The Aswan High Dam Case
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Section One: Saad el Aali – the Aswan High Dam

Introduction

Construction during the 1960s of the High Dam approximately 10 kilometers up the Nile from the Egyptian city of Aswan created a 500 kilometer long reservoir, with a surface area of over 5,000 square kilometers, that extended into the Sudan. Named Lake Nubia,[1] the reservoir required the relocation of 100,000 to 120,000 Nubians of whom 50,000 were in Egypt. [2] Built exclusively for Egypt's benefit, short and medium term results, including resettlement, have been largely positive at the national, regional and local levels. The International Food Policy Research Institute's Sherman Robinson considers the High Dam to have been a good investment as does Asit Biswas, President of the Third World Centre for Water Management, both of whom have been involved in recent studies of the High Dam.[3]

Due to the reservoir's large storage capacity of 130 million acre feet, which approximates the flow of the Lower Nile over a two year period, the project's three major goals of hydropower generation, flood management, and completing a shift from flood-based or basin to perennial irrigation have been realized.[4] According to financial data collected by Biswas (2002:3), the costs of the project were paid off within two years, while Shenouda estimates that increases in agricultural productivity alone paid for the financial costs of the dam within a several year period (1999: 311).[5] Even if such estimates exaggerate returns, when one adds the income from agriculture, generation of hydropower, and flood management, the financial success of the project is clear.

On the other hand, implementation was not without major disadvantages and problems. Thousands of tons of commercial fertilizer are required each year to replace the fertility of flood-derived alluvial soils. Now silt-free, water released through the turbines have caused major downstream erosion that required expensive measures to protect bridges, irrigation offtakes and other infrastructure. A majority of resettlers did face major

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[1] Formerly the portion in Egypt was called Lake Nasser and the portion in the Sudan, Lake Nubia.

[2] Some knowledgeable authors refer to 50,000 resettlers in the Sudan; others claim 70,000.

[3] With three other colleagues, Robinson's study was part of the World Bank's Study of the Multiplier Effects of Dams while Biswas and Third World Centre colleagues have been undertaking a comparative analysis of the Aswan High, Ataturk (Turkey), and Bhakra-Nangal (India) Dams.

[4] Basin irrigation was a form of flood recession agriculture whereby low-lying basins into which flood water were diverted could be cultivated once a year after flood waters receded. With perennial irrigation arable land could be cropped two to three times a year depending on crops cultivated.

[5] A consulting engineer and prominent member of ICOLD's Egyptian Branch, William K. Shenouda has written extensively on control works on the Nile, including the High Dam.

problems during physical removal and for a number of years thereafter, problems that could have been reduced with better planning. Looking to the future, the High Dam's major cost, which might eventually exceed project benefits, is the dam's contribution to increasing erosion, salinity, and pollution of the Nile Delta.

This chapter deals only with High Dam impacts on Egypt and on the 50,000 resettled Egyptian Nubians. An overview of present and future benefits and costs of the project is presented in the first section. The second section deals in more detail with the resettlement process. A detailed analysis is important because High Dam resettlement is one of the few cases where the large majority of resettlers have passed through all four resettlement stages. Some lessons from this success story are not transferable. Others have important implications for dam-induced displacement elsewhere. Two lessons learned are especially important. One emphasizes the positive role that incorporating resettlers within an irrigation project can play in helping them to become project beneficiaries. The other emphasizes the importance of allowing resettlers to pursue their own strategies for raising their living standards as opposed to requiring them to follow the strategies of government planners.

History and Hydrology

Egyptian civilization is a product of the Nile without which the entire country, aside from a narrow fringe along the Mediterranean, would be desert. Since the beginning of the 20th century, Egypt's goal has been to receive and regularize on an annual basis as much Nile water as possible. First as employee and then as consultant to the Ministry of Irrigation, H.E. Hurst studied with colleagues how to control the Nile from its source to the sea for Egypt's benefit. While some joint projects were built and others planned along the White Nile, that river controlled only 10 percent of the average flow of the Nile (Worthington 1972: 196 after H.E.Hurst et al.). Rising in Ethiopia, the Blue Nile and the Atbara contributed 68 percent and 22 percent of the flow of the Lower Nile as well as being the major sources of siltation.

Construction of the first Aswan Dam was completed in 1902 and heightened in 1913 and again in 1933. On each of those three occasions, Nubians were displaced with those who had moved to the edge of the new or expanding reservoir undergoing three separate displacements. Though further displacement was not mentioned as a reason for not constructing the Aswan High Dam, a number of Egyptian scientists were concerned about adverse environmental impacts. Once the Government of Egypt had decided to proceed with construction, however, further criticism was discouraged. Following an earlier Nile Waters Agreement in 1929, a second agreement was reached with the Sudan in 1959 setting Egypt's share of waters passing through both countries at 55.5 billion cubic meters per annum. Construction of the High Dam would allow over year storage of recorded inflows that had ranged from a high of 150 billion cubic meters to a low of 45 billion with controlled releases sufficient to meet hydropower and downstream needs. Since the 1970s Egypt has been using its entire quota.

After US and European experts declared the High Dam to be technically feasible, it was assumed that the World Bank and the West would provide the necessary funding. Before funding was provided, however, the World Bank and the West withdrew for political reasons [6] that had nothing to do with the project. The Russian Government then stepped in to provide funding and technical assistance. Construction began in 1960. Competed in 1967, the dam is a massive earth-fill structure that its builders claim contains 17 time more material than the great pyramid at Giza (Fahim 1981: 14). Five kilometers long, the dam is one kilometer wide at its base. All 12 turbines were operational in 1970. The project's ceremonial inauguration was in March 1971. What came to be considered full storage level (175 meters) was reached in 1975. Throughout the planning and construction phases the dam had the strong support of President Nasser. Just as Nehru subsequently claimed large dams are to be the temples of modern India, Nasser stated "In antiquity we built pyramids for the dead. Now we will build new pyramids for the living" (Fahim 1981, after Heikal 1973: 62).

Hydropower Generation

Installed capacity is 2,100 megawatts. The first two generators were brought on line ahead to time to offset destruction of thermal power facilities during the Arab-Israeli 1967 hostilities. By 1976, two transmission lines to Cairo, with west and east off-shoots to Alexandria and Port Said, had been completed. Based on 1974 statistics Fahim notes that the High Dam generated approximately 53 percent of Egypt's entire energy output in 1974. As more capacity was built elsewhere, the High Dam still contributed one third of total electricity generated in 1986 (White 1988: 11) and 16 percent in 1998 (Osman 1999).

In 1985, 270 megawatts of capacity was added to the original Aswan Dam's 3.5 megawatt output to make use of the regularized flow from the High Dam's turbines. Total output from the two installations was estimated in 1999 to contribute 22 percent of the output of the entire national system (Shenouda 1999: 312). In addition to providing electricity for urbanization and industrialization, electricity from the High Dam also contributed to a successful program of rural electrification with villagers turning out in droves to welcome, with dance and music, the coming of electricity to their villages.

Flood Management

Since its completion the High Dam has saved Egypt from potentially catastrophic economic losses on several occasions. Over a seven-year period from 1981 through 1987, inflow into Lake Nubia was low during an extended period of upriver drought. During 1983 inflow amounted to only 40.7 billion cubic meters that was the lowest recorded to date. In 1987 inflow again dropped below 50 billion cubic meters. Throughout that period, however, High Dam storage allowed the 55 billion cubic meters stipulated in the Nile Waters Agreement of 1959 to be released downstream annually (White 1988: 10). Good planning was also assisted by good luck. Throughout the drought years, the

[6] These are dealt with in detail in John Waterbury's 1979 *Hydropolitics in the Nile Valley.*

reservoir level had been dropping. If an abnormally low flow had also occurred in 1988, reductions in power generation and downstream irrigation would have occurred.

Just as the High Dam has protected Middle and Lower Egypt from the adverse impacts of a drought-induced water deficit, so too has it protected Egypt from floods. During 1975 the third largest flood on record was contained within the reservoir that had risen two meters above full storage level by 1977. Though I have seen no estimates on what downstream flood damage might have been without the High Dam, one can assume that it would have been considerable in Middle Egypt based on extrapolations from past floods. Aware that occurrence of such a flood when the reservoir was full would require releases of large amounts of silt-free water with scouring threatening bank stability, canal intakes, and barrages, the project authority decided in 1978 to excavate a 22 kilometer overflow canal from the reservoir into the Tushka depression to the west. Between 1988 and 2000, flood waters were diverted on three occasions (1988, 1998 and 1999), on one of which flood water within the reservoir were said to have risen six meters above full storage level. According to Shenouda, many Lower Egyptian farmers have moved to the depression to farm land that had been seasonally inundated (1999: 310).

Irrigated Agriculture

Irrigated agriculture continues to be of major importance in the lives of the people and Egypt's economy. According to Fahim, in the late 1970s, 57 percent of Egypt's population was involved in irrigated agriculture "which accounts for 31 percent of the gross national product and 50 percent of all exports" (1981: 33). Confusion exists, however, over the impact of the High Dam on irrigation. Two issues are involved. The first relates to the extent to which land reclaimed is actually irrigated. The other is the role of High Dam-supplied flows in the shift throughout Egypt from basin to perennial irrigation. Complemented by more recent sources, I have based the estimates that follow on White's 1988 assessment.

According to the 1961 census, the total irrigated area in Egypt was an estimated 6.2 million feddans.[7] Two-thirds were already under perennial irrigation and by the time the High Dam was completed all Delta lands were perennially irrigated. Shenouda's figures in 1999 are more specific with the smaller figure of 5.7 million feddans under cultivation at the time of construction, of which 973,000 feddans were still under basin irrigation. Thereafter figures vary as to how much land was under cultivation and how much of that land was reclaimed and irrigated as a result of the High Dam. Based on official figures of total agricultural land being 7.8 million feddans during the 1990s, Shenouda states that an additional 2 million feddans had been reclaimed since the High Dam's construction (1999: 309) bringing the cropped area up from less than 10 million feddans to 14 million when double and triple cropping are taken into consideration. Taken from Government sources, White's 1988 figure is that only an additional one million feddans had been reclaimed by 1982, so that Shenouda's figure of two million feddans would suggest that an additional one million had been reclaimed since 1982.

[7] One feddan equals 1.038 acres.

