settled, leaving most of the remaining 90% desert. This means the vast majority of the people live in the Nile Valley surrounding Cairo. Water is collected in muddy puddles from leaky pipes; some say that there is not a single drinkable drop of water in their houses.

In Egypt, managing water scarcity and adapting farming practices to reduced water supplies with improved irrigation technologies and conservation practices is very important. Only about one third of the population in Egypt has access to sanitary water. The waste water treatment plant facilities are not always maintained properly or clean to use.

As a result of this grim situation, over 17,000 children die each year because of diarrhea, farmers struggle to produce more food with less water, and Egypt becomes more and more willing to barter their goods in exchange for safe water. So what can this country, with a rich cultural history based around the Nile River do to save them from this modern day water crisis?

Life in modern Egypt is very diverse, where public and private transportation, television, American style food, sports, music, arts, cinema and theater are all signs of a healthy modern economy. However, this is just a small glimpse of the total country where only three percent of the total geographic area is populated by almost 80 million Egyptians. On the negative side, there is major overpopulation, urban housing problems, pollution and a great gap between the wealthy and the poor. Things are much worse for the rest of the country, that do not live in the major cities, with conditions resembling those in Ancient Egypt. The typical life of the fellahin, or native farmer is very similar to their ancient Egyptian or early Arab settlers ancestors. They inhabit rural villages along the Nile, living in mud brick houses or goatskin tents, and tilling the soil with the same tools of pharaonic times. These people work their small plots of land and keep livestock. The men wear a long flowing robe called a galabiyah and many women wear the veil. The women also wear silver and gold jewelry, necklaces, and bracelets on their wrists and ankles. This is not vanity, however, but the dowry a husband must pay for the right to marry her.

Along the Nile valley, modern Egypt still looks very much like its ancient past, except for the roadways running along the river and some electricity towers and lines scattered here and there. In ancient days, the papyrus plant grew abundantly along the banks of the Nile. Now it's almost extinct and grown only for the production of souvenirs for the tourism industry. The economy of modern Egypt is highly dependent on oil exports, which is its major source of foreign income together with tourism receipts and U.S. financial and military aid. It has to import most of its food, other commodities and equipment, since both its agricultural and industrial sectors are not well developed.

Egyptian farmers produce a rich variety of crops, including grains, cotton, clover, legumes, fruits and vegetables. The introduction of Cotton during the reign of Muhammad Ali was the single most important change in Egypt's modern history because of the great deal of water that is required to produce cotton, leading to a transformation in irrigation methods in Egypt. Cotton requires water in summer when the Nile water is low, and it must be harvested before the flood season. This necessitated the regulation of the Nile flow and brought about a shift from basin (flood) to perennial (roughly, on demand) irrigation. The basin irrigation method was a productive adaptation of the natural rise and fall of the river. The Egyptians constructed a network of earthen banks, some parallel to the river and some perpendicular to it, that formed basins of various sizes. Regulated sluices would direct floodwater into a basin, where it

would sit for a month or so until the soil was saturated. Then the remaining water would be drained off to a basin down-gradient or to a nearby canal and the farmers of the drained plot would plant their crops. The perennial irrigation method was much more effective and time-efficient and made Cotton production possible. The Egyptian government tried to control the price of cotton however on the world market by imposing maximums on cotton production, which has led to a steady decline in cotton production in Egypt since the early 1950's. The cotton fields have primarily been replaced with clover production which is highly encouraged by the Egyptian government.

In addition to crops, Egypt has a relatively significant stock of animals that yield meat, milk and power. The country has virtually no permanent pastureland, therefore animals are fed clover, corn, barley and wheat, competing with humans for scarce land resources. As a result of the lack of pastureland and a safe, reliable water supply year round, the livestock industry has yet to develop to its full potential leaving the modern Egyptians to import most of their meat products.

A look at modern water supply and sanitation in Egypt will be characterized by both achievements and challenges. Among the achievements are an increase of piped water supply between 1990 and 2006 from 89% to 99% in urban areas and from 39% to 82% in rural areas despite rapid population growth; the elimination of open defecation in rural areas during the same period; and in general a relatively high level of investment in infrastructure. However, many challenges remain. Only about one third of the population is connected to sanitary sewers. Partly because of low sanitation coverage about 17,000 children die each year because of diarrhea. Another challenge is low cost recovery due to water tariffs that are among the lowest in the world, requiring government subsidies to the country's 14 public water and sewer companies even for operating costs. Poor operation of facilities, such as wastewater treatment plants, is also an issue.

A quick look at the water and sanitation in a village in the Nile Delta gives a better understanding of the modern situation. The inhabitants have access to three water sources: piped water from household connections or public standpipes; shallow wells with handpumps; and canal water. Canals are used by many women for laundry and washing domestic utensils, and for cleaning vegetables and grains. Women prefer canal water to groundwater because canal water is softer and not brackish. The surroundings of standpipes are dirty and the residents do not feel responsible for maintaining them, seeing this as a responsibility of the government. Shallow wells are contaminated. There is no sewerage and no system to dispose of greywater. Household toilets are used primarily by women. Men use sanitary facilities at mosques or defecate in canals. Children defecate openly in the streets or in fields. Emptying of the toilets is done by donkey carts or trucks which empty their load in to the canals. As a result of conditions like these, infant mortality remains high despite the government's provision of water through standpipes.

Access to clean, reliable water is not only a challenge to the human beings in Egypt, but also to the agricultural way of life. A recent study shows that 86% of the water used in Egypt is for agricultural purposes, yet the country still imports the majority of its food to feed its growing population. If an infrastructure could be developed that would allow for more efficient use of water, extension and education to farmers about water usage practices, and modern farming practices could be established, the modern Egyptian farmer would not only be able to produce more food, which would release the burden of its country to import from other countries, but it could also start the movement towards responsible water usage and environmentally friendly practices in agriculture.

Once a basic infrastructure is established along the Nile valley and modern irrigation and water usage is proven effective, hopefully these practices could shift to neighboring parts of the country, and allow currently unproductive land to become productive and contribute to feeding the growing population. Simply by developing an effective infrastructure with responsible irrigation techniques could more than

double the total acreage of agriculture land in production in the country, which could drastically reduce the stress on the country to import food.

I believe that in order for this to happen, there are several basic factors that must take place, including: developing an extension and education program that will be able to educate farmers on basic irrigation practices and responsible uses of water, the development of a working infrastructure that will support not only the needs of the farmers, but also the urban areas as well, and an education system in the public schools that will educate young children about water sanitation and responsible water usage. With the implementation of these three critical elements, a complete cultural change could occur in Egypt that will not only make major improvements in modern Egypt, but will more important set Egypt up to be a cultural center of excellence in the Future like it once was in Ancient times.

Works Cited

"Egypt: Water Problems" www.globalvoicesonline.org, September 2011

"Nile Bounty Not Enough to Supply Egypt", www.ipsnews.net, September 2011

www.icid.org/v_egypt.pdf, September 2011

"Egypt's Future Depends on Agriculture and Wisdom", www.egyptianagriculture.com, September 2011

"Modern Egyptian Agriculture", www.publicbookshelf.com, September 2011

"Egypt-Agriculture; Cropping Patterns, Production and Yield", www.country-studies.com/egypt/agriculture, September 2011

"Egypt", www.state.gov, September 2011

"Agriculture and Irrigation in Egypt", www.slideshare.net/ender14/agriculture-and-irrigation-in-egypt, September 2011

http://www.iwmi.cgiar.org/assessment/files_new/synthesis/Summary_SynthesisBook.pdf, September 2011