indirectly, chiefly in terms of employment, from the Fayoum poultry project (supply of local breeds), Fayoum horticulture (employment in horticulture), and the Damietta duck station (supply of ducklings).

None of the activities had noteworthy adverse environmental effects. Questions have been raised about the distribution of biocide sprayers and the supply of greenhouses. Egyptian farmers use vast amounts of pesticides, but supply of the sprayers did not aggravate the situation. Protected horticulture is also notorious for its use of pesticides, but the quantity per unit of output is reported to be lower than in the case of production in the open air. Nevertheless, the supply of these commodities and the technical assistance to the greenhouses project could have provided an opportunity to give more attention to environmental issues in horticulture. The use of soluble compound fertilisers had a positive environmental effect as they are mostly absorbed by the plants in contrast to the usual chemical fertilisers where part of the nutrients end up in drainage water.

It may be concluded that support to the agricultural sector contributed to economic self-reliance rather than to poverty alleviation. It was successful in those cases where there was a clear need for the commodities supplied, where Egyptian policy was favourable, and where public sector rigidities could be circumvented.

8 Drinking water and sanitation

8.1 Background

8.1.1 *Water and sanitation conditions*

In Egypt, potable water is obtained from wells and from the river Nile and irrigation canals. South of Cairo, groundwater is usually free from salinity and it normally requires little treatment other than disinfection by chlorination. North of Cairo and in the Fayoum depression, it is generally brackish and needs blending with fresh surface water. In the coastal area, groundwater is unsuitable for drinking purposes and communities depend on surface water from irrigation canals and the Nile river. This surface water often requires long transmission pipelines to reach demand centres.

In the Greater Cairo and Alexandria areas, where about one-third of the country's population lives, almost all households are served by house connections but in other parts of Egypt urban house connection coverage varies between 40 and 70 per cent. Whereas in the two main cities, water of generally adequate quality is provided 24 hours a day, the cities of provincial Egypt receive a lower quality service. System breakdowns are more frequent and water quality is often poor. By and large, operating agencies find it difficult to keep pace with demand for new connections and, particularly in poorer neighbourhoods, people have to rely on public standpipes or private vendors.

In rural areas, where people live concentrated in villages, some 60 per cent of the households is currently estimated to receive water from a piped public system including public standpipe users. Compared to a service coverage of 10 per cent in the early 1970s, this has been a clear improvement but service levels and conditions remain deficient. Systems providing 24 hour supplies are rare, large quantities of water are unaccounted-for and deficient operation and maintenance of treatment facilities often render the water unsuitable for drinking purposes. The remaining 40 per cent of the rural population relies wholly or in part on non-public, and often highly polluted water resources (World Bank, 1992).

Industrial development, population growth and the use of chemicals in agriculture over the last three decades have resulted in increasing pollution and water quality deterioration in the Nile river system. While little has been done to curb industrial discharge on the basis of existing laws, enormous efforts have been made to address pollution from domestic sewage. During the last two decades some 50 wastewater collection and treatment systems were constructed throughout the country and another 50 are at different stages of development. Despite these efforts, improvement in sewerage services and sanitation conditions have lagged far behind progress in drinking water supply. With about 90 per cent of its population connected, Cairo has the best sewerage service and Alexandria reportedly has 85 per cent of its population connected. Sewerage service coverage in smaller towns is much lower. Few of the waste water treatment plants are operating properly and large quantities of the collected wastewater are discharged into the drainage system without proper treatment.

In rural areas, the sanitary situation is outright alarming. Sewerage service rates by conventional means is as low as 5 per cent and population relies on individual means for the disposal of excreta and wastewater resulting in widespread ponding and contamination of drainage channels. The situation is particularly critical in the Nile delta area where high population densities and high groundwater tables make the application of low-cost, on-site sanitation options difficult (World Bank, 1992).

8.1.2 *Institutional framework*

The organisation of Egypt's water and wastewater sector is complex involving a multitude of institutions with often overlapping responsibilities. At the national level, the Ministry of Housing, Utilities and Urban Communities, as parent Ministry, has primary responsibility over sector matters. During the 1970s, responsibility for general sector planning, support and co-ordination, and preparation, design and execution of investment projects rested with the General Organisation for Sewerage and Sanitary Drainage (GOSSD) and the General Organisation for Potable Water (GOPW) respectively. In April 1981 the two organisations were merged into the National Organisation for Potable Water and Sanitary Drainage (NOPWASD). The new organisation was given broad responsibilities for policy formulation, national planning and guidance to the Governorates.

The management of drinking water and wastewater services is entrusted to local institutions with widely differing levels of capacity and authority. In the Greater Cairo area, which extends over three Governorates, responsibilities for wastewater are separated between the General Organisation for Sanitary Drainage (GOSD), charged with operation and maintenance services and the Organisation for the Execution of the Greater Cairo

Waste Water Project (CWO) which is responsible for most new construction. The General Organisation for Greater Cairo Water Supply (GOCWS) is responsible for drinking water supplies. In Alexandria Governorate, the Alexandria General Water Authority (AWGA) has control over the water utility and the Alexandria General Organisation for Sanitary Drainage (AGOSD) over the sewage system. Both are responsible for capital investment as well as operation and maintenance. Also the Canal Cities (Port Said, Suez and Ismailiya) have autonomous water and sewerage authorities.

Elsewhere in Egypt, NOPWASD is the central agency responsible for planning and execution of all major sector investment projects. Upon completion, water supply and sanitation systems until recently were put under the authority of the respective Governorates or, in the larger provincial towns, to the Municipality. Over the years, consensus has emerged between Egypt and the main donors to transfer the ownership of regional water supply and sanitation assets and responsibility for planning, execution and operation to autonomous regional companies. The devolution process started in 1981 in Beheira, Kafr el Sheikh and Damietta Governorates but stalled under strong institutional opposition. In 1996, the Egyptian Government took a decisive step towards further devolution by setting up seven more regional companies with General Economic Authority status, amongst others in Fayoum.

8.1.3 *Sector development*

Over the years, the Government's objective has been to provide an acceptable level of water supply and sanitation service at low costs for the population. The rapid growth in service levels has been made possible through enormous investments. Since 1977 the total investment volume from all sources is estimated to have been in the order of LE 10 billion in current terms. Over the period 1990–95, investments amounted to about LE 1 billion per year or about US$ 400 million equivalent. Foreign multilateral or bilateral funding agencies provided about 60 per cent of all resources, mostly in the form of grants and soft loans. The United States has been by far the largest contributor. By the end of 1996, its total contribution is estimated to have reached the US$ 2.5 billion mark. The USA focused its programme on the larger urban areas of Cairo, Alexandria, the three Canal Cities (Port Said, Suez and Ismailiya) and three provincial city Governments (Fayoum, El Miniya and Beni Suef) where the water and sewerage problems were most visible, and interventions required more advanced technology and therefore substantial outlays of foreign currency. In support of the investments, a comprehensive multi-year management assistance effort was also funded.

Massive USAID outlays dwarfed contributions of the other donors such as the World Bank, EU, United Kingdom, Japan and Italy, which also loaned funds for projects in the

urban areas, and the smaller bilateral donors such as the Netherlands, Germany, Finland and Denmark which also had rural components.

8.1.4 *Issues and constraints*

Although spectacular progress has been achieved, there is general recognition that rapid growth in service coverage has not been accompanied by an equal advance in the creation of a strong water supply and sanitation industry. The Ministry of Housing, Utilities and Urban Communities has concentrated on managing an immense public housing programme and building new communities. Policy matters concerning drinking water and sanitation were delegated to NOPWASD, which is staffed by design engineers, has insufficient experienced staff and lacks financial resources. It has thus experienced difficulty in discharging its many responsibilities effectively.

USAID/World Bank sector assessments and many project reports have pointed at the weakness and ineffectiveness of the organisations responsible for designing, building capital projects and for operating existing and planned water supply and sewerage systems. The most critical problems are hierarchical management systems, shortage of skilled staff and poor construction management and operation and maintenance practices. These are attributed to: (i) personnel policies in the public sector; (ii) lack of trained supervisory staff due to non-competitive wages and benefits and low status ascribed to the sector; (iii) subsidy practices that fix tariffs at levels insufficient to cover operations and maintenance costs of utilities and stifle a sense of financial responsibility and; (iv) organisational policies restricting delegation of decision-making authority and communication across and amongst departments (World Bank, 1993).

Through the new legislation of 1995, the Government embarked on a policy reform holding promises for better sector performance in the near future. Greater organisational and administrative autonomy will allow the newly established General Economic Authorities to manage and operate systems more in accordance with commercial principles.

8.2 Netherlands assistance

The Netherlands became first involved in Egypt's drinking water and sanitation sector in 1977 when it approved a Dfl. 2.5 million grant to the Alexandria Water General Authority (AWGA) for procurement of pumps and related spare parts. For the next thirteen years, sector support was continued, mostly in the form of programme aid, which totalled Dfl. 40 million or 40 per cent of total disbursements to the sector. Equipment supply

contracts covered procurement (and sometimes installation) of pumps, valves and inputs of the Alexandria and Cairo water and sewerage utilities. On the Netherlands side, some ten Netherlands hardware supply companies benefited from the support. Programme aid was phased out in the early 1990s when Egypt's foreign currency position improved substantially and the Netherlands became increasingly aware of the need for technical assistance to address the sector's institutional weaknesses. Eventually, total hardware and input supply funding added up to Dfl. 72.5 million representing some 75 per cent of the total sector disbursements.

The identification and formulation of follow-up projects proved difficult. Over the years, Egyptian sector authorities resisted the suggestion that they could benefit from technical assistance and were reluctant to finance external consultants. Eventually, agreement was reached in 1990 on the funding of two major technical assistance projects i.e. the AWGA Maintenance Project (AMP) and the Fayoum Drinking Water and Sanitation Project (FDWSP). The two projects had a different background. The AMP was a spin-off of the massive AWGA import support programme which exposed rather fundamental weaknesses in the operation and maintenance of the organisation's physical infrastructure. FDWSP was originally conceived to be part of the Fayoum Rural Development Project. In time, the project was reformulated into an autonomous project. The basic thrust of both projects was to strengthen institutional performance of the recipient organisations through on-the-job training, technical studies and advice.

The Alexandria project (AMP) had a relatively narrow scope of work focusing on water treatment plant operation and maintenance practices mainly. After being extended once, the project was suspended in 1996 pending assessment of impact and AWGA's further assistance needs. The Fayoum project was a much more intensive effort to address a broad range of technical, financial and managerial constraints affecting organisational performance of Fayoum's water company El Azab. Apart from technical assistance it included a substantial investment component, representing about half of the total project allocation. The project was extended in July 1996 for another three-year period.

Finally, the Netherlands also funded a NOPWASD Management Training Project. After being identified in June 1986, the project was on and off the shelve for more than eight years during which it was reformulated and re-negotiated several times. Eventually agreement was reached on the funding of a technical assistance contract to assist NOPWASD's Cairo Training Centre in developing and introducing a set of management level training modules for drinking water/sanitation utility staff. Project implementation started in December 1994 and is planned to last for four years.

Aid contributions to the sector add up to roughly Dfl. 95 million. A breakdown by time periods and by major expenditure category is listed in Table 8.1.

Table 8.1 Netherlands aid contribution in the drinking water and sanitation sector 1975–96 (Dfl. mln)

		1975–85	1986–90	1991–96	Total	%
Drinking water						
Greater Cairo water supply						
Supply of aluminium sulphate		0	7.7	0	7.7	
Roda Plant Rehabilitation		0	0	1.1	1.1	
	Subtotal	0	7.7	1.1	8.8	9.3
Alexandria water supply						
Supply of pumps, valves, spares		2.5	27.8	2.3	32.6	
Maintenance Project	Phase I	0	0	1.8	1.8	
	Phase II	0	0	4.0	4.0	
Water Supply Plan		0	0	0.3	0.3	
Water Quality Feasibility Study		0	0	0.5	0.5	
	Subtotal	2.5	27.8	8.9	39.2	41.3
Fayoum water supply and sanitation						
Drinking Water and Sanitation Project		0	0.8	12.9	13.7	14.4
	Subtotal Drinking water	2.5	36.3	22.9	61.7	65.0
Sanitation						
Cairo waste water						
Supply of valves, pumps, spares, screw pump		10.6	7.3	0	17.9	
Helwan wastewater						
Supply of mechanical/electrical equipment		1.0	6.5	4.1	11.6	
Mahmoudiya wastewater						
Supply of mechanical/electrical equipment		0	1.6	0	1.6	
	Subtotal Sanitation	11.6	15.4	4.1	31.1	32.7
Other activities						
Training drinking water and sanitation sector		0	0	1.7	1.7	
Others		0	0	0.4	0.4	
	Subtotal other activities	0	0	2.1	2.1	2.3
Grand total		14.1	51.7	29.1	94.9	100.0

Source: DGIS.

Approximately two-thirds of total expenditure was disbursed on drinking water related activities and one-third on sanitation. The latter uniquely consisted of hardware supplies contracted by Dutch firms. As to the drinking water sector, the commodity supply component amounted to 60 per cent leaving a 40 per cent balance (roughly Dfl. 22.5 million) spent on technical assistance and infrastructure investment support.