If Shenouda's estimate is correct, is land reclaimed actually irrigated? With potentially arable land often on higher land, and at a distance from the Nile, costs of irrigation rise significantly as elevations increase. Increased costs have been a problem in the past as well as is currently the case. In 1972 the government called a temporary halt to reclamation which had "proved to be a technically complex, time-consuming, and costly operation" (Fahim 1981: 33). As Egypt's population continued to increase dramatically, in 1977 the Government reversed itself with the Ministry of Irrigation and Land Reclamation targeting nearly 3 million feddans for reclamation in Sinai and the Western Desert. Given the past record where no more than 50 percent of more accessible reclaimed land receives irrigation and a good bit of that "is still of submarginal productivity" (*ibid*: 33), not to mention the wide range of difficulties that must be overcome anywhere in pioneering problem-prone new lands, it will be very difficult to realize even a small proportion of that target. The same applies to Egypt's still more ambitious Tushka project which is currently under construction with the strong support of President Mubarak. Rather than only using the Tushka depression for drawing off excessive floodwaters from Lake Nubia, the goal of the Tuskha project is to use water pumped from the reservoir to irrigate hundreds of thousands of feddans and to resettle in the Tushka depression two million Egyptians from the Nile Valley. Whether or not Egypt can finance such a project remains to be seen. The same applies to the willingness of Nile Valley residents to pioneer such an isolated area in the Western Desert.

Adding further complexity to further expansion of irrigation, White's figures suggest that the total area under irrigation command had actually decreased to 5.9 million feddans by the 1975 census. Reasons included urban expansion into irrigated land and destruction of older alluvial soils by brick-making kilns whose former access to newly deposited silt had ended with the completion of the High Dam. Though a somewhat higher figure was estimated in 1982, the official figure of 7.8 million feddans of agricultural land quoted by Shenouda for the 1990s appears to be inflated. The same goes for his figure of a total cropped area of 14 million feddans. Here I am influenced by the discrepancy in White's article between reclaimed land (one million feddans) and irrigated land ("at least 152,000 feddans") although White's use of the phrase "at least" is enigmatic to say the least (1988: 34). I am also influenced by the disinclination of Egyptian farmers to settle reclaimed desert land outside the Nile Valley. Robinson (personal communication) believes such hesitation to be the main reason why there is a discrepancy between land reclaimed and land irrigated.

To summarize, while significant increases in agricultural production have occurred since the early 1970s, it is difficult to assess the High Dam's role. As White points out, "Statistics on crop production have to be interpreted with an eye to weather conditions; to changes in the input of seed, labor, and fertilizers; and to the disposition of farmers to withhold food and production inputs for household or other purposes and to shift crops in response to prices" (1988:35). Another important factor affecting productivity would have been the government's country-wide program, with donor assistance, of improving drainage since the 1970s with "open main drains, and tile drainage" (Shenouda 1999: 311). The sustainability of increased yields must also be considered granted decreases in

soil fallowing due to double and triple cropping, increased intensity of farming coupled with poor water management, water logging and increased salinity. Also worrisome in a water-scarce country such as Egypt is the emphasis placed on low-value crops with a very high water demand, including sowing an additional 600,000 feddans in rice. As Robinson noted during a 2003 meeting of the World Bank task force studying the multiplier effects of large dams, the High Dam has actually increased the inefficiency of Egyptian agriculture with the availability of more water in a land-scarce country being used to grow increasing amounts of such low value crops as maize, wheat and rice.

Development of Aswan Province and Lake Nubia

1ntroduction

Unlike the other case studies in this book, little recent information was available to me on the regional development of Aswan Province and Lake Nubia. In 1963 The Government of Egypt established the Aswan Regional Planning Authority (ARPA) to plan and implement the development of Aswan Governorate following the completion of the High Dam. A research function was added in the mid-1960s based on recommendations from the United Nations Development Programme (UNDP). In collaboration with the Food and Agriculture Organization of the United Nations (FAO), UNDP was assisting several African governments to establish research organizations on new man-made lakes. In 1966 UNDP's Governing Council approved a similar request from Egypt to establish a "Lake Nasser Development Centre' which became operational in July 1968 for a six year period.

Development-relevant research activities included agriculture, fisheries, public health, settlement planning, tourism and transportation. A final report was issued in 1975 on project findings and recommendations. Subsequently a High Dam Development Authority was established to develop the lake region. Planning has continued into the present century, with socio-economic plans for the Aswan area and the reservoir being prepared with UNDP assistance during the 2000-2004 period.

Fishing

Several hundred fishers were already fishing Lake Nubia at the time that the Development Centre was established. To reduce conflicts among them, that same year the the Egyptian portion of the reservoir was divided into five sections based on fishers' areas of origin (Sørbø 1977). During the next six years numbers increased. By the end of the project fishers numbered approximately 5,000. All were Saiydis, an upper Egyptian peasant population, from two governorates with a long history of fishing immediately north of Aswan, few Nubians being fishers even in Old Nubia. Though more transport boats had been added along with refrigerated railway cars to continue to Lower Egypt, the state of the fishery remained very undeveloped with fishers living either in their boats or in temporary shelters in 150 fish camps. Estimated landings were 10,000 tons per annum. Potential of the inshore fishery at the then reservoir level of 160 meters was estimated at 12,000 tons rising to 23,000 tons at full storage level. Project

recommendations for the future included building 10 permanent villages at the best sites for agriculture, since the 60 percent of fishers who came from overcrowded farming communities stated a desire to combine agriculture and fishing. Other recommendations dealt with training for improving inshore fishing technology and training, and the building of boats suitable for expanding the fishery into open waters.

By 1977, numbers of fishers had increased to about 6,000 using about 1,500 boats. The large majority of boats were small with crews of three to five men. Landings during the previous year were estimated at 16,000 tons. 50 carrier boats operated on the reservoir to transport catches to Aswan. Marketing was a government monopoly, fishers being required to sell their catch to a government parastatal at a fixed price. The majority of the carrier boats was owned by another parastatal, with a few others owned by the Fishers Cooperative Society. Not only did none have freezers, transport service continued to be uncoordinated and unreliable with considerable wastage even when fish were dried in the hot desert sun due to irregular supplies of salt. By 1989, Lassailly-Jacob reports that three carrier boats with freezers were now operational on the southern portion of Lake Nubia. Fishers were organized into four cooperatives including at the upper end a "powerful Nubian fishing cooperative" (1990: 22). Based on past history, and a similar pattern reported for other Nubian boat owners (FAO 1973), I would suspect that the boats are owned by Nubians but that the fishing is done by non-Nubian contract labor.

Agriculture and Settlement

Under the UNDP/FAO project, a 60 feddan research station was built near Abu Simbel and several kilometers inland from the reservoir to experiment with different crops in the reservoir drawdown and inland areas. Results suggested that it might even be possible to restore the lucrative cultivation of date palms that provided the principal cash crop before the construction of the original Aswan Dam. Between 1968 and 1974 extensive soil surveys were carried out by government staff using project-supplied aerial photography. Though requiring use of fertilizers, large areas – especially around reservoir inlets -- were identified with agricultural potential. Including areas requiring lift irrigation up to 30 meters above full storage level, it was estimated that 10 percent could be added to Egypt's total arable land.

Below full storage level, approximately 200,000 feddans could be cultivated during the winter months in short maturing crops "using mainly subsoil moisture" though supplementary irrigation would increase reliability of yields (UNDP/FAO 1975: 14). The most economic crops to grow without irrigation would be fodder crops and vegetables along with a wide variety of fruit trees along the reservoir margin. Further inland in the Tushka depression 500,000 feddans were identified for pump irrigation. Granted the escalating costs of pump irrigation at higher elevations and the extensive reservoir drawdown during drought years, I suspect these figures are a significant over-estimate. Nonetheless, the potential appears to be considerable. In response a majority of Saiidi fishers from overcrowded rural communities have stated a desire to farm such lands with their families if government facilitated their settlement in viable communities in terms of housing, social services and transport.

Responding to the desire of some Nubians to re-colonize their former homeland, in 1977 Egypt's President Sadat approved their return to the shores of Lake Nubia and provided financial assistance. By 1980, several small Nubian communities of pioneers had been established using the drawdown area and pumping water from the reservoir on to the foreshore. The largest population consisted of 25 families living in a community that the government helped to build approximately 25 kilometers from Abu Simbel (Fernea and Rouchdy 1991). Across the reservoir and near the Sudan border another community had been established which included about 20 men practicing pump irrigation in the early 1980s.

During the 1980s the drawdown of the reservoir under extreme drought conditions greatly increased the difficulties of the pioneers. A small community of Kunuzi-speaking Nubians on the edge of the reservoir above Aswan failed when government-supplied wells were unable to provide potable water. As the numbers of pioneers dropped at the other settlements, discussions in Kom Ombo, Cairo and elsewhere about a return to Old Nubia declined (*ibid*).

After 1988 reservoir levels again began to rise, with full storage levels again reached during the 1990s. In 1989 the World Food Programme (WFP) agreed to launch a joint program with the High Dam Lake Development Authority whereby WFP would provide food for work to reclaim land along the lake shore for agriculture as well as for the eventual construction of 33,000 houses (Poeschke 1996:149). By the mid-1990s, 10,000 feddans had been reclaimed in three upper reservoir areas that Nubians had first attempted to pioneer in the late 1970s. Nubians, however, are only one of the people involved; others included non-Nubian fisher/farmers from Upper Egypt as well as Beja pastoralists from the eastern desert and the Red Sea coast who have begun to graze and water their stock around the edges of the reservoir. Whether or not the Nubians, as the former residents of the area, will be able to compete successfully against these other pioneers remains to be seen.

Tourism

Adding Lake Nubia to tourist destinations around Aswan has considerable potential, especially during the winter months. Already the rebuilt Abu Simbel temple complex is a major tourist attraction by both boat and plane. In 1989 the Government began cooperating with UNESCO in making other archaeological sites available to local and international tourists. During the salvage operations of the 1960s these had been grouped in three locations, the first being close to the western end of the dam and the other two – also on the west bank - approximately 100 and 200 kilometers up the reservoir from Aswan. The first site is already accessible as the other two will be once connecting roads are built from the now tarred Aswan - Abu Simbel highway. As for the town of Abu Simbel, by the mid 1990s it had a total population of approximately 5,000 people.

Other Benefits

Another frequently mentioned benefit following High Dam construction is improved downriver navigation. According to White, "In most years there are no longer interruptions of freight movements because of low or high flows. Maximum fluctuation in water level decreased from 9 to 3 meters" (1988:11). Shenouda attributes improved drainage to reduced flooding (1999: 311), although that benefit is countered in irrigated areas by continued over-use of High Dam supplied water. Less frequently mentioned is the training that thousands of Egyptians received during the construction of the High Dam as well as the national pride associated with the dam's completion and the development that followed.

Environmental Impacts

There is a tendency for Egyptian commentators to under-emphasize ongoing environmental impacts. Most serious is delta erosion that no longer is offset by the annual passage through Egypt of 60 to 180 million tons of silt at least half of which would have reached the delta. In his contribution on the Aswan High Dam to the papers published after the 1999 Annual Meeting of the International Commission on Large Dams, Shenouda's two paragraphs on this topic belittles its importance. Intimating that the Mediterranean's rising water level is more a threat than the High Dam, he ends his discussion by stating that formation of a Shore Protection Authority which has implemented some projects can "overcome the problems of shore erosion (*op.cit*: 217).

Stanley and Warne present a very different picture in a 1993 article in *Science* in which they interpret the delta's geological history over the past 35,000 years. Because of the very serious implications of their analysis for agriculture and the Egyptian economy, I have quoted them extensively. The initial abstract states "Few countries in the world are as dependent on water from a single source as Egypt. The natural Nile cycle of flow and sediment discharge has been disrupted by human intervention, including closure of the Aswan High Dam; this intervention has resulted in a series of responses that now threaten the northern Nile delta. Erosion, salinization and pollution are inducing a marked decline in agricultural productivity and loss of land and coastal lagoons at a time when the population is expanding exponentially" (626). Quoting from the text, "Currently, wide spread coastal erosion results because negligible sediment load reaches the coast and delta sediment is being removed by marine waves and currents. Hence, the Nile is no longer an active delta but, rather, a completely wave dominated coastal plain…The River Nile system has been so modified that nearly all water is diverted,…and no fresh water reaches the sea" (626).

Like Shenouda, the authors also implicate rising sea level as a coastal erosion, ground water salinization, and sea water encroachment threat along with land subsidence. They further state "Because the delta constitutes two-thirds of Egypt's habitable land, any loss of the northern delta plain by coastal erosion, salt water incursion, and pollution is critical" (626). In assessing the implications of the author's concern it is important to

keep in mind the low land gradient in the delta which Dubowski states is 0.03-1 meter per kilometer (1997:3) Concluding their analysis, the authors state "Ongoing natural factors have and will induce substantial changes in the Nile delta. Human intervention, however, has caused northern Egypt to cease as a balanced delta system……We can envision reversal of declining conditions by implementation of measures such as emplacement of coastal protection structures on the Scale of Netherlands' Great Delta Works…, strict regulation of the limited Nile water supply, increased ground-water exploitation along the delta margins, and construction of artificial wetlands and treatment facilities for recycling wastewater. At current levels of population growth, however, these measures will be inadequate" (634).

Shenouda's analysis of the High Dam being implicated in the northern expansion of malaria is another example of a tendency to downplay environmental impacts. In his 1999 article he states that "not one single case was reported from the area along Lake Nubia' (page 317). Yet according to the 1975 UNDP/FAO Final Report on their involvement in the Lake Nubia Development Centre "at present there is a low incidence of malaria in Aswan and among the fishermen" (xii). Furthermore "there will be an increased danger of infection from the Sudan…as population grows around the lake and particularly as lake transport increases" (20).

The situation with schistosomiasis (bilharzia) is more complicated. While Shenouda states that conditions in Lake Nubia prevent the existence of the intermediate snail hosts, the UNDP/FAO report states that the snail vectors "were found in all parts of the lake"(19-20), while a 1971 survey reported a prevalence rate of about 63 percent among fishers (Farid 1975: 98). On the other hand, the fears of Van der Schalie that the construction of the High Dam and Egypt's increased perennial irrigation could lead to "a probably increase in schistosomiasis" (1975: 131) have not been realized. The threat was there, but the use of a wide range of control measures since the 1980s have caused a significant decline in the prevalence of both urinary and intestinal bilharzia (Jobin 1999), with Biswas mentioning national prevalence dropping to 10.7 percent by in 1991 (Biswas 2002:5). That may be an over-optimistic assessment, however, granted a shift in prevalence since the 1960s from urinary bilharzia to the more serious intestinal form of the disease which Jobin believes "is clearly related to the increased intensity of irrigation in the delta, made possible by the completion of " the High Dam (*op.cit*: 298).

Neglected until the late 1970s was the problem of water quality including an increased salt burden due to evaporation from Lake Nubia (estimated at about 11 percent annually) and increased irrigation. In Upper Egypt White notes, on average, a two meter rise in the water table. 16 years later, in 2001, the director of antiquities at Luxor is concerned that the year around presence of a higher and more saline water table threatens the temple at Karnak (IRN-safrica website July 12, 2001). White also refers to water logging in Lower Egypt in one area receiving High Dam water and an increased salt burden in the delta (*op.cit*: 35) where only reduced flows now reach the Mediterranean. Though waterlogging and salinity are longstanding problems in Egypt, rising aquifers of saline water are a problem throughout Egypt's irrigated and adjacent areas in spite of an active program of drainage.

One environmental impact that was anticipated, with corrective measures implemented, was increased downstream scouring by silt-free flows. Following studies of bed level drops, existing barrages, canal intakes and other structures were reinforced. Completely ignored, however, was the impact of the High Dam on the hundreds of brick-making factories that lined the Nile. Deprived of the tens of thousands of tons of silt that they had received annually during the Nile flood, they started using the older alluvium of otherwise arable land. According to White, brick making took out of agricultural production up to 120 square kilometers annually, with an estimated 1,000 square kilometers destroyed by 1984 when the government prohibited, "with only modest success," further excavation (pp 34 and 11). Though the adverse impact of the High Dam on the Mediterranean sardine fishery adjacent to the delta was anticipated,[8] the assumption, subsequently shown to be correct, that Lake Nubia's increased productivity would offset that loss did not take into consideration that very different fishing communities were involved. Fishers who colonized Lake Nubia came from Upper Egypt. Though they were drawn by the reservoir's fishery potential, they were also pushed by the declining productivity of the Nile below the High Dam which was another adverse impact that had not been assessed – a rarely compensated cost that continues to deprive fishing communities elsewhere in the world following dam construction.

Section Two: Resettlement

Introduction

Split between Egypt and the Sudan, 100,000 to 120,000 Nubians required resettlement. Each population requested resettlement as a unit so as to maintain their cultural integrity. The majority of those in Egypt were resettled three to ten kilometers from the Nile near Kom Ombo 45 kilometers downstream from Aswan. There planners reclaimed older Nile alluvia to establish New Nubia in a crescent 60 kilometers long and on average 3 kilometers wide. Housing and facilities were built for 47 village units whose relationship to each other approximated that in Old Nubia. To support the population, reclamation began on 21,000 feddans (18,000 feddans were eventually reclaimed) that would be irrigated by three main canals into which water would be pumped from the Nile. Sixty percent of the land was to be cropped in sugar cane the harvest of which would double the intake of a nearby sugar refinery.

The resettlers new neighbors would be Saiydis as well as Nubians who had resettled in the area following the construction and subsequent heightenings of the original Aswan Dam. Though the first ten years were very difficult, with a high death rate among children and the elderly during year one, today the majority of Nubian resettlers have passed through all four stages of the resettlement process. Granted the relatively small number of such cases, the Egyptian Nubian case warrants careful analysis to see what lessons learned may be transferable to future projects.

[8] For reasons not entirely clear, sardine landings – though still well below those in pre-High Dam years - have increased in recent years.

Unlike the situation in Egypt, 50,000 to 70,000 Sudanese Nubians were moved approximately 700 kilometers south to the semi-arid Butana plain near the town of Khashm el-Girba several hundred kilometers up the Atbara River from its junction with the Nile. There the resettlers would have to get used to a climate with a regular rainy season as opposed to their previous desert habitat in which virtually no rain fell. They would also have to deal with new diseases such as endemic malaria and a host population that included no Nubians. There too the government developed a still larger irrigation project, called the New Halfa Agricultural Development Scheme, that would draw water from a dam build on the Atbara River. Also shaped somewhat like a crescent, the project area runs parallel to the Atbara for about 100 kilometers with a width varying between 20 and 35 kilometers. 447,000 feddans were developed during five phases between 1964 and 1969. 330,000 were divided into 22,000 fifteen feddan tenancies on which resettlers would be expected to grow cotton, grains, and other crops. 41,000 feddans were reserved for a sugar estate, 24,000 for freehold land, 2,500 for forestry, and 1,000 for a research station. 29,500 were reserved for New Halfa town, roads, and infrastructure with 41,000 kept in reserve.

In the upper portion of the inhabited area, the Nubians were resettled in 25 planned villages that, as in Egypt, included schools, medical facilities and other services including piped water and some electrification. Their neighbors were the pastoral Shukriya that the government also intended to incorporate within the project. They lived in the settlement's lower portion in over 50 unplanned communities with few social services (Salem-Murdock 1989).

The sections that follow concentrate on Egyptian Nubian resettlement. As in the Kariba case and the cases that follow, I have emphasized those aspects of the Nubian experience and Nubian culture that are especially relevant for explaining what may well be the most successful case of large dam resettlement to date. Throughout their known history, Egyptian Nubians have had to cope with a very narrow resource base along the edge of the Nile between the first cataract at Aswan and the Sudan border. They have done so in a number of ways including irrigated agriculture, circulatory labor migration to urban centers which may date back to Pharaonic times, permanent emigration to urban areas, and seeking after education. Currently devout Muslims, the Nubians have also been influenced by invaders moving back and forth through the Nile corridor between the Middle East and Africa and by successive incorporation within Pharaonic, Greco-Roman, Christian and Islamic civilizations. During the 20th century, those living closest to Aswan have endured successive resettlements due to the construction and heightening of the original Aswan Dam. If Moran (1989) and Eder (1982) are correct that experience is a major asset for people pioneering new lands, then the Nubians would rank high as a people who should be able to adapt to the stresses of dam-induced resettlement. Fernea makes an analogous point:

"The persistence of the Nubian enclave in the Nile Valley is in some respects even more remarkable than the survival of the famous Pharaonic temples of this region. For, unlike these great monuments, the people of Nubia have not endured through centuries of splendid isolation, but, on the contrary, have time and again met social and

natural threats to their continued existence with remarkable vitality and flexibility. In fact, though it seems paradoxical, the survival of this ethnic group seems in large part due to its partial assimilation" (1966:3).

Egyptian and Sudanese Nubia before the High Dam

In both Egypt and the Sudan, Nubians lived between the first and fifth cataracts in portions of the Nile Valley where flood water and other types of irrigation were largely restricted to a narrow fringe of alluvial deposits continually at risk from desert encroachment. The densest rural population lived in the southern most portion of Nubia in the Dongola region where there were more extensive flood plains. The largest town was Wadi Halfa, a Nubian-dominated border community just inside the Sudan and the southern terminus of the twice weekly post boat from Aswan.