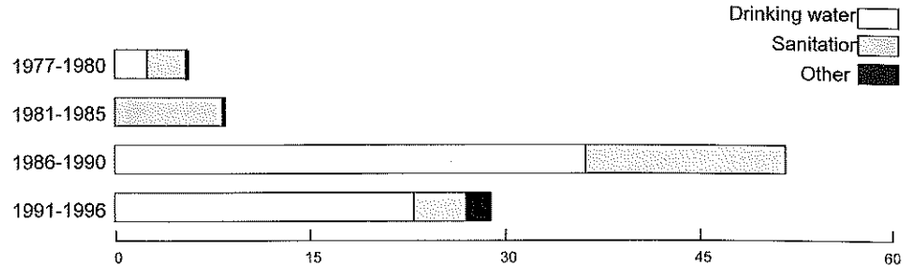


Figure 8.1 Support to drinking water and sanitation sector, 1975–96 (Dfl. mln)

8.3 Drinking water supply

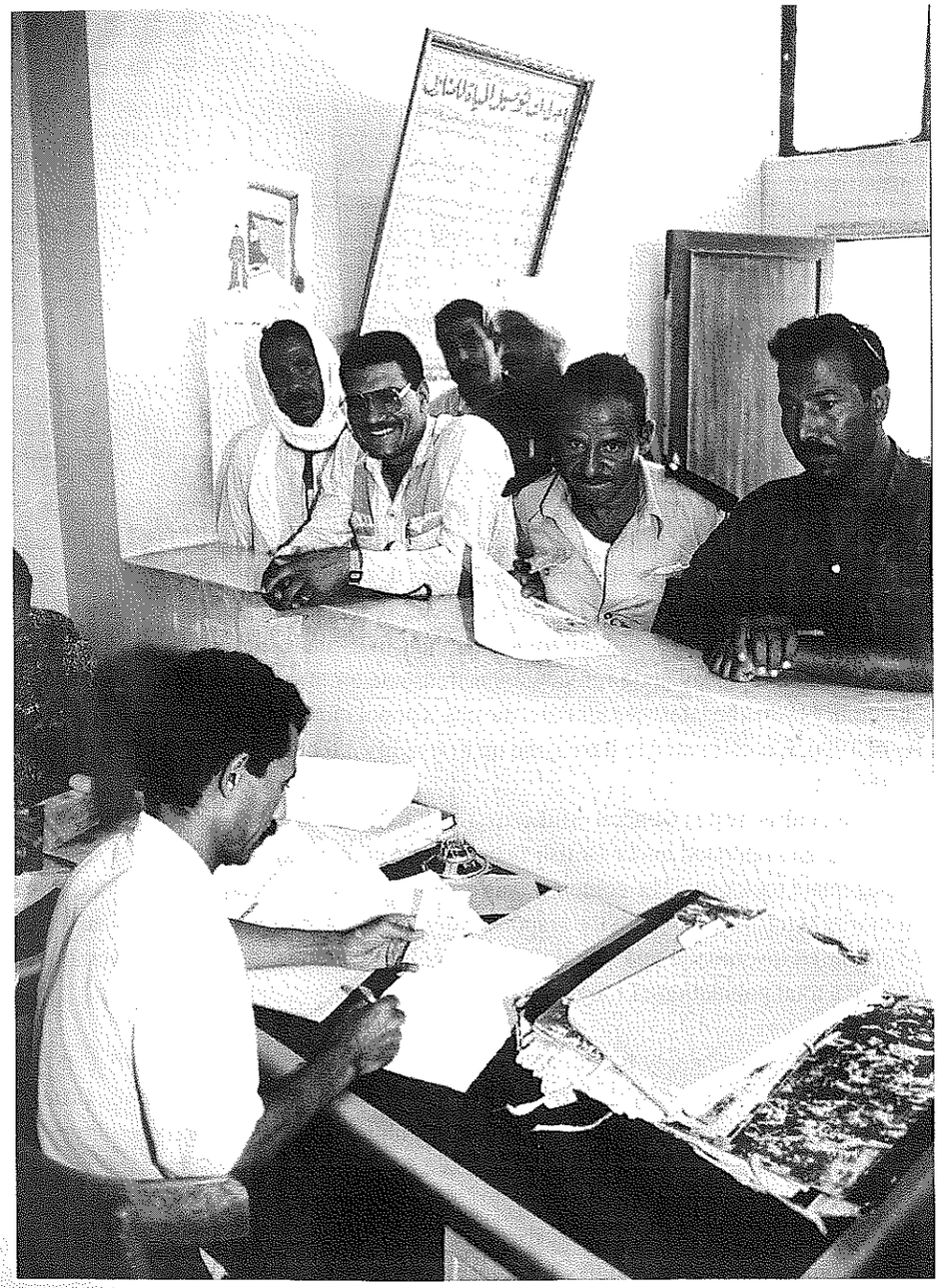
8.3.1 *Alexandria water supply*

Alexandria is the second largest urban agglomeration in Egypt. It extends over 25 kilometres along a narrow strip of Mediterranean coastline west of the Nile river delta. It is the country's principal seaport, an important industrial centre and a busy holiday resort with excellent highway and railroad connections and an international airline service. In November 1986, the latest census date, the city's population was estimated at 2.9 million. As of 1996, it is estimated to have gone up to roughly 3.6 million.

The Alexandria Water General Authority (AWGA) was founded in 1879 as a limited company, and operated under British management until 1954, when a wholly Egyptian management took over. The company was nationalised in 1961 and acquired its General Authority status in 1968, with the responsibility for the provision of potable water in the Alexandria Governorate and parts of neighbouring Beheira and Matruh Governorates, serving a total population of roughly 4 million.

AWGA's raw water supply is obtained from two main canals, the Mahmoudiya and the Noubariya, which are fed by the Rosetta branch of the River Nile. The multi-use primary canals are the responsibility of the Ministry of Public Works and Water Resources but AWGA has abstraction rights for its present and future production needs.

Rapid population growth and density increase prompted the national Ministry of Housing, Utilities and Urban Communities to prepare a Water Supply Master Plan and solicit external financial assistance to help AWGA meet future water demand. The (USAID financed) Master Plan was completed in 1978. The principal finding of the study was that expansion of existing treatment capacity, rather than building new plants, was the



Payments for house-connected drinking water supply (photograph: Fayoum Drinking Water and Sanitation Project)

most feasible and economic supply. Investment plans were prepared on the basis of an estimated increase of water demand from roughly 300 million m^3/year in 1978 to 740 million m^3 in the year 2000.

The Phase I investment plan was implemented with financial assistance of the World Bank with a small contribution from the Netherlands, in the form of a Dfl. 2.5 million grant for supply of pumps. The grant was committed without further appraisal and AWGA directly awarded the contract to the Netherlands pump supplier which was also involved in the World Bank project. The major construction objectives were achieved, but project implementation took nearly four years more than contemplated at appraisal and actual fund requirements were about three times the original estimates. The support did not lead to a decrease of the enormous water losses: nearly half of total production was unaccounted for due to leakages, illegal tapping, inefficient billing and deficient collection efficiency.

The basic thrust of the follow-up Second Alexandria Water Supply Project was to improve the water distribution system and deal with the large unaccounted-for water problem affecting AWGA's financial performance. Loan negotiations with the World Bank broke down, however, and AWGA found more favourable bilateral aid funding sources, amongst others from the Netherlands. Eventually, the Netherlands committed a total amount of Dfl. 30 million in the form of import support, covering some nine major supply contracts for pumps, valves, spare parts and air blowers. Contracts were directly awarded as follow-up orders to AWGA's regular Dutch suppliers. The appraisal was limited to having contract prices checked by the Netherlands Procurement Office.

The continuous flow of commodity import support requests prompted the Netherlands to evaluate its support. A mission was fielded to make a quantitative and qualitative inventory of the goods and services granted to AWGA. The evaluation concluded that the Netherlands had contributed to the ability of AWGA to meet its development objectives and confirmed earlier informal reports of large quantities of pumps, spares and valves not being installed and kept in store. This was apparently caused by import support financing procedures which did not require detailed implementation plans to be submitted. Excess supplies were gradually depleted as AWGA proceeded with the expansion of its production facilities during subsequent years. Following the recommendation of the evaluation, programme aid funding was suspended pending the preparation of a new investment Master Plan.

From 1990 onwards, supplies of equipment to AWGA were complemented with technical assistance. Basically, the project objectives were to: (i) set up a preventive equipment maintenance system first at the level of one existing water treatment plant (Siouf) and

later also at the level of a newly built plant (Nozha); (ii) analyse and adjust plant operating procedures to improve efficiency of the water treatment process and (iii) assist AWGA in setting-up a central maintenance workshop and laboratory (at Nozha). Contributions covered the cost of contracting consulting services over a period of roughly five years and procurement of tools and equipment for the newly to be built central workshop and laboratory.

Preparation missions and the consultant experienced serious difficulties in formulating comprehensive technical assistance packages with clearly identifiable outputs. During the first phase (1990–92), the project team was engaged mostly in trouble shooting and 'creating a climate for the introduction of a preventive maintenance system'. Construction of the central workshop was delayed and the equipment budget (Dfl. 1 million out of the Dfl. 1.9 million allocation) was not disbursed. At the level of the Siouf treatment plant, the set-up of a more systematic equipment maintenance system was hampered by heavy demands on maintenance personnel to deal with emergencies and keep the 60-year old plant operational.

During the second phase (1992–97), the project team succeeded in establishing formal systems and procedures for equipment maintenance at Siouf. Implementation continued to be thwarted by organisational and financial bottlenecks affecting the ordering of spare parts and replacements. The plan to have the system also introduced in a second plant (Nozha) had to be abandoned. The new plant, commissioned in June 1995, remained idle in absence of a reliable raw water supply source. The central workshop was established successfully.

Throughout the period, AWGA also received technical assistance through a German funded project with identical objectives, but executed at a larger scale. Interaction between the two project teams was minimal. The Netherlands justified the duplication on the assumption that its 'bottom-up' and plant-level approach towards improving AWGA's operation and maintenance practices would be more effective and would ultimately prevail over the German 'top-down' and corporate level approach.

Eventually, AWGA continued to extend its water production and service coverage as reflected in Table 8.2. Figures expose AWGA's difficulties in bringing down the unaccounted-for water percentage share and its heavy reliance on production expansion to cover increasing demand. From the financial point of view, the 50–70 per cent water billing rate allowed the Authority to almost recover nominal operations and maintenance costs and secure supplies throughout the year and service area.

Table 8.2 AWGA water production and revenue performance (by fiscal year)

	1977	1981	1985	1990	1992	1994	1996*
Population (1,000)	2,238	2,662	3,092	3,555	3,680	3,840	4,020
Water produced							
Million m^3	231.1	317.6	485.2	555.3	601.2	604.4	625.0
Lit/cap/day	283	327	430	428	448	431	426
Water billed							
Million m^3	160.5	184.5	245.0	311.0	348.0	355.1	385.4
Lit/cap/day	197	190	217	240	259	253	262
% of water prod.	69	58	50	56	58	59	62
Revenue							
LE 1,000	4,941	8,780	22,720	47,253	64,513	88,674	107,435
LE/m^3	0.03	0.05	0.09	0.15	0.19	0.25	0.28
*Cost recovery***							
% O&M	90	85	85	90	90	95	95

* Estimate.

** Revenue percentage share of estimated, 'nominal' operations and maintenance costs (125% of current expenditures).

Source: World Bank, AWGA.

8.3.2 *Fayoum drinking water and sanitation*

The Fayoum Drinking Water and Sanitation Project (FDWSP) was identified in January 1987. At that time, Fayoum had a population of some 1.7 million people of which 90 per cent was estimated to have access to piped water supply from two production plants i.e the Fayoum City plant covering the needs of Fayoum City (some 225,000 people) and the El Azab plant covering the rest of the Governorate.

The Fayoum City plant was being renovated and extended with USAID funds. The Netherlands therefore focused its attention on El Azab. Its distribution and waterworks system consisted of a pipeline network with a total length of some 2,000 km, a water treatment plant with a production capacity of 1,500 l/sec and 17 compact water treatment plants, spread along the fringes of the distribution system. As elsewhere in rural Egypt, the service quality was a serious problem. Due to weaknesses in operation and maintenance, the fringes of the system received virtually no water and the compact units covered only part of the population in their area, partly due to electric power shortages. Roughly half of the population was served through individual house connections, the other half through a system of public taps (1,800 in total) with low levels of service.

With respect to sanitation, the situation was even more dramatic. Only Fayoum City had a functioning sewerage system. The rest of the urban centres and the surrounding rural areas had no form of sanitary facilities whatsoever.

Following a four-year identification and formulation process, the project started in 1990. The original 24-months project implementation period was extended with another 20 months and the budget was raised with 60 per cent to Dfl. 6.6 million. The main objective was 'to improve the drinking water supply and sanitation in Fayoum Governorate to such an extent that it has a long lasting impact on public health and the well-being of the rural population in Fayoum Governorate'. The counterpart organisation for the drinking water component was the Governorate water supply utility El Azab; for the sanitation component there was no counterpart organisation at first but a Governorate Sanitation Department was created during implementation.

During the first phase (1990–94), the project assisted El Azab in surveying and mapping the entire water distribution network and setting up Customer Information Offices and Maintenance Centres in the five district capitals. In addition, several task forces were set up to strengthen El Azab's technical and financial departments. With respect to sanitation, assistance focused on organising a series of baseline surveys which provided the basis for a master plan study, the formulation of an emergency pipeline and public standposts rehabilitation programme and the preparation of detailed designs for three village sewerage schemes. The capital investment allocation for the village sewerage construction programme (Dfl. 2.4 million out of the total Dfl. 6.8 million allocation) was not disbursed because of implementation delays

The project design was basically maintained during the second phase (1994–96). Upon recommendation of a project review mission, a community participation component was added and a Dfl. 6.8 million capital expenditure contribution was pledged towards the on-going pipeline rehabilitation programme and the planned village sewerage construction programme. Activities continued to be focused on transforming El Azab and the newly created Governorate Sanitation Department into more autonomous and client-oriented utilities. In September 1995, the Fayoum Economic General Authority for Water and Sanitation (FEGAWS) was established under an Egypt–USAID covenant. The new organisation integrated the El Azab, Fayoum City and Sanitation Department utilities, staff were re-appointed and new administrative, organisational and financial procedures had to be worked out. The project team assisted the new organisation in drawing up an Action Plan providing the framework for the continued technical assistance to further organisational development.

Over the years, the project team produced a massive number of reports dealing with nearly every aspect of drinking water and sanitation development in Fayoum. The most prominent was the Fayoum Drinking Water and Sanitation Master Plan, a comprehensive planning document containing valuable information on present and planned levels of water and sanitation services in the Governorate. Other important planning documents included a Cost Recovery Strategy paper and a Development Strategy paper on wastewater.

With respect to drinking water, the project was instrumental in introducing a computerised billing system and setting-up Customer Information Offices and Maintenance Centres in the five Governorate Districts. The project also was the vehicle for initiating the rehabilitation/upgrading of the main pipeline network and the treatment plant. Initial arrears in the on-going house connection programme were caught up during the last three years. By the end of the period, household connection coverage was in the order of 55 per cent (up from roughly 40 per cent in the early 1990s). Water service to the remaining population was upgraded through the public tap upgrading/rehabilitation programme; the programme's scope was limited, however, to two of the five Districts and is estimated to have reached roughly 20 per cent of the public tap users. To what extent final consumers actually benefited from increased water production or improved service coverage cannot be ascertained in absence of reliable statistical information on quantities of water actually consumed.

Despite all the efforts, El Azab's performance improved marginally in terms of revenue collection and cost recovery, as illustrated in Table 8.3.

Table 8.3 El Azab water production and revenues (by fiscal year)

	1990	1991	1992	1993	1994	1995	1996
Population served*							
(1,000)	1,510	1,550	1,590	1,630	1,665	1,710	1,740
Water produced							
Million m^3	41.1	41.1	45.4	45.4	45.4	45.4	45.4
Lit/cap/day	75	73	78	76	75	73	71
Water billed							
Million m^3	14.4	16.4	8.75	7.4	7.7	10.7	13.6
% of water prod.	35	40	20	16	17	24	27
Revenue							
LE 1,000	1,300	1,800	1,400	1,700	2,150	3,000	3,800
LE/m^3	0.09	0.11	0.16	0.23	0.28	0.28	0.28
*Cost recovery***							
% O&M	18	23	16	18	21	26	30

* Excluding Fayoum City.

** Revenue percentage share of estimated 'nominal' operations and maintenance costs (125% of current expenditures).

Source: El Azab and evaluation study estimates.

The figures indicate that, after initial success in raising much needed income, revenue collection effort stalled in the period 1992–94 when collection responsibility was transferred from the Local Councils to El Azab and time was needed to re-establish customer records.

Revenue performance improved since then but remained unsatisfactory. As of the last fiscal year 1996/97, only some 27 per cent of gross water production was commercially sold. Differences between water produced and water billed are due to operational losses at the plant level, network losses and non-billing of water consumed at public taps and by public institutions (mosques, schools and government agencies). By 1996/97 revenues covered 30 per cent of (estimated) 'nominal' operation and maintenance costs.

With regard to sanitation, the Governorate Sanitation Department was integrated in the newly established Fayoum Economic General Authority (FEGAWS) and project support was continued to the on-going on-site sanitation and village sewerage programmes. A series of surveys, studies and pilot experiments (improved latrines) was conducted to work out a cost-effective on-site sanitation strategy and the consulting engineer provided further guidance in the identification and design of another set of three more village sewerage schemes.

Following completion of the Master Plan Study, FEGAWS proceeded with plans to expand water production capacity. The proposition to gradually extend capacity with 3,000 l/s in 3 stages of 1,000 l/s (up to the year 2,010), as envisaged in the Master Plan, was set aside and new plans were approved for an immediate extension of 2,800 l/s. In 1996, the Netherlands pledged a Dfl. 14.75 million contribution towards the Dfl. 43 million scheme, covering the cost of electro-mechanical, laboratory and maintenance/repair workshop equipment. The new plant is expected to be commissioned in the second half of 1998. In addition, Dfl. 12.1 million was committed for extension of the on-going technical assistance programme for another 3-year period up to the end of 1999 (Dfl. 6.85 million), rehabilitation of the distribution network (Dfl. 2.75 million) and design/construction of village sewerage/sanitation facilities (Dfl. 2.5 million).

8.3.3 *Greater Cairo Water Supply*

The Greater Cairo Water Supply Organisation (GCWSO), established in 1968, has 13,000 people on the payroll and currently produces some 5 million m^3 of water per day. The production comes from twelve filtration plants (ten along the Nile and two along the Ismailiya Canal) and four well fields. The water is distributed to seven service areas through a pipeline network of some 3,200 km.

During the last 20 years in particular, when Cairo's population grew from 8 million to 13 million, the Organisation was under tremendous pressure to meet demand and improve the reliability of the water service. Following the completion of the Cairo Waterworks Master Plan in 1979, Egypt solicited international donor assistance to alleviate the most

urgent problems. Eventually, USAID took the lead by funding the US$ 97.4 million Cairo Water Supply I Project which was completed in 1989. The Arab Fund, Germany, France and Japan offered additional investment support to expand treatment capacity, rehabilitate the main distribution system and strengthen the Organisation's management. A USAID Cairo Water Supply II project is currently under implementation. The local cost component of the foreign funded projects and the upgrading and extension of the secondary distribution system was borne by Egypt.

Investment and technical assistance needs being basically covered by a series of large donors, there was no real need and scope for the Netherlands to establish a structural co-operation relationship with GCWSO. Over the years, two activities were funded on an ad-hoc basis. In 1989, there was a request for funding the import of some 20,000 tons of aluminium sulphate. Being a basic raw material not (yet) produced in the country, an amount of Dfl. 5 million and Dfl. 3 million was allocated for that purpose in 1989 and 1990 respectively. A total of 21,700 tons were eventually imported with an aggregate value of Dfl. 7.7 million.

A subsequent request for procurement of booster pumps was not honoured; an identification-cum-appraisal mission found most of the booster stations in reasonable condition. Instead, the mission recommended support for replacement of obsolete valves, air blowers and electric control equipment of the Roda plant, one of the smaller GOGCW water treatment plants not covered by the larger donor projects. Initially, assistance needs and costs were identified inadequately and the eventual value of equipment supply added up to Dfl. 1.1 million, one third of the originally committed funds.

8.4 Sanitation

8.4.1 *Cairo wastewater*

The oldest part of the Cairo waste water and drainage system was constructed in the period 1906–14 and was designed to serve 650,000 people, the city's projected 1932 population. During the following decades, several major additions were made. By the time the Netherlands co-operation programme started in 1975, Cairo's population had grown to roughly eight million and the ageing and over-extended system started to collapse at an alarming rate. In 1977, facing a rapidly deteriorating sanitary situation, the then Ministry of Housing and Reconstruction commissioned the Greater Cairo Wastewater Master Plan which focused on new sewerage works for the East and West Bank of the Nile.

Washing clothes at public standpost (photograph: Fayoum Drinking Water and Sanitation Project)

Following the completion of the Master Plan in 1978, Egypt and the United Kingdom reached an understanding about assistance for the East Bank component. The USA agreed to fund an emergency rehabilitation programme of the existing conveyance system and the main components of the West Bank scheme. The emergency rehabilitation programme was successfully completed in 1989 and greatly reduced, in some areas, the incidence of sewage flooding and the level of overload in the existing sewers. However, implementation of the East Bank scheme was affected by major construction delays. The West Bank construction works finished on time. As of 1996, UK contributions totalled roughly US$ 450 million, while USA contributions were estimated to have reached the US$ 850 million level including massive technical assistance. Throughout the period, Egypt made extensive use of additional soft loan/grant allocations, amongst others, from the Netherlands, to meet its counterpart funding obligations.

In total, the Netherlands financed four major procurement contracts with a total value of Dfl. 18 million for gates, air relieve valves and pumps. One contract was financed under the regular country programme, the others under the mixed credit programme. Except the first contract (which was directly awarded), GOSD awarded all other procurement contracts to Dutch suppliers on the basis of international tenders and lengthy contract negotiations. The Netherlands side appraised financing requests with assistance of external consultants

but the appraisal was rather superficial. Justification of financial support was found in the 1977–78 Master Plan studies but basic questions about the relevance of the respective orders, their timing and implementation schedules were not addressed. Concessional loan negotiations and approval procedures took, on average, two years. Project files provide no information or details on the actual execution of the procurement contracts.

8.4.2 *Helwan wastewater*

The Helwan area is part of Greater Cairo and the industrial heartland of Egypt. Since the 1960s, the pace of both industrial and residential development was spectacular and resulted in increasing demands being made on the existing infrastructure particularly on the sewers and sewage treatment facilities. By the mid-1970s, the steadily worsening environmental health situation in the area prompted the then-Ministry of Housing and Reconstruction to call for international assistance in preparing and implementing the Helwan Wastewater Master Plan. The Egyptian Government and a donor consortium consisting of the EU, the Netherlands and Italy agreed on a Phase I investment package worth LE 116 million. The package covered the cost of constructing some 100 km of sewer and pressure lines, four pumping stations and a treatment plant with a capacity of 350,000 m^3 per annum covering the needs of roughly one million people. Work was divided into a series of nine procurement contracts. The construction was supervised by a EU-funded consulting firm.

The Netherlands became involved in the co-financing of three of the nine contracts. Its contribution covered the cost of supplying and installing mechanical works (screw pumps) and electric control panels of the main network pumping stations. Three Dutch suppliers were involved in a sub-contracting capacity. Progress reports refer to a host of technical and organisational problems resulting in serious implementation delays. Among the most frequently cited problems were lack of local funding delaying civil construction works, disputes over import duties and amendment of technical designs resulting in a myriad of variation orders and claims. Eventually, works were completed in 1991/92, some three years late. Including the payment of variation orders and claims, the Netherlands contribution totalled Dfl. 8.4 million, representing roughly 2 per cent of the first phase.

Because of slow progress and laborious working relationships with the parties concerned, the Netherlands decided to discontinue further support and to transfer the undisbursed balance of Dfl. 3.2 million to the EU for (co-)financing another of the nine procurement contracts. Requests by the Netherlands to the EU to provide information on the use of these funds were not honoured.

8.4.3 *Provincial cities wastewater*

The Egyptian Government's massive effort to catch up on the steadily deteriorating environmental health situation in Egypt's main urban centres was complemented with a provincial cities programme covering some twenty smaller urban centres spread all over Egypt. In the early 1980s, Netherlands suppliers regularly requested soft loan assistance covering the mechanical/electrical equipment components of the various treatment plant projects. Eventually, only two contracts were awarded to Netherlands companies for treatment plants in El Minuf (Minufiya Governorate) and El Mahmoudiya (Beheira Governorate). Shortly before contract execution, the supplier for El Minuf went bankrupt and the El Mahmoudiya project was the only activity the Netherlands funded under the provincial cities programme.

El-Mahmoudiya is a small provincial town situated on the banks of the Rosetta branch of the river Nile, 40 km southeast of Alexandria, with a population currently estimated at roughly 30,000. Facing continuous potential risks of contracting water-borne and water-related diseases and the pressure of a growing population, in the early 1980s, the city municipality embarked upon a plan to build a public wastewater collection and treatment system consisting of: (i) a network of 20 km of sewers; (ii) four pumping stations and; (iii) a sewage treatment plant with a design capacity of 12,500 m^3 per day.

An international tender for the treatment plant equipment was floated in the beginning of 1981. On the basis of a brief, positive appraisal, the Netherlands offered mixed credit (package of a commercial and a concessionary loan) support in 1982 to the amount of Dfl. 1.6 million, covering 55 per cent of the cost of supplying and installing the mechanical/electrical equipment of the treatment plant. It took another three years before the loan agreement was approved by the Egyptian Parliament. Upon completion of the treatment plant's civil works in 1986, the Dutch supplier proceeded with the shipment and installation of the mechanical/electrical equipment according to contract. By the time the plant was operational (mid-1987), only half of the sewer network and pumping stations had been completed. Funding shortages, poor contractor performance and procurement problems persisted for another three years during which the treatment plant remained idle. The first sewage flows reached the plant by the middle of 1990 and the scheme was then transferred to the operational authority (Beheira Water Company). In the end, the sewer network was never fully completed and the treatment plant currently operates at 25 per cent of its design capacity.