In January, 1962, I sailed 320 kilometers up the Nile from Aswan to the Sudanese border in a felucca (a traditional Egyptian sailing boat) with three colleagues from the Social Research Center (SRC) at the American University at Cairo. Our job was to census geographically dispersed villages along the way from which sociologist Peter Geiser would draw a sample of labor migrants for study in Cairo and I could draw a sample for a subsequent ecological survey of Old Nubia prior to resettlement. Anthropologist Abdel Hamid El Zein and I returned in June with our own boat to complete that survey. Concentrating on eight villages that had been carefully selected to reflect labor migration rates for absentee adult males that ranged between 50 and 100 percent, again we traveled from Aswan to the Sudanese border and back.

Egyptian Nubia at that time was a starkly beautiful environment. On both sides desert sands, interspersed with rocky hills, came down to the water's edge. 553 sparsely populated communities (*nagas)* along the way belonged to three distinct ethnic groups, two of which spoke Nubian dialects. Total resident population was 43,671 according to the 1960 census. First came the Kenuzi-speaking Nubians whose villages extended for approximately 150 kilometers upriver from Aswan. 36 percent of the total population, they had been most seriously affected by the Aswan Dam. Closer to Aswan, a few villages had already relocated three times, moving to the reservoir's edge with each enlargement. All of their date palms had been destroyed and most of the year all of their agricultural land was inundated. Cultivation was restricted to only a few months each year when the reservoir was drawn down. Then only quick maturing fodder crops for the few cows, donkeys and small stock that village women kept, and vegetables, could be grown. Due to outmigration of men, their sex ratio of about 50 males to 100 females was the most unbalanced -- the overall ratio for Nubia was 62.

In some areas huge sand dunes literally encroached into the reservoir. Because of lack of income earning opportunities, labor migration rates among men may well have been the highest in the world. In all four of our Kenuzi-speaking Nubian villages not a single male over the age of 13 was resident. One village close to the Aswan Dam was completely deserted with sand gradually filling courtyards and houses. There, as with households in other villages, the villagers may have moved as a whole to build a new village, and

pioneer new land, downstream from Aswan. One such village, containing Nubians from a number of upstream communities who had moved after the second heightening, was also studied during SRC's Nubian project in order to see how Nubians had adjusted to dam-induced resettlement in the past.

Immediately upriver from the last Kenuzi village was a small population (10 percent of the total in 1960) of Arabic- speakers whose villages edged the reservoir for the next 40 kilometers. They will not be further dealt with in this analysis. The final 130 kilometers were inhabited by the Mahasi-speaking Nubians who constituted 54 percent of the total population. As we traveled closer to the Sudanese border, the reservoir narrowed so that the last Nubian neighborhood of Adindan came closest to showing us the type of economy and livelihood that must have existed before the construction of the Aswan Dam. Four livelihood zones were easily identified. Along the edge of the Nile was a thick belt of date palms that were the major cash crop. Interspersed were cattle-operated Persian water-wheels or *sakia* that lifted Nile water several meters into irrigation canals that traversed the second cultivation zone. Two annual crops were grown there, the dominant cereals being wheat in the winter months and sorghum and millet in the summer. A large island in mid-stream was also cultivated. The third zone was a narrow zone of indigenous vegetation, including a distinctive species of acacia, used for building purposes. Behind that, on rocky, uncultivable land was the village. As in other Nubian communities, houses of the more successful families were substantial with large courtyards.

Not only was the creaking of water-wheels throughout the daylight hours, and at night in the more distant past, a characteristic sound, but such water-wheels were the key to the livelihood of each Adindan community. Two years later Zein presented a paper on the "Socio-economic implications of the water-wheel in Adindan, Nubia" at the American University in Cairo's January 1964 Symposium on Contemporary Egyptian Nubia. Adindan's inhabitants, he wrote "are proud of the fact that throughout all Nubia they still have the largest number of water-wheels, thirty-three in the village proper and six on the island… Cultivation in Adindan depends on the water-wheels, the use of which is affected by the depth of the water in the river. This in turn, is affected by the opening and closing of the reservoir at Aswan in summer and winter, and by the water that comes from the south during the flood season. When the Aswan dam closes during the accumulation period (from November to July), the water in the Nile rises and the water-wheels work easily. At that time the people of Adindan do their winter cultivation…This, their major cultivation effort, provides a major share of their food for an eight month period…The land of the water-wheel …is divided into 24 equal parts [which are divided among landowners]…. The ownership of the water-wheel is connected with the ownership of the land, because every share owner of the land must help build the water-wheel and also donate one of its parts… [T]he water-wheel system permeates all aspects of social and economic life…The water-wheel has helped create a method of partnership in the ownership of cows used to run the machine, and a useful system of land division, both of which strengthen the relationship of the various houses within families" (1966: 298-321).

Very different from Adindan was Ballana – the next neighborhood downstream and occupying the western rather than the eastern bank of the Nile. Its resident population of 5,300 was over twice that of Adindan. The major reason for this difference was the presence of one of four government-sponsored projects in which floating pumps lifted water for the perennial irrigation of about 2,200 feddans of reclaimed land that was too high for water-wheel cultivation. Of approximately 15,000 feddans of cultivated land in Nubia prior to resettlement, approximately 12,000 feddans were on the four projects. About one-third of the remainder was in Adindan that illustrate how little cultivated land was still available for the large majority of villages.

Because of Ballana's pump project, another significant difference between the two neighborhoods was the lower incidence of male labor migrancy, the sex ratio in Adindan being 55 males to 100 females versus 84 males to 100 females in Ballana. Historical sources note that Nubian labor migration extends centuries back in time. While construction of the Aswan Dam increased rates through the inundation of arable land, it did not initiate labor migration; indeed, if anything, the dam improved agricultural conditions in Adindan by heightening water levels during much of the year. But even then, available land resources were insufficient to support an increasing population during the 20th century and presumably at other times in the past.

Another important difference between Adindan and Ballana was Ballana's larger (299 versus 7) population of Sayiidis. Zein attributes this difference to the pump project, noting that it "attracted a great number of Upper Egyptians to Ballana, who cultivate the land for Nubian owners, who in turn take a portion of the harvest as rent. … Furthermore … about one third of the agricultural workers of Ballana are Upper Egyptians, while in Adindan there are no Upper Egyptians at all working in agriculture" (*op.cit*: 298-299). In their study of a Nubian community that resettled near Kom Ombo following the 1933 Aswan Dam heightening, Kennedy and Fahim noted a similar Nubian preference for Sayiidis rather than themselves to cultivate irrigation project lands: "Even if the High Dam were to make water available for the irrigation of their long-dormant fields, our informants admitted that they would rather hire Sa'idis to do the farm labor" (Kennedy 1977: 59).

In addition to having a very high labor migration rate in response to an inadequate resource base, the Nubian population in both Egypt and the Sudan has also been involved in the permanent migration of whole families to Cairo, Alexandria and Khartoum as well as other cities in both countries. By the 1960s, they were the first population in Africa in which it had been documented that over 50 percent of the population had become urban residents (Geiser 1986). As in rural areas, they avoided unskilled manual labor. In cities they preferred positions for the more educated in clerical jobs and for others as door men, waiters and cooks for upper-class families, and for restaurants and other businesses and embassies. In the 1970s I found a Nubian working in Pasadena, California's up-grade Huntington Hotel, while Fahim and Helmer studied Nubians working at a number of Arab embassies in London. Nubians also had a high regard for education, with the Nubian population in the Sudan reputed to be the most educated ethnic group.

In cities club formation played a major role in facilitating "the partial assimilation" to which Fernea referred earlier. Dating back to the 1920s or 1930s, Nubian urban clubs have played a major role in easing Nubian migrants into Egyptian society while maintaining close contact with Nubia.[9] Initially they acted primarily as welfare societies for dealing with illness and death, and as means for finding employment for new migrants. They were also educational centers where teachers were hired to help migrants and their children with their Arabic and the keeping of accounts. By the 1940s some had formed food cooperatives for provisioning home neighborhoods in Nubia and building elementary schools there. By the time of resettlement, there were more than forty such clubs in Aswan, Cairo, and Alexandria. Drawing their members from specific Nubian neighborhoods, some owned coffee shops and other commercial businesses. By then support was provided for Nubian painting, poetry, music and dance, with a group of young men performing at clubs and at weddings. Clubs also had political functions that included organizing workshops and conferences to discuss Nubian problems.

Also important in providing background material of probable relevance to successful Nubian adjustment to dam-induced resettlement is the history of the lower reaches of the Nile Valley. A sense of history is tremendous. During our travels in the early 1960s, archaeologists and classical historians were at work attempting to record and salvage what they could before the completion of the High Dam. The culture historian Bruce Trigger groups the complex cultures of Nubia into "three sequences or traditions" (1966:24).The first extends from pre-dynastic times to Egypt's Old Kingdom, while the second falls between the Old and New Kingdoms. The third sequence begins during the Greco-Roman period and extends until Christianity in Nubia was replaced by Islam between the 9th century and 1500.

The first evidence of Nubian-speakers is not until the third sequence during which they appear to have arrived over a number of years perhaps from Kordofan and Darfur in the central and western Sudan. After their arrival Trigger believes Nubian-speaking kings based at Ballana integrated the population into a uniform culture. At the same time, Christianity was making converts in the area, with the first Nubian king converted in 541 A.D. Thereafter Christianity became the dominant religion until replaced by Islam no later than the sixteenth century.

At the time of our research in the early 1960s, the Nubians were practicing Muslims but with a very strong sense of their cultural and historical identity. Mosques and tombs of important religious leaders (sheiks' tombs) were a dominant architectural feature between the first and fifth cataracts, while twice as many Nubians now lived in Cairo and other Egyptian cities than in Egyptian Nubia. Bearing in mind Fernea's comments about partial assimilation, why were Nubians not totally assimilated? Along with their vitality and flexibility, a number of customs were of great symbolic importance. Referred to as "symbolic property" (Fernea and Rouchdy 1987: 371), Mahasi-speakers valued elaborate, lengthy and highly ritualized weddings and mourning rites, while Kenuzi-speakers held

[9] This section on clubs is based primarily on Fernea and Fernea, 1991: 169-174 and Fernea and Rouchdy, 1986: 383.

elaborate saint's day ceremonies at a large number of shrines. Ethnic endogamy continued whereby Nubians took spouses from within their own larger community to the extent that even today there continue to be few marriages between Kenuzi and Mahasi Nubians.

Another important characteristic for maintaining continuity, until recently, was the preference of Nubian men that women not accompany them to the cities. Rather they remained in female-dominated Nubian villages in which children were born and socialized within an exclusively Nubian context. This included learning a Nubian dialect as a first language since few women spoke Arabic. Though Muslims, women also practiced a form of folk Islam. Rituals associated with the Nile, for example, had Pharaonic components as did decorations that women painted on the interior and exterior walls of their houses. Finally, Nubians felt just as superior to other Egyptians as those Egyptians felt to them. Their "high self-esteem derived from well-deserved reputations among the foreigners and high-status Egyptians for whom they worked and … a strong sense of identity with their own communities, a sense of importance in their own land…It would be difficult to over-estimate the symbolic importance of Old Nubia" (Fernea and Rouchdy 1987: 370).

Stage 1: Planning Resettlement [10]

Government Planning

Though implementation suffered seriously because of inadequate capacity, resettlement planning was well done according to today's standards with one major exception. Aside from the design of housing and choice of resettlement location, Nubians were not directly involved in policy making and planning which was exclusively a national and provincial government responsibility.[11] As emphasized throughout the final report of the World Commission on Dams, participation is important for many reasons. In addition to equity considerations, it gives resettlers a greater sense of ownership as well as responsibility for the resettlement process. Also, as Fahim has emphasized, participation also reduces the risk of resettlers becoming dependent on those who require their involuntary removal.

Unlike most dam-induced displacement to date, the government wanted the Nubians to be better off following removal as well as more integrated within Egyptian society. Plans included both compensation and development. Development would include both arable land and non-farm employment opportunities. Hence the five-year development plan for Aswan Province included five factories to be built in Kom Ombo. The resettlement

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[10] This section draws heavily on Hussein Fahim's University of California, Berkeley PhD dissertation 1968, and on Salah El-Abd 1979.

[11] According to Fahim, Nubian voices were "always heard, but seldom taken account of except in cases where it was possible to accommodate Nubian desires easily within the general framework of the plan…[I]t is a fair statement to say that although there was no consistent or actual participation of Nubians in plan formulation, there was consultation and communication between them and the policy makers" (1968: 49-50).

budget was 33 million Egyptian pounds [12] or approximately 8 percent of total project costs. £E15 million were for permanent housing, social services and infrastructure. Housing would be provided in two phases, starting with those resettlers with houses in Old Nubia. Subsequently houses would be built for urban migrants who were not resident in Nubia but wished to move to Kom Ombo.[13] Housing would include 920 units for government staff and service workers. Infrastructure included paved roads for linking neighborhoods within the Kom Ombo crescent and to the main neighboring towns that were linked to Cairo and Aswan by air, rail and regular bus service.

£E9 million were for land reclamation for irrigated agriculture. According to the plan, families that had a house in Nubia at the time of the 1960 census would receive, based on family size, the 2 to 5 feddans of irrigated land allowable under the 1952 Agrarian Reform Act. There was one major exception, however, that left approximately 40 percent of the displaced families with no land (Fahim 1983: 74). That included all households with access to less than one feddan of arable land in Old Nubia. They received only cash compensation. The government explained this serious inequity as due to the lack of available land in Kom Ombo.[14] Also required under the 1952 Act, every landowner was expected to join a government- controlled producers and marketing cooperative. And it was expected that every landowner would actually farm the land received.

The remaining nine million pounds included equal amounts for compensation, before- and after-move subsidies, and expenses for those planning and implementing resettlement. Compensation was based on a survey of land resources including date palms and housing. Half was to be paid in cash with the remainder to cover the costs of resettlement housing and land reclamation. Should housing and reclamation costs exceed the estimated amount, the remainder was to be paid over a 40-year period with a moratorium in repayment until the first crop was harvested. Until that time each family would receive a subsidy to cover living expenses. As for the timing of the resettlement plan, it had two phases. The first was to resettle approximately 50,000 people currently living within the future inundation zone. The second, still under way in 1990 (Lassailly-Jacob 1990), was to house those members of the urban Nubian diaspora who wished to rejoin the Nubian community in Kom Ombo.

A year after work began on preparatory infrastructure for the dam's construction phase, the Government launched surveys in 1956-57 of the future reservoir's perimeter and of the number and location of Nubian communities. A major conclusion was that it would no longer be possible for resettlers to move their villages inland to the edge of the new reservoir as they had done in the past. In 1958 the High Dam Service Committee led a government effort to identify possible resettlement sites and to commence developing a

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[12] In the later 1960s one Egyptian pound equaled $2.32.

[13] While 96 percent of phase one houses had been provided by the mid-1970s, only 2 percent of phase 2 houses had been built (Fahim 1974). Lassailly-Jacob found phase 2 construction on-going in 1989.

[14] It was seen as especially discriminatory by those involved because landless families received up to 2 feddans or irrigable land.

resettlement policy. Due to lack of relevant data on the existing Nubian population, the Ministry of Social Affairs was requested to complete a detailed social survey. In addition to necessary demographic and socio-economic information, the survey included questions on Nubian preferences among possible resettlement sites as well as among compensation and development policies. While the large majority preferred to move to the government's preferred area near Kom Ombo, most in one neighborhood preferred to move to Esna further downstream to join relatives who had resettled there after the second heightening of the Aswan Dam in 1933. The government accommodated that move, building 563 houses for two villages and reclaiming 9,000 feddans there as opposed to only 18,000 for Kom Ombo's much larger population.

During January – February 1960, sixty social workers working with 165 Nubian teachers from local schools completed the social survey. It covered 6, 066 families in 535 communities that were clustered in 36 neighborhoods (*nahia).* Also in January both President Nasser and Vice President Shafi came to Nubia to address the resettling population. In his speech President Nasser emphasized two fundamental policies of his revolutionary government. One included the provision of free education and medical care; the other emphasized "social solidarity in terms of lessening the segmentation of the society" (Fahim 1968: 48). Noting that the Nubians were giving up their homeland "for the prosperity of the Republic," the Vice-President emphasized that the Republic would "welcome them in one of its new districts in Kom Ombo. There they will find stability, prosperity, and a decent life." During a later visit, the Minister of Social Affairs stated that "we appreciate Nubian traditions and respect their spiritual and moral values. We want you to preserve and maintain them in your future life" (Quoted by Fahim n.d.: 62). At the same time they stressed a common heritage as Egyptians and Muslims, reminding Nubians of the "Islamic appeal that favours migration for a better life" (Fahim n.d.: 65). Such personal attention from high government authorities continues to be an uncommon feature of dam-induced resettlement.

Also in 1960 an Investigation of Nubian Demands committee was formed that was chaired by the Governor of Aswan Province. As the title suggests, its task was to "help settle Nubian problems and to forward Nubian ideas to policy makers. The committee held monthly meetings with Nubian delegates until the time of departure for the new lands" (Salah El-Abd 1979: 100). That same year the Ministry of Culture provided a boat to allow 20 artists and writers to travel through the area to record whatever appealed to them, with their impressions widely circulated. A photographic survey was carried out of Nubian artistry and architecture. Later in 1963 a new social survey of Old Nubia was completed. Based on more up-to-date information, each resettler was then provided with an identification card that Fahim refers to as their "passport from the old to the new site" (Fahim 1968:62).

Another 1960 initiative was a government request to the Social Research Center to carry out an ethnographic survey. With Ford Foundation-funding, what became known as the Nubian Ethnographic Survey began in 1961 under the direction of Robert Fernea. Six expatriate social scientists were eventually recruited to work with trained SRC Egyptian and Nubian fieldworkers. In addition to ongoing meetings with relevant government

officials, including the Under Secretary of the Ministry of Social Affairs, preliminary results were presented in a series of papers at a two-day workshop held in Aswan in January 1964. That was halfway through the physical removal of the people to Kom Ombo. While the survey was initiated with the understanding that the policy relevance of information gathered would be available for planning purposes, there existed the type of tension between administrators and researchers that continues to be all too common throughout the world. The main problem was a tendency of administrators to interpret the comments and suggestions of researchers as a criticism of their work.[15] I suspect that response was partially because the research was initiated late in the planning process so that research-derived suggestions were made at a time when previously made plans were already being implemented; hence the likelihood of tension if suggestions differed from those plans. The obvious solution is to integrate policy-relevant research into the planning process at an earlier date.

Overall responsibility for resettlement planning and implementation fell under the Governor of Aswan Province. That "made the Nubian project an integral part of the decentralized program of economic development of Aswan Province" (Fahim 1968: 44). Planning and implementation, however, were the task of central government departments through the Joint Committee for Nubian Migration that was set-up in 1961 with the Undersecretary of the Ministry of Social Affairs as chair.

In planning the layout of villages and neighborhoods, government followed Nubian desires that neighborhoods be aligned to each other as they had been in Nubia. The only exception was where three small neighborhoods were aggregated within others. The final 33 neighborhoods (*nahia)* retained their names, with Adindan, for example, becoming New Adindan. In most neighborhoods, a mosque and a guesthouse were provided. Also provided were 19 elementary schools, one boarding secondary school, three technical boarding schools, and a vocational training school for teachers. 11 health units and clinics were also provided as well as a 140-bed hospital that eventually had 19 doctors. That was located in the administrative center named Nasr City that also had a central police station, a central fire station, and a central postal facility. In addition to four outlying fire stations, police stations and postal facilities with telegraph and telephone service, 18 sports grounds, 17 bakeries and 17 cooperative-associated stores were provided. Markets numbered 21 of which three contained 13 stores, 14 had seven stores, and 11 three stores.

While some Nubian suggestions resulted in minor modification of the housing that government intended to provide, the layout of that housing completely ignored extended family and wider kinship organization. To reduce costs and ease of construction, the government clustered houses in rows based solely on family size. As a result a family requiring four rooms would find itself separated from a widowed mother who had lived

[15] Fahim refers to such reactions during the three day January 1964 symposium which he believes affected administrator/researcher relationships thereafter: "since then, administrators have looked at field ethnographers as trouble-makers and disliked seeing them in the resettlement area" (1968: 47). Throughout the Ethnographic Survey, however, Fernea submitted to the Ministry of Social Affairs a series of relevant reports. Though never acted upon one dealt with the important topic of "The Use of Pilot Communities as an Approach to Nubian Resettlement" (1962).

nearby in Old Nubia but now would be allocated a single room house in a more distant row. Houses, as well as courtyards, also tended to be smaller than in Nubia. Their common side walls were lower, further reducing the sense of privacy that was so important to Nubians. Furthermore, the 553 formerly separate communities were now jammed together in 43 Kom Ombo villages that presumably also had privacy implications. And surely obvious to their occupants, the new housing had not been designed to accommodate population increase, a problem that presumably has sped up the Nubian propensity to migrate to Cairo, Alexandria, and other urban centers.

Nubian Reactions

Unique, I believe, among those required to move involuntarily because of dams, the majority of the Nubian population could see benefits as well as costs associated with resettlement. Ironically, the reason in good part was due to previous Nubian removals in connection with the construction and heightening of the original Aswan Dam. Unlike the Gwembe Tonga, the Nubians not only knew what resettlement would involve, but were aware of how the majority's movement to the edge of a growing reservoir had increased their isolation and reduced their further integration into the political economy of Egypt. When informed about what would be a fourth removal for those living closest to Aswan, Kenuzi reactions were ambivalent.