8.5 Other activities

During the 1970s, most of the projects in the sector encountered numerous construction and maintenance problems. Most of the organisations in the sector did not have the necessary expertise to develop and implement projects and encountered problems in maintaining physical systems adequately. Therefore, donors attempted to enhance institutional capacity by training Egyptian personnel. The training components of the projects were defined and conducted by expatriates who co-operated with Egyptian counterparts in implementing an operational model common to water and wastewater organisations in developed nations. At first, training was ad-hoc and short-term, emphasising the development of technical skills relevant to the operation and maintenance of physical works (e.g. sewer cleaning).

In 1985, the USA took the lead in supporting the creation of a cadre of Egyptian professionals to take responsibility for developing and providing training on a more continuous basis. The purpose of the US$ 15 million Water and Wastewater Institutional Support Project (WWISP) was to enhance the capability of the Ministry of Housing and Public Utilities (MPHU) and its executive agency NOPWASD. The project laid the foundation for the sector training system: a manpower needs assessment was carried out, training needs were identified, the training system was designed and a total of some 60 vocational and management training modules were developed to strengthen the skills of utility staff. The effort further included the establishment of a Training Centre at Damanhour. Since 1990, this Centre is responsible for training NOPWASD staff, for which it is adequately staffed and fully equipped.

Shortly after the USA-WWISP grant agreement was signed in 1985, a Netherlands expert mission prepared the ground for an institutional co-operation project between NOPWASD and the Netherlands International Hydrology Engineering Institute (IHE). The initiative was not followed-up for another four years, but surfaced again in 1992, when the USA-funded project was terminated and another pathfinding mission was fielded to re-assess NOPWASD's training capabilities and further assistance needs. The mission led to the approval, in June 1994, of the Dfl. 3 million Management Training Project for the Egyptian Drinking Water and Waste Water Sector.

The project was to develop and introduce sixteen tailor-made management training modules and give logistical support to a newly to be established training sub-centre at NOPWASD headquarters in Cairo. During the first year (1995), project staff carried out extensive investigations of what management training was needed. Subsequently, a list of priority training modules was established and five modules were developed. During

1996 the module development process became well established and targets are expected to be achieved in the remaining project period.

8.6 Assessment

8.6.1 *Policy orientation*

The drinking water and sanitation assistance programme was characterised by a sequencing from supplies of equipment and essential inputs to technical assistance and institutional development. During the initial period, the approach was to support Netherlands exporters in securing supply contracts with the country's main water supply and sanitation utilities. The urban focus was not a deliberate Netherlands policy but a sequel to Egyptian and international donor community policies to focus their water and wastewater programmes on these large urban areas where water and sewerage problems were most visible. The priority for urban areas was justified because of the massive environmental health hazards that threatened the quality of about one-third of the country's population. By taking up the Fayoum project, the Netherlands addressed the even more alarming (but quantitatively less important) environmental health problems in the rural areas in a priority governorate for the Netherlands aid.

Notwithstanding the need for institution-building activities spelled out in several master plan studies, the Netherlands initially did not pay attention to such activities, assuming that these were addressed under the major donor programmes. In the late 1980s, institutional weaknesses became more and more evident and the emphasis in Netherlands aid shifted to technical assistance. The approach was to acquire the services of experienced advisers (mainly from the Netherlands) to study the organisations, train staff and prescribe organisational changes while maintaining limited capital investment support. The shift was in line with a general trend in the aid programme for Egypt to phase-out programme aid and to address constraints to service delivery of recipient organisations.

During the initial 10–15 year period, there was complete congruence between Egypt's expansion-oriented sector policy and the aid priorities of the Netherlands. On the Egyptian side, preference was given to high-profile capital investment schemes requiring massive external funding without proper staging and addressing the potential of less advanced but more cost-effective technologies. This policy was endorsed by the larger international donor community, including the Netherlands. Donor funded master plan studies tended to be technically well prepared but presented overly costly and ambitious solutions, going beyond the financial and managerial capabilities of the implementing agencies. Subsequent project documents acknowledged the need to enhance institutional capabilities.

In nearly all cases, Egypt and the donor community ensured that key physical engineering components were successfully built. Until very recently, this priority for often complex construction issues resulted in the wider institutional issues of the projects being relatively neglected.

In the early 1990s, implementation of the ambitious sector programmes stalled and investments were threatened by local fund shortages. The main donors called for fundamental sector reform and the subsequent policy dialogue culminated in the 1995 Presidential Decree. The Decree is generally seen as an important stride towards improving the country's drinking water and waste water services.

8.6.2 *Effectiveness*

In terms of immediate project outputs, overall effectiveness of commodity import support was relatively good. By and large, funds were committed for interventions with the purpose of supplying goods which were needed, were not locally available and for which Egypt lacked the foreign exchange to import these on commercial terms. Moreover, the commodities were generally of good quality.

In Alexandria, the massive capital assistance programme allowed AWGA to expand its water production capacity and water sales. The increased coverage mainly benefited the Coastal Zone area west of Alexandria and the fringe areas of the continuously expanding Alexandria agglomeration.

Also it is widely acknowledged that, in both Helwan and Cairo, sewage flooding dropped dramatically and the sewage schemes yielded important health and environmental benefits to the city dwellers, including the poorest groups. The Helwan sewage treatment plant operates satisfactorily under a private contractor arrangement. Environmental benefits are further optimised through re-use of the treated sewage for irrigation. In Cairo, the environmental effects are still modest as the main sewage treatment facilities have yet to come on stream.

The effectiveness of the technical assistance interventions is difficult to gauge. Whereas the overall objective was to improve operational performance of the recipient organisations, no performance indicators were set against which the effectiveness or impact of the AWGA and Fayoum programmes can be assessed.

In the case of AWGA, preventive maintenance is mentioned to have reduced the number of equipment breakdowns at the Siouf plant but production or any other type of plant

performance data are not available. Also at the corporate level, the effect is unknown. In advocating a bottom-up strategy, project objectives and goals were not owned by AWGA's highly centralised management. Lessons learnt at plant level were not applied at the corporate level.

In Fayoum, the recipient organisation (initially El Azab, later the new General Economic Authority FEGAWS) definitely benefited from the technical assistance. Apart from heightening Egyptian awareness of the need for institutional and corporate reform, progress was made in strengthening financial management systems, introducing a customers relation function and improving maintenance practices and technical skills in both water supply and sanitation.

Little progress was made towards the establishment of a financially viable economic authority. As of 1996/97, more than two-thirds of the water production was still not commercially sold and only one-third of El Azab's regular operation and maintenance costs was recovered from consumers. Revamping the Authority's revenue collection and tariff systems becomes all the more urgent when the new treatment works will come on stream in 1998.

With respect to sanitation, the project was instrumental in building up an institutional capability virtually from nothing. This was a major achievement which benefited the on-going sanitary drainage programme in the Governorate. Capital investments and assistance did not yet produce tangible improvements in the field. Solid waste and other environmental sanitation activities (such as a latrine programme) had an experimental character while the first project-funded village sewerage scheme (Tutoon) started operations in 1998.

At the level of NOPWASD, it is too early to draw definite conclusions. Provisionally, project progress reports and supervision reports expose serious institutional weaknesses that threaten the overall effectiveness of the training project.

8.6.3 *Efficiency*

During the early stages of the programme, the project identification and appraisal effort was minimal and implementation was inefficient. Procurement processes were slow and did not follow deadlines on decisions and payments. The arrangement of mixed credit or concessional loan packages took an average two years to be finalised. Also, the execution of supply contracts took very much longer than was envisaged. With exception of the AWGA procurement programme (most of which was not tendered but directly awarded),

delays of 2–3 years were common. The most extreme case was the Helwan wastewater project which was scheduled to be completed by 1983 and was delayed by 8–9 years because of construction problems, changes in project design and shortage of counterpart funds.

Equipment supplies are reported by Egyptian client organisations to have been of 'good value for money'. In a few cases (Helwan and El-Mahmoudiya) the client organisation opted for high-technology solutions where lower-technology solutions would have been less costly and better sustainable. In the case of AWGA, procurement was based on over-optimistic and over-sized investment planning. The most striking example being the new 2,100 l/sec Nozha treatment plant which has remained idle since completion in 1995. Perhaps even more importantly, the relatively generous capital investment support detracted AWGA management from making a more vigorous effort to reduce water losses.

There were several shortcomings in the efficiency of technical assistance operations. In both Fayoum and Alexandria, project identification and negotiations on various sets of terms of reference dragged on for four years while first phase project implementation time was nearly double the original estimate. In Fayoum, the preparation of the Master Plan Study absorbed a considerable amount of time and manpower resources (some 200 man-months against 12 for the AWGA Master Plan). In retrospect, the inventory part of the Master Plan was relevant but the investment planning section was not adhered to.

At the level of AWGA, the lack of interaction and co-operation with the German parallel-funded project reduced efficiency. Whereas aid co-ordination is the prime responsibility of AWGA, there was little evidence of the two donors trying to frame a joint strategy or formulate a joint project which would have yielded much better results and achieved greater impact.

During the first ten-year period, project monitoring was minimal. Procurement was the responsibility of the suppliers and their Egyptian clients and there was no further involvement other than the routine approval of disbursement claims. Monitoring intensified in 1987 when a water sector specialist was stationed at the Netherlands Embassy. Projects were required to produce inception and progress reports and regular meetings were held with counterpart organisations and consultants. The increasing workload of the sector specialist, who was also charged with monitoring of the irrigation water and drainage programme, prompted the Embassy to call for external monitoring assistance. This has been on-going since 1992. Also in this case, the tendency was to focus on project execution modalities and consultants performance rather than the projects' ultimate developmental objectives i.e providing better water and sanitation services.

Given its size and importance, it is not clear why the sector aid portfolio was not more systematically evaluated. The first comprehensive sector evaluation mission was fielded in 1990. Whereas the AWGA technical assistance project was duly evaluated at every stage, the Fayoum project was not evaluated at all. Evaluation reports focused on implementation modalities and activities rather than assessing effectiveness. Both the quantity and quality of the data found in the evaluation documents were insufficient to permit rigorous comparative analysis that would lead to generic lessons regarding the water and wastewater sector.

8.6.4 *Sustainability*

Until 1995, there was a widespread consensus (at least among the donor community) that the results of the massive investments were threatened by insufficient funding for operations and maintenance on the part of the Egyptian Government and by institutional weaknesses of the water and waste water utilities. Funding was controlled by an inflexible central government process which was not responsive to local needs. Utilities had the responsibility for providing water and waste water services but with little authority over or control of their financial and organisational affairs. With exception of the Cairo/ Alexandria utilities, which gained the status of public sector companies, they did not retain revenue, had no voice in setting tariffs or rate structures and were overstaffed with an underpaid workforce. Prospects of sustainability of the development effort were particularly poor in the wastewater sector (World Bank, 1993).

It is now generally believed that decentralisation will lead to better service delivery because of the closer proximity of the service provider to its clients. The Presidential Decree of 1995 allows regional utilities to set up their own personnel and internal regulations. In addition, utilities are empowered to retain tariffs collected and to utilise these revenues to meet operation and maintenance costs. The process is arduous, however, and is likely to take some time in the face of strong institutional opposition seeking to preserve central government control.

With respect to sustainability of the Netherlands sector programme assistance, the new policy is particularly relevant to the Fayoum project. While offering a better framework for further institutional support it is clear that the level of autonomy which the newly established Economic Authority needs to perform adequately, cannot be realised without a strong self-generated financial resource base. Given the fact that only 30 per cent of operation/maintenance costs is currently recovered, the challenge is enormous.

Although in Cairo/Helwan and Alexandria water and wastewater utilities already had

Public Authority status, there too prospects for sustainability are threatened by lack of progress in recovering both operating and capital investment costs. Whereas operation and maintenance costs of drinking water services are basically recovered, those for waste water are recovered only partially. Full cost recovery and removal of all subsidies would require a tenfold increase of current tariffs. Since this will be hard to realise, sustainability of the results of the Cairo wastewater programmes is doubtful.

8.7 Conclusion

The general objectives of commodity supplies and the construction of infrastructure in water and sanitation development aid were to contribute to the full utilisation of available resources, the improvement of the quality of services and the rehabilitation and expansion of water supply and sanitary drainage systems. The objectives of institutional strengthening addressed the improvement of recipient organisations' autonomy and capacity. The aid effort contributed to a rehabilitation and expansion of the utilities, an improvement of the quality of services and a strengthening of the recipient organisations The impact of the assistance was hampered by a problematic institutional and policy environment, which has recently started to change.

The aid to the sector also contributed to better living conditions in as far as it avoided crippling water shortage and improved sanitary drainage conditions in the over-populated urban areas of Cairo and Alexandria. The poor most frequently bear the burden of these deficiencies. There is insufficient social data to assess the extent and character of the impact of aid on poverty alleviation. In absence of social data on the beneficiary population, the impact on the status of women cannot be assessed accurately. In general, improvements in water and sanitation facilities alleviate the daily burden of women in fetching water.