On the one hand, they continued to have a deep attraction to Nubia like other Nubians. As characterized by Fernea and Kennedy, Nubians "had always stated that their native land was 'blessed.' They considered the climate, land and water superior to that found anywhere else in the Nile valley, and they believed their communities, which were relatively free of outside influence, to have the highest standards of peacefulness, cleanliness, honesty, and personal security in Egypt. On the other hand, they were well aware of the material and social disadvantages associated with their isolation, and they resented their inability to participate fully in the revolutionary changes taking place elsewhere in Egypt" (1966: 349). Yet they were also concerned about security issues, especially relating to women, which they associated with the unfamiliar host population of Sayiidis that would surround them in Kom Ombo.

They also knew that their terribly inadequate natural resource base and lack of employment opportunities split families, as the large majority of men sought outside employment while wives and children remained in Nubia. Seldom seeing their husbands, the majority of women, though filled with anxiety about moving to Kom Ombo, favored resettlement there in hopes that their husbands could rejoin them by finding local employment. Even if such employment was not available, distances between family members would be decreased and ease of travel increased. Young men also tended to favor removal, while the Nubian elite saw it as an opportunity to have a greater impact on, and be impacted by, Egyptian society as well as better integrated within the community of Islam. Least willing to move were those whose livelihood would be most affected by relocation. That included those who made and owned the sailing boats that traveled up and down the Nile between Aswan and the Sudan border and the merchants who used them to provision the villages along the way. It also included those involved in

lucrative international smuggling activities. And it included elderly widows and divorcees who had seldom left Nubia.

Attitudes toward removal varied according to distance from Aswan. Being the most disadvantaged by previous removals, the Kenuzi Nubians were more in favor of removal than the Mahasi Nubians, especially those in the least affected neighborhoods closest to the Sudan border. In the mid-1950s they rejected as not true the first rumors that the construction of a High Dam would inundate all of Egyptian Nubia. When substantiated in 1958, Fahim noted that "the saying, 'Sad Yami Kharaba Yami,' i.e., the construction of the dam means the destruction of Nubia, was often heard" (1968: 68). At that time "uncertainty, grief and depression" began (n.d.: 60).

Preparing themselves for the move, Nubians took advantage of the scarcity of wood throughout Egypt to sell what trees there were as well as their wooden doors, window frames, and roofing. As the date of removal grew closer, they also stopped cultivation, selling the wooden parts of the water-wheel. Some also sold their domestic stock, while merchants ceased provisioning communities. Those activities led to inadequate food supplies in neighborhoods where resettlement dates were postponed. As a result, people were more malnourished than they would have otherwise been and more susceptible to disease when finally shifted to a far more densely settled Kom Ombo. Also in anticipation of resettlement urban Nubians contributed to food inadequacies when they returned to help with the evacuation, visit shrines, or to "have a last look at their homeland and to visit the cemetery to express respect and loyalty to their dead relatives and friends" (Fahim 1968: 64). In response, the government tried to prohibit their departure from Aswan to Old Nubia that further increased Nubian suspicion toward Egyptian government policies and officials.

Stage 2: Physical Removal, Multidimensional Stress and Initial Adaptation

Physical Removal

While the timing of physical removal in connection with dam construction should always be synchronized with the construction timetable, the priority given to completion of physical infrastructure often provides insufficient time for resettlement purposes. In the Aswan High Dam case, everyone had to be moved before June 1964 that was the expected date for completing the initial construction stage after which water would rise several meters above previous high levels. Though the government had assured Nubians of a smooth resettlement process, the implementation of physical removal was sufficiently defective to cause unnecessary suffering. The movement of the first few communities was carried out with precision and considerable fanfare; thereafter confusion and stress increased significantly. Several reasons were involved. At the time of removal, less than ten percent of the land being reclaimed at Kom Ombo was ready for cultivation. In rushing to complete housing on a tight schedule, contractors ran short of materials. Others did shoddy work, with subsidence of poorly laid foundations causing large wall and roof cracks. Some resettlers even arrived to find no houses ready for them.

The influx of 50,000 people over an eight month period from 18 October, 1963 to 22 June, 1964, plus urban relatives who returned to help or to advance their own case for housing, led to a serious food shortage which in turn contributed to malnutrition and a higher death rate. As was the case at Kariba and is a predictable problem with many resettlement projects, movement of Nubian livestock was poorly planned with the result that many died during the first year because of inadequate fodder.

First to be moved on October 18 were 1223 members of 501 families from a neighborhood 25 kilometers upriver from Aswan. On arrival by boat at Aswan they were met by the Minister of Social Affairs, other officials, and the public. They were greeted with flags and music "to symbolize the gratitude of the whole nation to the Nubians for their sacrifice" (Fahim 1968: 71). Preceded by a cavalcade of official vehicles, they then were transported to Kom Ombo by bus, with their introduction to their new community and new houses supervised by the Minister. Several days later they were visited by the Prime Minister who was en route to Aswan to receive another group of resettlers.

As more and more Nubians arrived during the days and months that followed, the logistics required for effective physical removal through Aswan and into Kom Ombo broke down. On April 10, 1964 John Kennedy observed at Aswan that:

"The unloading of the Nubians was a scene of great confusion. The young relatives from Aswan, Cairo and Alexandria were trying to help the old men, disabled people and small children. The weather was very hot and there was not much help of any kind…Goats were breaking lose and running all around with people chasing them." At Kom Ombo, "There were two or three social workers moving in and out among the people trying to give assistance and help them find their houses. All the furniture had been piled in a huge heap. In front of the village everyone was trying to find his belongings. Many of the beds were broken and cracked. Truck drivers just dumped them and left…Every one was expressing his dismay at the state of things"

Under such circumstances, it was understandable that resettlers organized, with the help of well-placed urban relatives, to send complaints to high officials in the central government, some of which noted the contrast between the initial removals and subsequent ones. Cause for complaints increased as resettlers found arable land still to be reclaimed. Women were particularly critical of housing. Unlike the situation at Kariba, government provision of what were in effect housing estates kept people from resettling with relatives and former neighbors. Now people occupying co-joining row houses were strangers, hence increasing insecurity – an insecurity that was heightened by the smaller size of houses and the low walls between adjoining houses. Strangeness was increased by features with which Nubians were unaccustomed, such as in-house quarters for livestock as opposed to their being outside as was the case in Old Nubia. Being smaller, crowding inside houses also increased rising from 0.7 per room in Old Nubia to 1.6 (Fahim 1974).

Customary foods such as vegetables, cheese and other dairy products, and meat were in short supply and what foods were available sold at inflated prices due to the sudden increase of 50,000 people with cash from compensation as well as exploitation by the host population in surrounding communities. While groceries sold from the government

cooperative stores were more reasonably priced, they consisted primarily of canned goods and other food stuffs with which Nubians were unfamiliar. And, as opposed to the use of credit that had prevailed for purchases in Old Nubia, payment was required in cash.

Especially serious was the situation for livestock. Fearing the introduction of disease from Old Nubia and the Sudan and aware that initially there would be inadequate fodder in New Nubia, project authorities requested Nubians to sell their livestock, with the promise that they subsequently would be replaced with new stock A reasonable suggestion, it was rejected because it did not take into consideration Nubian experience with unfulfilled government promises during past resettlements. The compromise that followed was to quarantine livestock in Aswan. Though some Nubians bypassed that requirement by smuggling their animals into Kom Ombo, the result was the same – livestock, including 3000 cattle from quarantine, eventually arrived with little available to feed them. The result was that "they died in great numbers day after day" (Fahim 1968: 76).

The Multidimensional Stress of Resettlement

Though thousands of Nubians may have looked forward to resettlement unlike the situation in connection with resettlement elsewhere, the resettlement process was still stressful with physiological, psychological and socio-cultural components.

In spite of improved medical facilities, there is strong evidence that death rates among the old and children increased significantly during the first year following removal. Nubians who had formerly lived in isolated communities of several hundred people, now found themselves in one large resettlement zone of over 50,000 people. "Communicable diseases such as dysentery, measles, and a form of encephalitis quickly spread in the suddenly condensed population. These conditions, aggravated by the high summer temperatures typical of the region, caused a rapid rise in mortality, especially among the very young and the very old" (Fernea and Kennedy 1966: 350). As is so common, and ironic, with dam resettlement worldwide, "some areas had initial difficulties with water supplies" (*op. cit*.). Maintenance of the 200 communal taps also proved a problem.

A contributing factor, according to doctors to whom Fahim talked, was the resettlement-induced under-nutrition which occurred prior to removal and the malnutrition which followed due to the inadequate food supply available in Kom Ombo. "Resistance to infectious diseases was described as very low, especially among infants and elderly people. Official vital statistics show a high rise in the crude death rate among the relocates during the year following relocation; from 13.6 in 1963…to 23.6 in 1965 (the year following the completion of relocation)" (1979: 82). Though death rates had dropped to nearly 17 by the mid-1970s, they were still significantly higher than elsewhere in Egypt.

In regard to psychological stress, Fahim states "the insufficiency and inadequacy of food over a long period created a state of anxiety among the relocates due to the uncertainty of

life prospects in the relocation area" (1979: 82). That was further aggravated, he believes, by Nubian grieving over the loss of Old Nubia (Fried 1963). Referring to the initial 18 October, 1963 move, he wrote in an earlier source "Just before boarding the boats, women went sadly and silently to visit their dead. They sprayed the graves with water, which to them symbolized mercy and blessing. Visits were also paid to the [community] shrine to express devotion and ask its blessing. Observers of the move were touched by the sad expressions and tear-filled eyes of the Nubians at the time of departure. Some were kissing the land, others were crying at the walls of their deserted homes, and some were filling their pockets or small bags with soil. In the boats Nubians sat is deep silence staring at the disappearing village which they had left forever" (Fahim 1968: 70). Following arrival "A feeling of insecurity and mistrust prevailed…doors were closed and people approached the strange neighbors cautiously …Many Nubians lived in great fear of the non-Nubian groups living near their new villages. They were also suspicious of the Nubians next to them" (1968: 78). So fearful were Nubians of others that youth patrols were mounted during the first few months to keep outsiders away from Nubian communities (Fahim n.d.: 112).

Fahim's writing contains information that also indicated the existence of sociocultural stress. Many saw the housing provided as a "cultural threat," one informant telling Fahim "if we want to maintain our customs, we must maintain our architecture" (n.d.: 78). Some, he notes, were so disturbed that they accused their own leaders of cooperating with government officials in ways that were contrary to Nubian interests. Others were inclined to blame their misfortune on the anger of deceased religious leaders about whom they dreamed or claimed to have seen and whose shrines they had left behind: "As a way out of that stress and frustration, rumors of possible return to old Nubia rapidly became widespread" (1968: 79).

Considerable cultural loss also occurred. Because most of the Kom Ombo resettlement area was located several kilometers inland, Nile rituals of previous importance to women were dropped. The same was the case with psycho-dramas for dealing with mental illness and insecurity – again, as with the Gwembe Tonga – of importance to women. Rebuilding of shrines for revered religious leaders was either delayed or omitted entirely. Saint's day celebrations were reduced in number. Among Mahasi Nubians, wedding were simplified and reduced from 3-4 days to one day. Also simplified, mourning ceremonies were reduced from 15 to three days. Among Kenuzi Nubians, the length of ceremonies for saints was cut back sharply. Lasting at least seven days in Old Nubia, in Kom Ombo the trend was for them to last only a day (Fernea and Kennedy 1966: 325).

Coping with Adversity

As with the Gwembe Tonga, Nubians attempted to cling to the familiar during the first year following removal. Women took the initiative to remodel their housing; in the words of one "to change the government house to a Nubian home" (quoted by Fahim n.d.: 79). By his 1970 survey, Fahim noted that "the facade of houses in most of the villages (88%), had been plastered, painted and decorated" (April 1971:13). Customary low benches were also made outside, being important in Old Nubia as a place for people to congregate and visit. Inside houses walls were decorated, while tiles were laid over sand floors.

Livestock quarters were moved outside – often, because of space constrictions, to the middle of what were supposed to be streets. To help provide leafy vegetables women placed alluvium on courtyard sands that they irrigated – much to the annoyance of the government authorities -- from communal taps. Rather than use bread from the government's 17 bakeries they used wheat flour provided through food aid for making bread in customary ovens that they re-built in former livestock quarters that had been remodeled into kitchens.

Nubians who had hoped to remain with, or rejoin, families in Kom Ombo followed age old patterns by seeking work in cities as migrant laborers due to the inadequacies in the government's land reclamation program and the scarcity of off-farm employment. That necessity has continued to the present. While the responsibility of the Ministry of Land Reform, less than one third of the promised land had been reclaimed prior to the formation in 1966 of the Egyptian Authority for the Utilization and Development of Reclaimed Land (EAUDRL). EAUDRL had been established to reclaim land whose irrigation would be enhanced following completion of the High Dam. Of plans for the reclamation of 76,000 feddans in Upper Egypt, 29,000 were designated for Nubian resettlers in Kom Ombo and Esna.

While becoming operational, by 1969 EAUDRL had only added several hundred feddans to the 5,863 feddans reclaimed by the Ministry of Land Reform. The total increased to 15,477 feddans by the mid-1970s and was distributed to approximately 60 percent of resettling families. Averaging 1.7 feddans, not only were holdings small in comparison to the 2-5 feddans promised each household, but they were divided into at least two parts. One, on better soils, was relatively close to the owner's village; the other was at a distance of several kilometers. 60 percent of such holdings were to be cropped in sugar cane while families could utilize the remainder as they wished.

Nubians who received such land varied as to how they used it. Mahasi-speaking Nubians, who had been able to continue farming in Old Nubia after the heightening of the original Aswan Dam, were more apt to farm it themselves, or allow its cultivation on a sharecropping basis with other Nubians. Kenuz-speaking Nubians, like those who had resettled below Aswan in 1933, tended to enter into share-cropping relationships with Saiydis. In all cases, Nubians prevailed against attempts by the authorities to require them to cultivate the land like peasants elsewhere in Egypt. Nubians saw it as their prerogative as to what decisions they made for cultivating their land. The government requirement was seen as "an imposition and an inappropriate intervention into their personal business" (Fahim January 1972:7).

Government Reactions to Inadequate Implementation

Having not anticipated the serious food shortages that arose, the government negotiated with the UN's Food and Agriculture Organization for food relief that began in January 1965 and continued for 18 months. In addition to wheat flour and other food stuffs, FAO provided corn and fodder sufficient to feed 6,000 livestock and 8,000 chickens. After a gap of three years, the government then arranged for the World Food Programme (WFP)

to provide food relief in 1970 for another five years. That relief, however, was only available for those managing reclaimed land, presumably as an inducement not just to cultivate it but to increase its productivity.

Though critical of the Government's failure to arrange for food relief to be available before removal, Fahim argues convincingly that its subsequent provision increased Nubian dependence on project authorities; a dependence that initially arose because of the government's inability to make good on its initial resettlement promises and plans. In addition to improving Government's plan implementation capacities, he also theorizes that increased Nubian participation in policy formation, planning, and plan implementation would also have reduced what he refers to as a "dependency syndrome." His arguments make sense. Though project authorities with resettlement responsibilities have time and again criticized what the Lesotho Highlands Water Authority currently calls a "complaints and dependency culture" of resettlers, that is a "blaming the victim" stance – the ultimate cause being failure of the authorities to plan and implement with resettlers participation a credible resettlement with development plan.

Stage 3: Economic and Community Development

Though Stage 2 continued for up to ten years because of inadequate implementation of a commendable but non-participatory development plan, it is not easy to pinpoint a specific time for the commencement of Stage 3. Fernea and Kennedy report that after only one year observers noticed "a dramatic change in New Nubia. There is a new air of optimism" (1966: 351).That would have been no later than 1965. Those observers noticed, for example, the extent to which Nubian women had remodeled their government-provided houses. On the other hand, Fahim notes that Nubians were no longer remodeling and decorating their houses in the 1970s. Indeed, deterioration had set in, in part he believes because the government had yet to turn over home ownership to the resettlers. He also reports a continuation of what he has labeled "resettlement sickness" whereby Nubians continue to associate New Nubia with "illness" and Old Nubia with "health" (1979:87).

By 1970, however, Fahim also reports a major change, stating that "from our frequent visits to new Nubia one feels and sees, indeed, a great transformation not only in the physical scene but also in Nubian achievements and aspirations" (1974: 17). By then, he reports that those seeking wage labor now prefer white collar jobs in Aswan Province as opposed to Cairo and Alexandria so as to be nearer their families. While labor migrants continue to circulate between lower Egypt and Kom Ombo, others have left Cairo and Alexandria for jobs in Aswan and neighboring towns. On balance a greater proportion of men are living in Kom Ombo than was the case in Old Nubia, sex ratios having increased from 62 in 1960 to an estimated 78 in 1971 (Fahim 1971:12).[16] He also reports that "Nubians at the present time have shown relatively more positive response toward the state-managed land cultivation" (1974: 52).

[16] Sex ratios still vary greatly between Mahas where they range from 80 to 100 and Kenuz where the proportion of males to l00 females ranges between 30 and 50 in 1976 (Fernea and Rouchdy 1987: 381).

While women were still reported as being stressed in the mid-1970s, at the time of Fernea and Rouchdy's brief visit in January, 1986, they no longer appeared fearful. By then they reported a narrowing of the sex gap, with women, for the first time in the authors' experience, taking part in conversations in a less reserved fashion. Traveling to markets to make purchases, visiting relatives and friends, and interacting with Sayiidis (several hundred of whom were now living in Kom Ombo) appeared to be a familiar practice (1986: 374). Girls attended schools in almost equal proportions to boys, while women were taking jobs in offices and shops for the first time. For that reason, and perhaps also because 52 percent of land holdings were in women's names (since husbands were absent as labor migrants during the 1960 and 1963 censuses), I also have the impression that the economic status of women had risen appreciably. In 1978, female university graduates formed their own club in Cairo that began playing a similar role as male clubs in fostering community development in Kom Ombo as well as return migration to the shores of Lake Nubia which had been sanctioned in 1977 by President Sadat. [17]

Stage 3-type community formation was apparent in a number of ways. In the Mahasi-speaking area, Nubians worked together to build their first youth club in 1970 while the Kenuz build a high school that same year to serve their entire population. Also helping Nubians to cope with the resettlement process, "(g)radually, the music of tradition and nostalgia, sung with enthusiasm by a new generation, helped to re-establish the sense of pride in and the consciousness of being Nubian" (Fernea and Fernea 1991: 172). Such a cultural revival played a role in the establishment of two new clubs that united, for the first time, both Kenuzi- and Mahasi-speakers. Performing to a widening audience, the artists contributed their fees to a resettlement fund for assisting the elderly and the disadvantaged.

More indicative still, though remaining in a competitive relationship that could cause fission in the future, Kenuz, Arab, and Mahas communities had come to realize the importance of working together to meet common goals. By the mid 1970s they had initiated a project to fund higher education for students on the understanding that recipients would return to work in Kom Ombo. They were also beginning to dominate the political economy of Aswan Province, controlling 26,000 of 57,000 votes in their electoral district. Voting as a block, they were electing Nubian representatives and looking forward to the day when the Governor would be a Nubian. Pioneering their importance as voters in the area and setting an example for Sayiidi neighbors, Nubian women cast twice as many votes in the 1976 election as their men folk (Fahim ms. n.d.: 111; Fernea and Rouchdy 1987: 384). In terms of the economy of Aswan Province,

[17] Though Fahim used talk of returning to Old Nubia in the 1970s as a possible indicator of continued stress, Fernea and Rouchdy noticed less discussion on that issue in the early and mid-1980s. By then, a major drawdown of the reservoir during a succession of drought years had made irrigation-based pioneering more difficult with the result that several attempts to start new communities had failed. Regardless of whether or not recent rises in water level have significantly affected new colonization attempts, Nubians want very much to be active players in any future development of the Lake Nubia area – as they should be since the reservoir covers their former homeland.

Fernea and Rouchdy believed that they were "well on the way toward dominating white collar employment in the area (1987: 380).

Visiting Nubia over a two-month period in 1989, Lassailly-Jacob reported that Nubians in one neighborhood had successfully integrated farming the reclaimed land into a diversified household production system that was closer to practices in Old Nubia. Though only 18 farmers were interviewed, the emphasis now was on livestock management with animals reared for sale and fed with homegrown fodder crops. Because of land scarcity, her informants had been given three plots of land – two in the Kom Ombo area and one thirty kilometers away. All had leased out the distant plot to Sayiidis. As land values had risen, they had shortened the leasing period from up to seven years to a single year and had increased the leasing price. Leasing was also used wherever the government-required sugar cane was cultivated as well as for the cash cropping of vegetables. Where share-cropping occurred, that was usually with another Nubian, both of whom might then hire laborers. As Nubians had insisted to Fahim in the 1970s, they continued to believe that they could make more money combining such a system with urban employment than working full time in agriculture (Fahim 1983: 82). Among her informants, Lassailly-Jacob reported a relatively high living standard. 16 of the 18 had running potable water in their houses, a radio-cassette player, butagaz, a refrigerator and a washing machine. 14 had a television and nine a telephone (1990:20). Elsewhere in the community most Nubians also had running water inside their houses. Besides the gardens cultivated for family use "there are often large sun-dried mud brick enclosures that house the livestock" (*ibid*: 13).