The support to drinking water and sanitation in Fayoum helped to strengthen the new Economic Authority, especially in technical execution and financial management. While house connection coverage was raised and some 20 per cent of public taps was rehabilitated under the programme, project impact is difficult to gauge in absence of reliable information on quantities of water actually consumed.

9 Health and population

9.1 Background

9.1.1 *Health conditions*

Health conditions in Egypt have improved significantly in the last few decades. At present, the country is in the midst of a demographic and epidemiological transition which affects the size, composition and health status of its population. It also defines the population's need and demand for health services. Intensive family planning programmes carried out in the 1970s and 1980s and a rather spectacular growth in contraceptive usage (in 1980 contraceptive prevalence was 24 per cent; by 1995 it had increased to 47 per cent) resulted in lower birth rates: the crude birth rate dropped from 43 per 1000 in 1965 to 27.5 in 1994 (Harvard University 1995; Robinson and El-Zanaty 1995). Mortality rates also declined as a result of expanded health services and effective public health measures, and a general improvement in the population's social and economic status. The crude death rate, which was 19 per 1000 in 1965 stood in 1994 at 6.4 per 1000 (Harvard University 1995). Life expectancy at birth in 1994 was 64 years. As a result of the demographic transition, a larger proportion of the population survives into adulthood and into retirement, which in turn affects the health system since adults tend to experience more chronic diseases and fewer infectious diseases.

The epidemiological transition in Egypt is characterised by a decline in mortality among infants and children from diarrhoea, and a reduction of immunisation-preventable diseases and respiratory infections. In 1995 about 80 per cent of children between 12 and 23 months were fully immunised against major preventable childhood diseases (National Population Council 1996). Improvements in maternal health have been less impressive. Simultaneously, the general economic and social development has led to a rise in risk factors for welfare-related diseases such as obesity and cardiovascular afflictions, an increase in traffic accidents and in factory-related injuries.

General figures about health conditions in Egypt conceal substantial internal differences. Disease patterns, infant and pre-school and maternal mortality differ greatly between Lower and Upper Egypt, between the rural and urban populations, and among various segments of the urban population. Women are exposed to higher risks of morbidity and mortality due to their disadvantaged position in society. Higher illiteracy rates among women, rural women's heavier workloads, as well as early marriage and repeated pregnancies, are causes of differences in the health situation between women and men. Also, infant and child mortality rates are higher for girls than for boys.

9.1.2 *The health care system*

At present, health services in Egypt are provided by a wide range of institutions. In the government sector, the Ministry of Health (as from 1996 merged with the Ministry of Population and Family Planning and renamed the Ministry of Health and Population) is the main provider of public health services at village and governorate level. During the past two decades, the role of the Ministry has declined and expenditure as a proportion of total health spending went down from an estimated 31 per cent in 1978 to some 20 per cent in the early 1990s. However, it still runs about 60 per cent of Egypt's hospital beds and a national network of ambulatory health facilities and public health programmes.

The Ministry of Education furnishes specialised health services in the urban areas through university hospitals. In 1992 there were some 31 university hospitals with a total of more than 15,000 beds. The Ministry of Education accounts for almost 10 per cent of overall health expenditure. In addition, other ministries, such as the Ministry of Defence and the Ministry of Interior, and public agencies such as the Egyptian Railways operate independent health facilities. Several parastatal organisations in which the government has a controlling share in decision-making, are also involved in the provision of health services.

Health services made available by the private sector include private hospitals and clinics, private pharmacies, individual practitioners and traditional healers such as barbers, dayas (mid-wives) and herbalists. Finally, a large number of non-governmental organisations such as religiously affiliated clinics and other charitable organisations provide health services on a non-profit basis. It is estimated that 85 per cent of the curative health services is now catered for by the private sector. There are an estimated 50,000 private ambulatory health care facilities consisting of individual practice or group polyclinics (Harvard University 1995).

Since 1964, Egypt has a national health insurance system. The Health Insurance Organisation (HIO) covers four major groups of beneficiaries: government employees, public and private sector employees, pensioners and widows of employees and, since 1993, students. The HIO employs its own doctors and operates clinics and hospitals, mainly in the urban areas. In the mid-1990s, the total number of HIO beneficiaries was estimated at some 14 million or about one-quarter of the population.

During the past two or three decades great progress has been made in increasing the physical accessibility to basic health services.The health care system is characterised by an extensive network of facilities and almost the whole population lives within a four kilometre radius of a health centre. Accurate data on the number of physicians currently practising in Egypt are not available due to high rates of physician migration and lack of updating of practice registration. The Human Development Report of Egypt reports about one MOH-doctor for every 1500 people, and one nurse for every 1150 people (Institute of National Planning 1996). A recent health survey suggests a higher rate of doctors and nurses (Harvard University 1995). Most physicians working in the public sector are also employed in the private sector. Inadequacies in the quality of health personnel appear to be the main cause of the low quality of services. The effectiveness of health care providers working in the public sector is reported to be low due to low salaries, the absence of incentives for productive and good quality work, the short working hours because of combining public service with private practice, and deficiencies in infrastructure, equipment and amenities (World Bank 1996).

The use of health care varies greatly within the country with urban populations using 63 per cent more outpatient services and twice as many inpatient services compared to the rural population. Especially those living in poorer rural areas and in urban slums find it difficult to obtain the necessary services. Compared to the populous region of Lower Egypt, Upper Egypt has the lowest level of health care use. Whereas the private sector tends to concentrate on the middle and higher income groups, public services are mainly frequented by poorer segments of the population (Harvard University 1995).

Various reports mention the high intensity of drug use in Egypt; it has been estimated that more than half of total expenses for health care are spent on drugs. Prescribing by physicians is excessive and use of the more expensive brand names is high. As a result, drug expenditures and consumption is 50 per cent higher than in most countries of a similar level of economic development (World Bank 1996). In Egypt, 75 per cent of all drugs are produced locally by public and private enterprises mainly using imported raw materials or (semi-)finished bulk products. Wholesale distribution of drugs is channelled via public and private firms, whereas retail distribution is chiefly handled by private pharmacies.

At present, Egypt spends approximately 5 per cent of its national income on health care services (public and private spending) which may be considered the average for countries

at similar stages of economic development. It is estimated that household out-of-pocket spending accounts for 55 per cent of total national health expenditure. Ninety per cent of this amount is spent on ambulatory treatment and 10 per cent on inpatient treatment. Poor households spend on average 10 per cent or more of their income on health care compared to 2 per cent among the richest stratum of the population (Harvard 1995).

There are several indicators for a rather low efficiency of health care expenditure: one-third of the expenditure of the Ministry of Health and Population is for administrative purposes; expenditure tends to favour large hospitals in the urban areas to the detriment of more cost-effective interventions (preventive and primary health care and family planning); bed occupancy rates of its hospitals are about 50 per cent; the Ministry has limited authority over resource allocation in the public sector, and coordination among various agencies is weak (World Bank 1996).

9.1.3 *Health policy*

The overall policy objective of the Egyptian Government is to improve the health status of the population by enhancing the accessibility, availability, quality and affordability of health services to the country's citizens.

Egypt was among the first countries in the region to establish a wide network of rural health services implemented on the basis of the Rural Health Reform Decree of 1942. The expansion of the health system gained momentum with the establishment of state socialism in the 1950s. All formal health care facilities were nationalised and staff became government employees. First-line health services were almost exclusively financed by government and health care was provided free of charge. In the 1960s and 1970s policy focused on increasing the coverage of the health system. This resulted in a large investment programme which led to a spectacular expansion in the number of hospitals, rural and urban health units and clinics. Numbers of professional and administrative staff also rose considerably.

By the end of the 1970s it had become clear that the prevailing policy of providing medical services free of charge could no longer be continued due to population growth, increasing demand for more sophisticated and expensive health services, and the effects of a stagnating economy on the government's budget. The government adopted the primary health care approach outlined in the Alma Ata declaration of 1978, partly because it expected that this would reduce costs. During the 1980s, Egypt reaffirmed its policy priority to provide primary health care with an emphasis on preventive care. As part of economic reform policies, steps were taken to expand the basis for financing national

health care by emphasising cost recovery and a greater participation of the private sector (Five Year Plan 1992–97). Although the 'privatisation' of health care has increased substantially, the Ministry of Health continues to operate an extensive health care system which aims at providing almost free care to the population.

The outcome of this policy has been a very thin spread of public resources, resulting in a generally low quality of care and low utilisation of public health facilities. Moreover, although the country's policy documents emphasised preventive primary health care, especially in rural areas, the accent in financial terms has remained with secondary and tertiary curative services in the urban areas. Recent policy documents underline that, in its present state, the public system is not sustainable.

Two main issues dominate the discussions on Egypt's health policies and problems: (i) how to reconcile priorities for technologically-advanced curative services and high drug use with the need for preventive and environmental health, and (ii) how to demarcate the role of the public health sector vis-à-vis that of the rapidly expanding private (curative) services, and how to integrate public and private services into an effective overall health system.

In 1997, the Government decided to embark upon a health sector reform strategy in close co-operation with the main donors in the sector (World Bank, EU, USA and Denmark). The long-term objective of this reform is universal coverage of the population with a defined package of benefits, funded through a national social health insurance scheme. General policy principles for sector reform have been agreed upon. The Ministry of Health and Population will design overall policy and regulate structures, including the setting of standards and quality control. The Ministry's role in the direct delivery of services will decline. Decentralisation will be the principle for service delivery; and responsibilities for the identification of needs, and the planning and managing of services will be delegated to district and governorate levels.

9.2 Netherlands assistance

9.2.1 *Netherlands policy*

Until the mid-1970s Netherlands' assistance to the health sector in developing countries focused primarily on supporting hospital-based health care. Projects assisted by the Netherlands typically included the supply of medical equipment, the treatment and prevention of tuberculosis, the rehabilitation of disabled people, and the expansion and improvement of hospitals. Evaluations of 25 projects in various developing countries have

shown that this type of support generally resulted in limited expansion of the coverage of the health services. Disappointing results were frequently caused by inadequate planning and inaccurate assessments of real needs. Maintaining the sometimes very sophisticated equipment increased operational costs. New equipment was often too advanced for the level of skills of medical staff and maintenance personnel. Finally, projects suffered regular delays in the installation of equipment or construction work (IOV 1987).

As of 1975, the focus in Netherlands' development co-operation policy towards the health sector gradually shifted to primary health care through the provision of a relatively inexpensive package of services for the rural and (peri)urban population. During the last two decades, this policy has consistently emphasised the priority for an integrated approach which included strengthening the primary level of socio-medical care, a broad coverage of the population, the mobilisation of local expertise and, wherever possible, the participation of the local population.

Netherlands' support to the health sector in Egypt dates from the start of the development co-operation between the two countries in 1975. At first, this support was based on answering requests for separate projects, involving the supply of modern equipment for highly specialised medical institutions. In 1981 a mission of health specialists visited Egypt. In line with the change in Netherlands' development co-operation policy for the health sector, the mission recommended a reorientation of support to the sector in Egypt. This general reorientation, however, was not further specified in terms of priorities in the first two multi-annual policy plans for bilateral co-operation with Egypt (1986–89 and 1989–92). Apart from referring to broad issues that confront the health sector in Egypt, such as the decrease of government expenditures due to structural adjustment policy and the need to reduce cost and increase the effectiveness of existing health services, the documents give no indication of policy priorities of either country.

In the multi-annual policy plan for 1992–95, aid to the health sector was worked out in more detail and justified in terms of the generally low quality of public health care and the seriousness of the population problem in Egypt. The document points to factors constraining further improvement in public health care: low salaries for government staff, continuing expansion of private practice among government-employed doctors, the reduced effectiveness of public services because doctors give priority to their private practice, and finally, lack of access to private services for the poorer strata of the population. The document puts priority on support to rural public health with an emphasis on improving preventive care. Mothers and young children were mentioned as a special target group.

9.2.2 *Programme characteristics*

The Netherlands is one of several donors supporting the health sector in Egypt. In financial terms, USAID is the major donor supporting a country-wide child survival programme and a sizeable schistosomiasis control programme, and the third donor in the field of family planning. The World Bank (family planning) and the EU are also important donors. UNICEF supports a health and nutrition programme which focuses on child survival. The activities are a mix of capacity building, community empowerment and service delivery. UNFPA assists in family planning activities. Finland, Italy and Denmark concentrate their assistance on primary health care at the governorate level. In addition several NGOs support activities in the sector.

In the period 1975–96 Netherlands support to the sector amounted to Dfl. 87 million. Of this total, about three-quarters (some Dfl. 70 million) was disbursed in the 1980s, partly in the form of commodity import support (14 per cent of disbursements to the sector). Although the activities supported are rather heterogeneous, two main sets may be distinguished. The first comprises the supply of materials and equipment to three types of recipient organisation: specialised hospitals, rehabilitation centres for the handicapped, and the pharmaceutical industry. This accounts for 70 per cent of total expenditure. A second set involves support to primary health care and reproductive health, and comprises three main activities: assistance to the UNFPA for family planning, and two projects at governorate level, i.e. Damietta Primary Health Care and Fayoum Rural Health and Family Planning. Support to family planning activities through UNFPA consisted of a contribution to the Population and Development Programme in the early 1980s and two more recent activities: these are rather small in terms of disbursements and have not been included in the evaluation. This second set accounts for 19 per cent of total disbursements. Finally, the Netherlands supported the national tuberculosis control programme and a number of relatively small research projects and studies. For details on expenditure, see Table 9.1.