Stage 4: Handing over and Incorporation

Handing over to a second generation of Nubians born in Kom Ombo and their successful incorporation within both nation and region have now occurred. Because the Government used a committee structure to plan and implement resettlement that involved existing government ministries and the provincial government, handing over was easier than where a specialized resettlement agency or project authority was involved. As for Nubian participation in events of relevance to their future that was apparent in the extent to which they were coming not just to dominate the political economy of the encompassing region, but also their becoming players in planning the future of the Lake Nubia area.

While assimilation into a broader Egyptian and Islamic society continued, Nubians continued to maintain their cultural distinctiveness. As Egyptians, children were encouraged to learn Arabic that older women were increasingly speaking. Women also were praying five times daily which had not been the case in Old Nubia. The presence of a TV in practically every Nubian house (Fernea and Rouchdy 1987: 377), brought them Egyptian and international news, soap operas and fads.

Their pride in Nubian history and culture, however, continues; indeed the Ferneas and Rouchdy believe that "the Nubians in Egypt have become an even stronger ethnic group than they were before resettlement" (1991: 184). In noting the same point, Poeschke explains increasing Nubian emphasis on their common ethnicity as a response to their

being victimized by external events over which they had no control (1996). Be as that may, Nubian culture continues to evolve as Nubian dance, song and theatricals are adapted to changing sex stereotypes (women can now be seen dancing with men) and performances for non-Nubian audiences that include other Egyptians as well as tourists. The building of a museum of Nubian civilization in Aswan can be expected to broaden further the awareness of Nubians and other alike of Nubian culture and history.

Conclusions and Major Lessons Learned

1. Dam-induced Resettlement by Definition is Involuntary

In recent years, some critics of resettlement outcomes have expressed the hope that resettlement could be made voluntary for the majority if sufficient development opportunities were available. The most credible exponent of this view is Robert Goodland who was the most senior environmentalist at the World Bank until his recent retirement and a strong critic of current World Bank resettlement guidelines.

Though Goodland and I agree on most issues, we disagree on this. In all cases with which I am familiar, a majority of resettlers moved only because they were so required. Nubian resettlement in connection with the High Dam is an interesting case study of this issue. While it is true that a majority of Egyptian Nubians may have accepted resettlement as a means for improving their livelihoods, opposition to removal increased significantly the further one traveled upstream. In Egypt those most opposed where Mahasi-speakers who lived close to the Sudan border and whose economy has been least affected by the original Aswan Dam. Opposition to removal was even greater in the Sudan. Economically and politically in a stronger position than was the case with Egyptian Nubians, they "perceived the resettlement as a much greater setback" (Poeschke 1996: 40). Their opposition grew when they realized that the Government had pre-selected the Khashm el-Girba resettlement site without their concurrence. The government's reaction was to imprison the opposition's Nubian leaders.

Though Kenuzi-speakers living closest to the dam site realized that relocation would improve a resource base impoverished by up to three previous resettlements, they nonetheless resented once again being victimized for the benefit of others. And they shared the myth analysed by Peter Geiser (1973) that their current reliance on labor migration outside of Nubia was entirely a result of the construction and heightening of the Aswan Dam. Such opposition to resettlement at the hands of others makes sense for there is no quarantee that project authorities have the capacity and the political will to implement, over an extended time period, the necessary plans. Even if they do, the resource base may be insufficient. That was the case at Kom Ombo with the result that the thousands of families with less than one feddan in Old Nubia received only cash compensation.

2. The History, Culture and Experience of Resettlers Influence Outcomes

It is hard to imagine a population more prepared for coping with involuntary resettlement than the Egyptian and Sudanese Nubians. For nearly two thousand years, and perhaps longer, they had been incorporated within a succession of high civilizations. At the time of removal they were members of a great world religion. Of obvious importance, as Fernea notes, at the time of removal Egyptian Nubians already were partially assimilated into national society while maintaining at the same time their own cultural superiority. Also important, practically all men through labor migration had experience with the urban centers and national culture of the respective countries in which they were resettled. A significant number of Nubian women were also familiar with the major urban centers having visited husbands and other relatives there. And, of course, Nubians were familiar with what involuntary resettlement entailed.

On the other hand, such characteristics do not ensure successful outcomes. Though members of the most educated and experienced minority in the Sudan, Sudanese Nubian resettlers today are worse off than Egyptian Nubians. Severe economic downturn in the national economy is not the only reason. As Poeschke notes, the education and elite status of Sudanese Nubians did not always gain favor with central government. Other detrimental factors include declining water supplies for the Khashm el Girba irrigation project due to the silting up of the Atbara Dam reservoir.

3. Resettlement with Development is Crucial

Nubians in both countries were fortunate that central government policies emphasized improving the resettlers' living standards. In both cases the strategy pursued involved large scale irrigation projects which globally have the potential of providing viable development opportunities. Though they may not be sustainable because of management, salinity, and other problems, they at least give resettlers income and time to explore and move into other occupations.

4. Implementation is the Key to Success

No matter how good plans may be, it is the implementation ability of resettlers and project authorities that is the key to success. Though the evidence suggests that the Government of Egypt had the political will to implement the Kom Ombo and Esna schemes, they did not have the necessary time, experience, capacity or private sector backup to implement effectively their plans.

a. Time: As in the Kariba case, there was insufficient time to plan and implement resettlement. Though it is necessary to synchronize the resettlement schedule with the dam construction schedule, that alone is not sufficient. Far more careful attention need be paid to the amount of time it takes to find, evaluate and prepare resettlement areas. Otherwise, as with both Kariba and Aswan, and with such contemporary projects as the Lesotho Highlands Water Project, the emphasis switches to the physical removal of people at the expense of providing, in a timely fashion, the development opportunities necessary to enable resettlers to become project beneficiaries.

b. Experience: Lack of experience is shown by the failure of the Ministry of Social Affairs and other government agencies to plan for food aid during Stage 1 as well as by the failure more actively to involve the resettler population (see below).

c. Capacity: Lack of capacity was most obvious in the total inability of the Ministry of Land Reform to reclaim more than 10 percent of the promised land at the time of physical removal. It was also apparent with the deteriorating efficiency of physical removal and the delayed and shoddy workmanship on housing and other infrastructure in the Kom Ombo crescent.

d. Private Sector: As with the government, the private sector also had insufficient capacity to carry out such responsibilities as the timely provision of materials for building houses as well as the construction of suitable housing.

5. The Importance of Participation for Avoiding Mistakes, Reducing Dependency, and Decreasing the Length and Stress Associated with Stage 2.

Aside from important human rights and social equity issues, there are important practical reasons for more actively involving resettlers in all stages of the resettlement process. If the Ministry of Social Affairs had stressed participation in planning as opposed to consultation, presumably a more relevant form of housing could have been provided. While costing more in the short run, it would have created a more viable community in the long run – an important and cost effective outcome as opposed to Kom Ombo's current deteriorating condition. Among features that Nubians would have emphasized would have been to allow kin and former neighbors to resettle in closer proximity and to leave room for the eventual resettlement of urban Nubians for whom housing blocks are currently under construction. As for the design of houses, that would have better accommodated previous features including higher walls for privacy and room for family expansion.

As emphasized by Fahim, it is reasonable to expect that greater participation would have given resettlers a greater sense of responsibility for the construction and development of Kom Ombo. And that could well have reduced the sense of dependency and the complaints culture that Fahim has analyzed in detail. Finally, greater participation could be expected to reduce the stress involved throughout Stage 2, though not necessarily its length since Nubian participation might not have influenced the slow land reclamation process.

6. Resettlers Should have Priority regarding Reservoir Basin Opportunities

Development policies for the reservoir basin reflect changing international relations within and between Egypt and the Sudan. While President Sadat gave his blessing, and some financial assistance, in 1977 for Nubians to return to the foreshore of Lake Nubia, President Mubarak subsequently stipulated that no particular people should have priority as pioneers. The current Sudanese Government would prefer a similar policy, both

governments apparently concerned about having an ethnically revitalized Nubian community on both sides of an international border (Poeschke 1996:15).

On the other hand, both governments wish to populate their respective portions of Lake Nubia along what has become an increasingly sensitive border since the advent in the Sudan of the fundamentalistic Bashir regime in 1989. In the Sudan, only the Nubians have been willing to pioneer New Halfa and the lakeshore margin in significant numbers. In Egypt, rural crowding is presumably a major reason why people other than Nubians have been willing to "declare their willingness to settle on the shores of Lake Nubia" (*op.cit*: 152). Seeing this as a threat, Nubians once again are organizing efforts to resettle the area. The Egyptian Government is presented, in my opinion, with a difficult policy decision. On the one hand, in terms of equity considerations, those resettled from any reservoir basin should have priority for utilizing whatever development opportunities exist. On the other hand, Nubians, unlike Sayiidis, have shown little interest in fishing the reservoir or pioneering cultivation of the extensive drawdown area. Granted the strong Egyptian desire to colonize the border area, the decision is a difficult one. I believe the principle of prior rights should take priority but only if the Nubians take advantage of it within a time period to be stipulated.

7. Use of Stages Must not Obscure the Dynamics Involved in the Resettlement Process

While the Egyptian Nubian experience exemplifies the four stage framework, it also warns against trying to define too sharply the beginning and ending of the various stages. That is because the extent to which stages overlap (and when, as an example, Stage 3 begins and merges into Stage 4) not only depends on what indicators one uses, but also on one's interpretation of those indicators. I see, for example, remodeling of Kom Ombo housing and truncation of different kinds of ceremony as Stage 2 behavior since it involves an initial clinging to the familiar and reduction of cultural inventory that defines Stage 2 behavior. Hence I would delay the end of Stage 2 until the 1970s without attempting to provide a specific date. As for the commencement of Stage 4 and the completion of the resettlement process I would define that by the increasing economic, political, and socio- cultural influence of the more highly educated second generation.

Economic indicators include expanding their horizons by seeking employment in oil rich Arab states as well as elsewhere and increasingly moving out of service occupations into middle class positions. Political indicators include merging regional and ethnic clubs into pan-Nubian clubs that take on such additional functions as planning and raising capital for Nubian involvement in the development of Lake Nubia as well as the increasing influence of Nubian women as a voting block. Socio-cultural indicators include the marriages of the second generation as well as further assimilation into Egyptian society (as illustrated by women praying in Arabic), while emphasizing a common history and ethnicity and re-interpreting and demonstrating Nubian culture.

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