The relative importance of the different clusters of activities varied over of time. During the 1970s, the Netherlands mainly financed the supply of equipment to rehabilitation centres for the handicapped and the pharmaceutical industry. During the 1980s, emphasis in financial terms shifted to the supply of equipment to a number of specialised hospitals and imports of raw material for the pharmaceutical industry. In 1980, primary health care became a priority area for Netherlands support, and gained momentum in the late-1980s to become the most important activity in the 1990s. In terms of overall disbursements of Netherlands aid to Egypt, expenditures on the health sector declined from 25 per cent in 1981 to some 10 per cent in 1993, in close relation to the shift in disbursements from equipment supply to technical assistance.

Table 9.1 Disbursements to the health sector, 1975–96 (Dfl. mln)

	1975/85	1986/90	1991/96	Total	%
1. Supplies of materials/equipment					
Specialised hospitals	15.3	11.3	0.2	26.8	
Pharmaceutical industries	9.8	11.9	–	21.7	
Rehabilitation centres	8.2	4.4	–	12.6	
Sub-total	33.3	27.6	0.2	61.1	70
2. PHC/Reproductive Health					
UNFPA-family planning	2.6	–	0.4	3.0	
Damietta PHC	–	5.2	2.3	7.5	
Fayoum RHFP	–	0.4	5.5	5.9	
Sub-total	2.6	5.6	8.2	16.4	19
3. TB Control Programme	–	2.2	5.4	7.6	9
4. Miscellaneous	1.2	0.3	0.6	2.1	2
Total	**37.1**	**35.7**	**14.4**	**87.2**	**100**

Source: DGIS files.

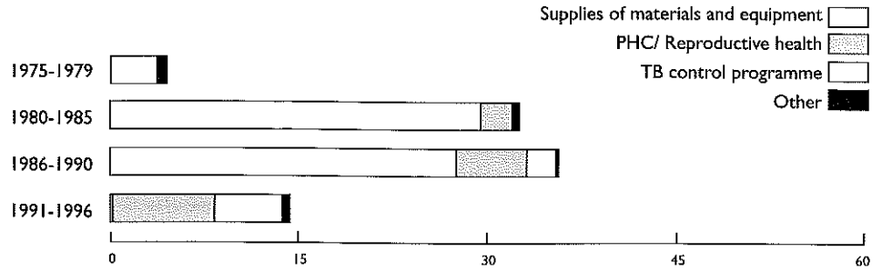


Figure 9.1 Support to the health sector, 1975–96 (Dfl. mln)

9.3 Supply of materials and equipment

9.3.1 *Implementation*

The supply of materials and equipment has been the main component of Netherlands support to the health sector. There were three main types of recipients: university hospitals and specialised clinics, pharmaceutical industries, and social rehabilitation centres for the handicapped.

The University of Mansoura was the main recipient of equipment to specialised hospitals. More specifically, its urology clinic and the radiology department received almost three-quarters of all disbursements for supplies to specialised hospitals.

The urology clinic aimed at providing adequate medical care to patients suffering from severe complications of bilharzia, which is endemic in the Mansoura region. The high incidence of the disease, especially among small farmers and agricultural labourers and the outstanding international reputation of the clinic's director were important arguments in favour of the support. Between 1979 and 1990 Dfl. 10 million of financial aid for the supply of medical equipment and technical assistance for supervision of the construction process was provided. This represented about one-third of total investments in the urology clinic. The clinic, which came in operation in 1983, was initially not optimally used and served mainly as a training facility for students (IOV 1985a). The situation soon changed for the better and figures for the 1990s indicate that available capacity is intensively used. Recently, the equipment has been partly renewed by another donor, due to rapid developments in medical technology. The treatment of patients with bladder cancer and chronic kidney insufficiency, which are severe complications of bilharzia, is considered to be of high quality.

In the late 1970s, the Netherlands also agreed to fund the modernisation of the university's radiology department in order to enhance the quality of care, research and education. Activities consisted of upgrading and reconstructing the department's building and the supply of modern radiology equipment. The total costs of this project amounted to Dfl. 23 million covered by funds of the University of Mansoura (Dfl. 3 million), a concessional loan provided by the Netherlands of Dfl. 8 million, a short-term buyers credit of Dfl. 9 million and a grant of Dfl. 2.8 million covering technical assistance. From the very beginning, this project faced a host of technical, financial and organisational problems. Negative advice on the technical suitability of the building put the entire construction programme and financial planning into disarray. A five-year delay in construction led to a situation in which the originally tendered equipment was considered technically obsolete. The equipment order was reconsidered and re-negotiated between the department and the Dutch supplier. Construction of the building was completed in 1990, i.e. some ten years after approval of the project. The equipment, comprising general equipment for diagnosis of a broad range of diseases, and special equipment for diagnosis of cancer and radiotherapy, was installed in the same year. In 1996 all equipment was in good working order and in intensive use. Statistics for 1994 indicate a total of 60–65,000 patients treated per annum. The equipment is also intensively used for student training.

Another major recipient of equipment supplied to specialised institutions was the Chest Disease Administration of the Ministry of Health for its National Tuberculosis Programme. In the early 1980s tuberculosis was considered a major threat to public health in the country. During the period 1980–82, the Netherlands allocated some Dfl. 3.5 million for X-ray equipment, laboratory equipment for sputum research and materials for BCG

vaccination to 50 laboratories and 10 X-ray units throughout the country in order to strengthen their diagnostic and treatment capacity. The supply of equipment was supplemented with some limited technical assistance for installing the equipment. In 1988, the Netherlands started to provide further technical assistance for tuberculosis control (see section 5 below).

The second major component of supplies of materials and equipment involved those to the pharmaceutical industries. This support aimed at the improved supply and higher self-sufficiency in the production of essential drugs and vaccines as a means to achieve a better health situation in the country. Activities were of two types: the construction of laboratory facilities for vaccine production, and the supply of bulk and intermediary materials for anti-biotics production.

The support for vaccine production involved the supply of laboratory facilities to a public agency, the Egyptian Organisation for Biological Products and Vaccines at Agouza (Cairo), the training of its scientific and technical staff, and technical assistance for installing the equipment. The assistance started in 1977 and was implemented in phases, in each of which the production of a new type of vaccine was to be introduced. Implementation was characterised by substantial delays due to stagnation in the construction of buildings and differences of opinion about equipment between Egypt and the Dutch consultant. The production of tetanus vaccine began in 1979, of pertussis vaccine in 1986 and that against DTP in 1987. Subsequently, there was a three-year period of discussion between Egypt and the Netherlands about further support. Major considerations for this were the crucial problems faced by the Agouza institute in production, with prices fixed artificially below the costs of production and low staff morale due to low salaries, and the interest shown by other donors in supporting Agouza. In 1989 USAID decided to support the institute in the wider framework of its Child Survival and Development Programme, and the Netherlands discontinued its assistance. Agouza was still included in the 1992–96 health sector support programme of USAID.

Inputs for the pharmaceutical industry were made up for three-quarters of the bulk supply of anti-biotics and for the rest of intermediate products for anti-biotics production. Recipients were two public companies. At the time when this support was provided (1984 and 1987–89), Egypt suffered from a shortage of foreign exchange and experienced serious inefficiencies in the production and distribution of drugs. Although domestic producers formally covered 80 to 90 per cent of the market in the 1980s, 'local production' was largely restricted to the last stage of production, called formulation, which often implied the repacking of wholesale supplies. This also applied to most of the goods provided by the Netherlands.

The third major component of materials and equipment supplied to the health sector involved equipment for improving the functioning of rehabilitation centres for the handicapped. In 1951 the then-Social Development Department of the Ministry of Health, later the Ministry of Social Affairs (MoSA) established a specific rehabilitation programme for handicapped people. This programme aimed at improving their living conditions by more effective treatment and providing them with possibilities for suitable employment and income generation. Government and non-government institutions both participated in its implementation. Netherlands support to this programme started in 1976 and was phased out in 1989. Grants totalling Dfl. 12.5 million were disbursed to purchase physiotherapeutic equipment, as well as machines and other materials to be used in the vocational training of the handicapped and in production activities in rehabilitation centres. Some twenty, mostly NGO-managed, centres throughout the country including two in Cairo were supported. The equipment was made available as a type of programme aid, i.e. in the form of a lump sum, and was distributed among the various centres according to perceived needs by staff of the Ministry of Social Affairs. In financial terms, most of the equipment was for the vocational training aspect.

9.3.2 *Results*

The results of the Netherlands support to the health sector in the form of large-scale supplies of modern medical, laboratory and other equipment and drugs differ for the various activities. The modern equipment for the specialised university hospitals is intensively used for health care, research and training of medical personnel, or (in the case of the urology clinic) was so used before it became obsolete due to rapid technological development. This intensive utilisation applies particularly to Mansoura University, the main recipient of hospital equipment, and is shown by the high numbers of patients treated.

The supply of TB equipment took place in a period that microscopic sputum research was increasingly considered a better method for the identification of TB patients than X-ray equipment (see also section 5 below). An evaluation concluded that, despite efforts to strengthen sputum research as a case finding method, emphasis was still on the use of X-ray equipment. In spite of this priority, the state of maintenance of X-ray equipment was unsatisfactory.The laboratory equipment for sputum research was under-utilised, partly due to the inadequate training of staff to operate it, partly because of the preference for X-ray equipment (IOV 1985b).

Support to the pharmaceutical industries resulted in an increase of vaccine production against major children's diseases and a higher rate of self-sufficiency in producing the vaccines. For diphtheria/tetanus vaccine Egypt became wholly self-sufficient. By the time

Netherlands assistance was terminated, it was clear that quality control required further attention and this was a component of USAID support in the early 1990s.The supply of anti-biotics did not lead to additional imports but only substituted for commercial imports from regular Dutch suppliers. Anti-biotics are a top priority drug in Egypt, and consumption is high. As most supplies consisted of bulk final products, there was hardly any effect on domestic production. The incidental supplies and nature of the commodities did not create possibilities for influencing the prevailing unfavourable production and consumption conditions. Confronted with these limitations, the Netherlands discontinued its support to the pharmaceutical industries in 1990.

Results of the supplies of equipment to rehabilitation centres for the handicapped show wide differences between individual institutes. In general, physiotherapy equipment was under-utilised for several reasons: insufficiently adjusted to the conditions of the patients, inadequate training, and frequent absence of staff due to low salaries. Moreover, the physiotherapy equipment was used more for non-handicapped regular patients than for the handicapped. Equipment for vocational training and production, the bulk of the supplies, was still operational in 1995 in most centres visited, in spite of problems in funding maintenance costs. Capacity utilisation differed among the various centres. Most centres were highly dependent on government agencies for their orders and faced increasing competition of the private sector. A small proportion of trainees had acquired employment outside the centres; most of them continue to work in the centres, which therefore operate as 'sheltered workshops' rather than as training institutes.

9.4 Primary health care

As defined by the Alma Ata conference, primary health care is essential health care made accessible at a cost that is affordable to country and community, with methods that are practical, scientifically sound and socially acceptable. At the very least, it should include education of the community on prevalent health problems and on methods of prevention or of control of such problems; the promotion of adequate supplies and of proper nutrition; sufficient safe water and basic sanitation; maternal and child health care, including family planning, the prevention and control of local endemic diseases; immunisation against the main infectious diseases, appropriate treatment of common diseases and injuries; and the provision of essential drugs (WHO 1984).

In the second part of the 1980s, Netherlands' policy towards the health sector in Egypt closely followed the approach adopted at Alma Ata and increasingly focused on interventions characterised by an integrated approach, which included strengthening the primary level of socio-medical care. Two projects at governorate level were supported by the

Baby receiving immunisation (photograph: Lineair)

Netherlands, one in Damietta and one in Fayoum. Both originated in earlier contributions by the Netherlands to UNFPA's Population and Development Programme (PDP) which were earmarked for these governorates. The approach of this family planning programme considered welfare improvement a pre-condition for effective family planning. Funds provided by the Netherlands to UNFPA were used for a broad range of production-oriented and social services projects. The former included the supply of mini buses, agricultural equipment, hatcheries and sewing machines; the latter focused on the improvement of day-care centres, youth centres, mosques and health units. These activities were supported in 51 out of 61 Village Council Areas in Damietta and Fayoum governorates.

9.4.1 *Implementation*

The Damietta Rural Primary Health Project (DRPHC) started in 1985 and consisted of four consecutive phases until Netherlands support ended in 1995. A total of Dfl. 7.5 million was disbursed. The general objective of the project was to contribute to improvements in the health status of the rural population, in particular the poorer social strata including women and children. More specifically, the project aimed at improving the quality of existing rural health services through establishing a public health programme emphasising preventive care, staff training and improvement of management. The project was implemented

through the Ministry of Health at the national and governorate levels, which provided the necessary manpower and infrastructure. The Netherlands support consisted of technical assistance to the Department of Health of the governorate, the supply of equipment and means of transport, and the operational costs.

The project followed a process approach which included a broad range of activities, considered inter-related and mutually reinforcing. Through a large-scale home visiting programme, the project's major component, nurses of the various rural health units and rural hospitals provided ante-natal care, growth assessment of children below the age of five years, and health education including information on family planning methods. Nurses were given special training courses to enable them to perform their duties effectively. If necessary people were referred for treatment to the rural health centres which were renovated and provided with the necessary equipment. Other components of the project were the improvement of management and planning. Starting in 1994, reproductive health activities and health care specifically directed towards elderly women were initiated on a pilot scale. At the end of the fourth phase, in 1995, the support was discontinued as the rather centralised decision-making hampered co-operation at the governorate level.

The Fayoum Rural Health and Family Planning Project (FaRHFP) was established in 1992 as a pilot project aimed at developing a comprehensive model to improve the health status and well-being of rural families in the Governorate of Fayoum. It had a gestation period of six years. It started in 1986, and after several identification and formulation missions, a proposal for a pilot project to be implemented in one of the five districts (Itsa) was approved in 1991. Activities began in 1992. In 1996, the project was extended for another five years and activities were expanded to the neighbouring district (Ibshaway).

The project is implemented within the existing administrative structure of the governorate. Its approach is characterised as process-oriented, community-based and gender-sensitive. Community participation is pursued by intensive mobilisation campaigns, strengthening of Community Development Associations and the involvement of local leaders and social workers. Intensive training of those involved in the project (government officials, community leaders and project staff) is seen as a necessary component in order to develop human resources.

The project's intervention model can be summarised as follows. Successful reproductive health care and family planning in rural areas with a high degree of poverty can only be achieved by a comprehensive approach, which addresses health, family planning and socio-economic needs in an integrated manner. Family planning must be related to mother and child care via a system of public health facilities which provide effective preventive (immunisation and ante-natal care) and curative care. The basic principle is that public

health services can only operate effectively in rural communities through trained health promoters originating from that community and functioning as intermediaries between the population and the health services to improve the use of these services. Finally, successful mother and child care and family planning depend to a large extent on the empowerment of women through education and employment creation which will strengthen their position in the community.

The establishment of a system of health promoters is the core of the project. After a six weeks training course, these health promoters visit women in the reproductive age in their communities to stress the importance of making use of the district's public health system and family planning services. During these visits they inform the women of socio-economic services provided by the Department of Social Affairs, the Community Development Association and other village institutions. These socio-economic services, supported by project funds, include literacy courses, vocational training for young girls and the provision of small-scale credit to women.

There are several differences in the approach adopted in Fayoum compared to that in Damietta. Although activities focus on reproductive health and family planning in both governorates, health promoters in Fayoum originate in the villages they work in while in Damietta home visits are made by trained nurses. In Fayoum health promotion is combined with support to economic activities and income generation. In addition, activities in Fayoum started on a pilot scale in one district and were subsequently extended to another. In Damietta activities focused on the whole governorate.Yet the basic idea of both projects is very similar: to improve family health by information campaigns through home visits directed towards the integration of preventive and reproductive health activities into the overall public health system.

9.4.2 *Results*

Evaluations of the UNFPA's Population and Development Programme indicate several weaknesses in the approach which gradually became clear during implementation. Family planning promoters (raidats) were overloaded with a broad range of different tasks, insufficiently trained and rather poorly paid. The organisational structure was highly complex and co-ordination proved difficult. In addition, the programme did not have a link with the private sector which was the main supplier of contraceptives, and its economic activities lacked success. Revolving funds were gradually depleted because of inflation and the interest-free nature of the loans. Moreover, the effects of the loans on income improvement and the relationship with increased use of contraceptives remained unclear. Although the various agencies involved in family planning referred to a substantial

increase in contraceptive use in areas covered by the programme, an evaluation concluded that contraceptive use had not risen faster in project areas than anywhere else in the country and that fertility was virtually unchanged (Robinson and El-Zanaty 1995).

The Damietta project was successful in establishing a training centre, devising an appropriate curriculum, and training more than 200 nurses for the home visit system. This system was established in all four districts of the governorate. In addition, all rural health units which needed up-grading were renovated and provided with the required medical equipment. The management and planning component, which included an improved health information system and the adoption of an integrated approach towards village health planning, was not successful and subsequently shelved. The reproductive health, and women and development components were implemented on a pilot scale and too recent to evaluate results. Due to deficiencies in the monitoring system, the effects of home visits on use of the public health system, and on the health conditions of households in general, are not known. Statistics for the governorate indicate a decreasing number of patients visiting governmental health units, but there are no data on consultations in the private sector. The project did not lead to the intended replicable model for basic health care in Egypt.

At the end of 1996 the Fayoum project covered about 150,000 households in all nine Village Council Areas of Itsa district. Some 195 of approximately 1000 health promoters needed for the governorate had been trained and carried out their assigned tasks. In addition, 31 supervisory staff had been trained. Institutional links had been established with relevant services at the village and district level. All except one of the 23 rural health facilities, all four family planning clinics and three nursing stations had been renovated and had received the necessary medical equipment and training material. According to a recent evaluation report a successful system of community-based health promoters has been developed, although there is no evidence that the quality of health services meets local women's needs or that women and children have increased accessibility to health services (SPAAC 1996).

In terms of contributing to socio-economic development, the project realised modest but, at the level of individual households, sometimes important results. By the end of 1996, 625 small interest-free loans had been provided to poor women. In addition, the Itsa Community Development Association provided over 350 loans to villagers wishing to start small businesses; skills training involved some 90 women, while the project identified 440 families eligible for social benefits. All in all, total coverage for this component was about 2 per cent of the district's population.

9.5 Tuberculosis Control

Because of its communicable nature, tuberculosis is considered an important public health problem, especially in areas with a higher risk of transmission like crowded urban slums. Tuberculin surveys point to an annual risk of infection of 0.7 per cent, which implies some 35 cases per 100,000 people, i.e. some 21,000 cases for the entire country. The present major problem is the necessity of early diagnosis, and regularity and continuity of treatment. In the 1980s Egypt established a special programme, the National Tuberculosis Programme.

9.5.1 *Implementation*

After supplying equipment for tuberculosis control in 1980–82, Netherlands support to the National Tuberculosis Programme continued in 1988, i.e. after five years of preparations, by funding a specific technical assistance project, the Tuberculosis Control Project, which supported the programme's activities in eight governorates. In 1993 the project was extended for another five years and now covers almost the entire country. The main objective of the project was to upgrade the overall organisation and management of the National Tuberculosis Programme, including the introduction of required changes in diagnostic and treatment methods.

The support consisted of technical advice to the Ministry of Health. Activities undertaken included surveys of health units at the governorate level, training of health personnel, supply of equipment, mainly microscopes to be used for sputum analysis, and the supply of special drugs needed for treatment of patients by a short-term drug-intensive regimen normally including hospitalisation.

The initial strategy was to improve the quality of existing chest disease clinics and hospitals in the governorates. These institutions operate through a direct relationship with the specialised Unit for Training, Research and Surveillance (UTRS) of the Ministry of Health, thereby bypassing the governorates' regular health structures. This organisational set-up caused the programme to expand fairly quickly, although it hampered the integration of tuberculosis control into the regular basic health system. In 1996 it was decided to expand the services to other health providers which also deal with TB control, i.e. the Health Insurance Organisation and the private sector. In the same year the project selected demonstration sites as a means to optimise case-finding procedures and to achieve higher cure rates.

9.5.2 *Results*

Major achievements can be summarised as follows. By 1996 the project covered 18 governorates, i.e. some 80 per cent of the country's population. In these governorates physicians, nurses and laboratory staff were trained; new treatment regimes were introduced, and an surveillance system established. A monitoring system of case-holding of ambulatory patients consisting of appointments, home visits and patient administration, has resulted in better insight into the problem of patients who default on their treatment. The project quickly and adequately supplied newly-covered governorates with necessary equipment and drugs.

Despite the broad range of inputs used for capacity building, overall treatment results remained below expectations. In 1995 the cure rate for the short course of chemotherapy regimen was 40 per cent and discontinuation of treatment was still rather high.

9.6 Assessment

9.6.1 *Policy orientation*

In the twenty years that the Netherlands have given support to the health sector, two distinct phases can be discerned. Until the mid-1980s the assistance was largely congruent with the overall Netherlands policy towards health sectors in developing countries. This policy focused on the supply of equipment to curative health institutions, mainly hospitals and specialised clinics, in order to improve the health infrastructure. The supply of equipment and commodities was also in line with Egypt's priorities in the improvement of specialist curative health care.

The support involved a wide variety of activities financed through different aid forms (commodity import support, project aid, mixed credit loans), and reflected the broad range of ad-hoc requests by the Egyptians, particularly during the 1970s and early 1980s. The two parties did not design a joint strategy for support to the sector which could function as a framework for approval of individual projects.

The shift in Netherlands development co-operation policy for the health sector, which was initiated in the second half of the 1970s, became manifest in the expenditure pattern in Egypt in the late 1980s. The policy change implied support to primary health care and reproductive health type-activities at governorate level in two concentration areas: Damietta and Fayoum. Explanatory factors for the delay in implementing the policy shift were the Egyptian preference for modern equipment in advanced curative services, and the usually long preparation period for technical assistance projects in Egypt.

Activities in the second phase aimed at strengthening the primary level of socio-medical care covering a large part of the poor population. These projects complied with Egypt's policy priorities as reflected in the country's acceptance of the Alma Ata Declaration. The general principles of this Declaration have not yet been translated into a coherent policy, and expenditure patterns still emphasise curative care at secondary and tertiary levels. Very recently, principles were announced for a new policy, which will be worked out in close co-operation with the main donors.

9.6.2 *Effectiveness*

The effectiveness of Netherlands support to the health sector differs for the main components: supply of materials and equipment, primary health care, and the TB programme. The main objective of supplies of materials and equipment was to improve curative services, the university training of medical personnel, and drug production and distribution. Effectiveness was mixed: it was high for supplies to individual specialised hospitals and clinics. The objectives were achieved, the equipment was relevant for diseases occurring frequently in Egypt (bilharzia and cancer), and was intensively used in treating patients and training staff.

In spite of this generally high rate of success at the level of individual institutions, the effectiveness of supplies in terms of improving health conditions in Egypt in a more general sense was limited. Firstly, support for bilharzia treatment focused on curative care, and was not accompanied by the development of methods to reduce incidence of the disease through appropriate prevention strategies. Second, in the supply of other equipment to university hospitals (radiology) there was no link between the training of medical students and the health care situation in which they would later function. Whereas the training focused on curative services with the use of modern equipment, the actual field conditions of the public health system were characterised by lack of such equipment and a need for preventive and environmental health.

The effectiveness of support to vaccine production was also high, in the sense that relatively complex production facilities were successfully established, and self-sufficiency in vaccine production increased. Moreover, it facilitated the vaccination campaigns which had a high response and decreased the incidence of serious childhood diseases.

The effectiveness of the supply of antibiotics and equipment for the rehabilitation centres was marginal. The objectives of the drug supply, i.e. contributing to the improvement of health conditions and enabling the pharmaceutical industry to sustain domestic production, were not achieved. The support did not and could not contribute to required

changes in the main characteristics of drug production and consumption: high drug use, preference for expensive brand names, and inefficiencies in production due to subsidies and consumer prices that were fixed below cost level. The equipment supplied to rehabilitation centres was chiefly for vocational training given to handicapped people, which mainly resulted in 'sheltered' employment for a limited number.

The effectiveness of the Damietta and Fayoum projects is high in terms of improvement of the physical infrastructure and training of staff. In addition, the home visit system raised awareness of health issues among the rural population and, in Fayoum, more especially among women in the reproductive age categories. The projects were less successful in strengthening management and planning capacities. It is not possible to judge their effectiveness in terms of the general objectives, i.e. the effects on family planning practices and improvement of the overall health situation of the population, women and children in particular. Recent evaluation reports indicate that there is no conclusive or accurate quantitative evidence on the impact of the work of the health promoters (SPAAC 1996; Soheir Stolba 1996). This is mainly due to the monitoring and information systems focusing on inputs rather than on measuring output.

The evaluations revealed two principal factors that adversely influence the ultimate effectiveness of the projects in Damietta and Fayoum. The first refers to the wider socio-economic and institutional environment in which the projects are implemented. The public health system in Egypt is under stress and, compared to private spending, government expenditure is relatively low. The projects attempt to improve public health services while their role is declining and their position in the overall health care system is not clearly demarcated. Health promoters raise awareness and expectations of public health services, but this is not backed up by their improved functioning. Outreach community-based health and family planning services have been a component of several donor-funded projects that have not been successfully integrated within current systems. In Fayoum too, the project is partially integrated into the overall health system.

The second factor refers to the approach and practices followed in the two projects. The various elements are partially interlinked and monitoring has not been instrumental to enhance this integration. For example, information gained from home visits is insufficiently analysed and used for feedback (supervision and training), the effects of socio-economic activities on the empowerment of women and the use of family planning facilities is not known, and private practitioners were marginally involved, although they play an important role in providing curative care.

By introducing a higher quality of diagnosis, the tuberculosis control project created favourable conditions for more effective tuberculosis control in the country. Improved

treatment methods have resulted in an increased cure rate. Regularity in treatment has also improved although the default rate of ambulatory patients remains high, which has a negative influence on the programme's effectiveness. TB control becomes effective when measures reach 80–85 per cent cure rates compared to the present 40 per cent. Moreover, the lack of integration into the basic health system has resulted in a generally late detection of new cases. This in turn causes difficulties in containing the disease, unnecessary suffering and higher treatment costs. The recent changes in the project's strategy are expected to improve effectiveness.

9.6.3 *Efficiency*

All projects in the health sector were characterised by rather long periods of time needed for preparation. The supply of materials and equipment experienced delays because of differences of opinion between the parties about the type and quality of commodities and the late completion of civil works. For the technical assistance projects the complexity of objectives and the multitude of organisations involved, together with bureaucratic regulations and contrasting views of several identification and formulation missions, explain the long period of preparation, which did not lead to generally high efficiency in implementation.

Materials and equipment were supplied under conditions that guaranteed reasonable prices. Although most equipment was not ordered through tender procedures but through direct contact between Netherlands suppliers and the recipient organisations, the Netherlands Procurement Agency (NIC) checked contracts and prices. Evaluations stated that some equipment should not have been supplied (X-ray equipment) or could have been ordered more cheaply in Egypt (office equipment).

The projects differed widely in coverage and there was little relationship between that coverage (in terms of size of area, the number of people, or percentage of the population) on the one hand, and total project costs on the other. Costs were related mainly to the type of technology in the supplies of equipment. Most projects were not appraised in the sense that alternative solutions and approaches were taken into consideration before approval. In the tuberculosis control project, different treatment regimens were compared. In terms of costs, the intensive short-term treatment of patients appeared somewhat more expensive compared to the original long-term treatment method because of the special drugs used. However, the cost difference is relatively small, the default rate is lower and the cure rate much higher.

The credit component in the Fayoum project was inefficient due to subsidised interest

rates, costs exceeding revenues and the existence of a well-established alternative system of village banks with an extensive network of branches.

The conclusion is that the overall efficiency of the activities supported in the health sector needs improvement. The main factors that hampered efficiency were the absence of a joint sectoral policy framework for Netherlands assistance, differences of opinion between the donor and host country about needs and priorities in the sector, and deficiencies in project design, with little attention for institutional constraints and bureaucratic rules and regulations that governed the public health sector.

9.6.4 *Sustainability*

In general, the materials and equipment obtained through the Netherlands' support can be considered a good and sustainable investment. This applies in particular to the support provided to Mansoura university. The urology clinic is considered an institute of international repute which is self-supporting in terms of operation and maintenance costs. The radiology department is well-integrated into the medical faculty and its operation and maintenance costs are covered by the regular university budget. The high priority give to immunisation in government policy guarantees the sustainability of the Organisation for Biological Products and Vaccines at Agouza.

The sustainability of the projects in Damietta and Fayoum is largely determined by the degree of integration into governorate-level health policy and priorities. In 1995 this had not yet been successfully achieved. In Fayoum, government funds are only available for the duration of the project, and thorough attention is at present being given to this issue.

The support provided to the National Tuberculosis Programme has contributed to the sustainability of tuberculosis treatment and control. Diagnosis through sputum microscopy in laboratories, provided it is more widely applied, is an accurate, relatively cheap and sustainable diagnostic method.

The main factors that negatively influence overall sustainability of the primary health care projects are the institutional and financial conditions of the public health system in Egypt. The characteristics and outcome of the planned reform of the health sector will ultimately determine the sustainability of project results.

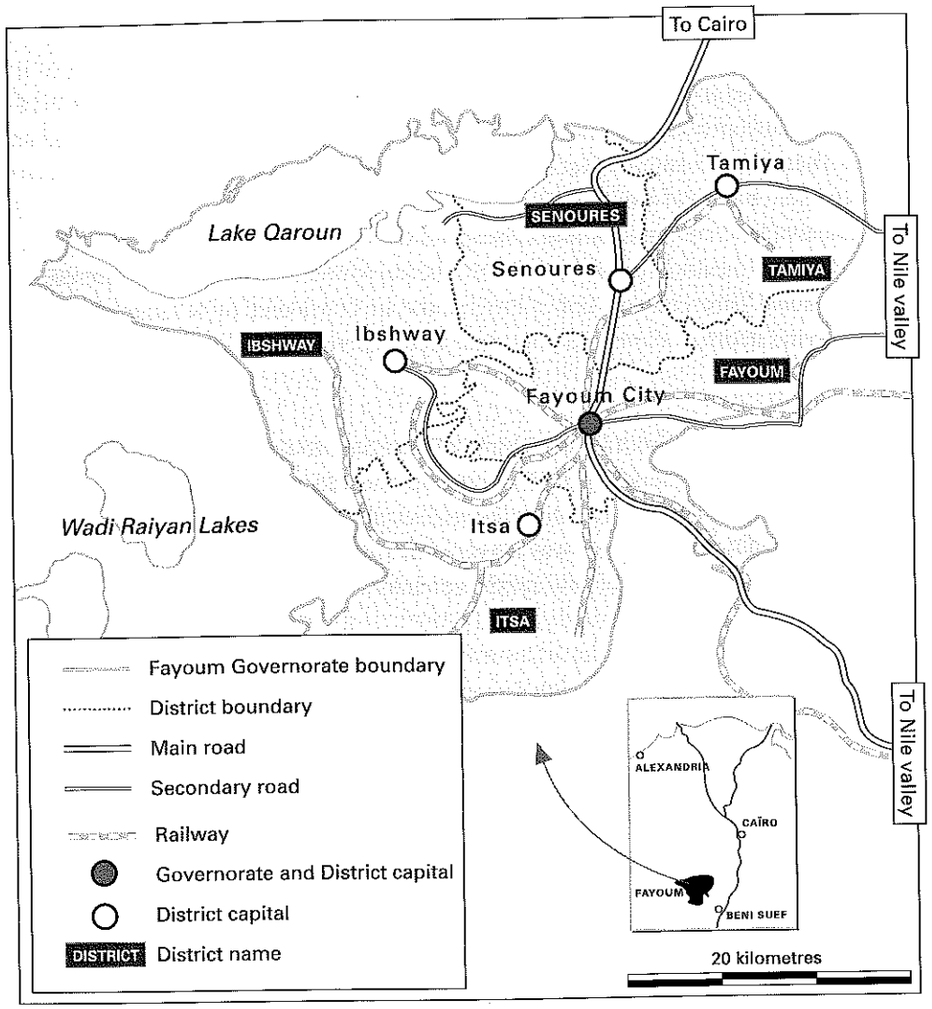
9.7 Conclusion

Netherlands support has contributed indirectly to improvement of the basic needs of the population of Egypt. The upgrading of specialised hospitals has resulted in the better functioning of these institutions which also provide curative services to low income groups. The support to improve vaccine production has had a positive effect on vaccination against major childhood diseases. The PHC projects contributed to the development of a new system of health promoters, and to increased awareness of health problems in general and reproductive health in particular. Finally, the improved treatment methods introduced by the National Tuberculosis Control Programme are considered to be largely beneficial to those living in urban slums and poor rural areas where the incidence of this disease is relatively high.

The effectiveness of support for the supply of materials and equipment was fairly high when the host country's policy was favourable, the recipient organisation was well-staffed to use the equipment, and the commodities played a role in addressing a serious health problem. The effectiveness was lower for those activities that involved institutional strengthening and new approaches introduced under rapidly changing conditions in the sector.

Admittedly, the conditions for health sector support were not very favourable. Aid was provided at a time when Egypt lacked an overall framework and strategy to link low cost preventive health care with efficient primary, secondary and tertiary curative care. This influenced the focus on the improvement of individual health institutions and reduced the possibility to address major bottlenecks that hampered an adequate functioning of the overall health system. Now that Egypt and the main donors have agreed on the principles of health sector reform, conditions for effective support to the sector have improved considerably.

For several reasons Netherlands assistance has had little effect on Egypt's health policy. Assistance to the health sector was relatively small in financial terms and the impact on improving the health conditions of the population could only be marginal. In the absence of a joint sector analysis and identification of a niche for Netherlands assistance, activities supported were rather diverse and financed on a project-by-project basis. Moreover, assistance to the improvement of curative services was not linked with preventive basic health care, and support of basic health care did not lead to an increased use of available public health services.



Map 3 Fayoum Governorate—general map

10 Geographical concentration: aid to Fayoum Governorate

10.1 Background

From the beginning of Netherlands aid to Egypt, the possibilities and advantages of geographical concentration have been subject of discussion. A 1977 policy note stressed the importance of decentralising aid to the governorate level and of selecting of certain governorates as focal areas. Various arguments were given in favour of geographical concentration: higher efficiency and effectiveness of the aid programme and, more in particular, the possibility of circumventing the central bureaucracy by operating at governorate level, the importance of developing rural areas in order to reduce the urbanisation process, and the opportunities to stimulate an integrated approach to development planning and to increase the effects of individual projects.

During the early 1980s the Netherlands again considered various aspects of geographical concentration of aid: the choice of governorates, the need to draw up a coherent programme of support prior to the allocation of funds, the reservation of a percentage of the allocation for the governorates and the advantages of a special programme manager in the region vis-à-vis direct supervision by embassy staff. The discussion focused on choice of areas and several governorates in which activities were already supported under the Netherlands aid programme were taken into consideration (Fayoum, Minya, Damietta, Ismailiya, the Suez Canal Zone, Aswan).

In 1986, Egypt and the Netherlands agreed on Damietta and Fayoum as concentration areas, but no special programme materialised for Damietta and since 1988 it is no longer considered a concentration area. Only Fayoum was concentrated upon. Since 1988 activities there have been separately mentioned in the agreed minutes of annual bilateral consultations between Egypt and the Netherlands. Moreover, since 1990 the Netherlands delegations have discussed on-going and planned projects with the Governorate administration prior to these bilateral consultations. In 1990 the two countries also agreed that henceforth 30–40 per cent of the aid budget would be disbursed on projects in Fayoum.

Four reasons have been given for the selection of Fayoum Governorate: the high incidence of poverty, the keen interest of the governorate administration in Netherlands aid, the number of on-going projects supported by the Netherlands, and the proximity to Cairo which would facilitate supervision of aid by the Netherlands Embassy.

In 1996, Egypt and the Netherlands agreed that Aswan Governorate would become a second concentration area, for which additional funds were allocated.

10.2 Profile of Fayoum Governorate

The Fayoum Governorate, located 90 km south-west of Cairo (see Map 3) consists of a natural depression of three sub-basins, only one of which is inhabited. More than half of the governorate is desert. In 1994 it had a population of slightly over two million, the majority of whom are rural. Administratively, the Governorate is sub-divided into five districts: Fayoum (594,000 inhabitants), Ibshaway (468,000), Itsa (400,000), Senoures (346,000) and Tamiya (250,000).

Fayoum is one of the poorer governorates: in the early 1990s almost half of all households were estimated to be poor and about one-third was classified as falling well below the poverty line. The high incidence of poverty emanates from the scarcity of land, the overall unfavourable employment conditions, the lack of opportunities to earn a suitable cash income and the limited availability of basic social services.

Agriculture is the main economic activity, providing employment to about 60 per cent of the labour force. Actual employment is higher as unpaid family workers, mainly females, are not included in the statistics. Land is scarce: one-third of rural households is landless and about half of the farmers cultivate less than one feddan (0.4 ha) which is insufficient to earn an income at the poverty line level. Many households supplement their farm activities with regular or irregular wage labour or earnings from migration. The main crops are wheat, sorghum, rice, maize and cotton, covering almost 90 per cent of the cultivated area. The remainder is used for horticultural crops and fruit. Commercial horticulture is more capital and labour-intensive, involves higher risks and is concentrated on the larger farms.

Since the mid-1980s, total cropped area has increased as a result of land reclamation and crop intensification. Further land reclamation is being undertaken but the size of the cultivated area is affected unfavourably by soil degradation through salinisation, especially in the lower parts of the depression. Moreover, the complex irrigation system results in an uneven geographical distribution of irrigation water, and unequal access to

water among the various groups of farmers. This affects cropping patterns and yield levels and, consequently, farm incomes.

Manufacturing industries, employing some 10 per cent of the work force, are limited to small-scale, sometimes cottage-level processing of crops, and a few medium-sized industrial enterprises (20 to 200 workers). The only large-scale industrial enterprise is a salt extraction plant which employs over 300 people. Government and other services provide employment to about one-fifth of the labour force.

With regard to the overall social situation, Fayoum has one of the lowest adult literacy and total primary enrolment rates. The quality of human resources is reflected in labour force data: there is a low percentage of professionals and technicians among the employed. The health situation and health services compare unfavourably with most other parts of the country. More than half of the households lack a house connection in water supply and are dependent on public taps. About half of all households have no access to a private latrine or to a sewage system, and direct seepage of untreated sewage into irrigation canals and drains poses serious health hazards.

During the past decade the socio-economic situation in the governorate has improved. Real GDP per capita went up during the early 1990s; the incidence of poverty has decreased and overall mortality and infant mortality has declined.

Fayoum Governorate faces a number of serious obstacles for development. The Governorate has a high rate of population growth relative to a weak economic base. Development of the agricultural sector through land reclamation and improved resource management is costly in both financial and ecological terms due to the limited land resources and restricted water resources for irrigation. The development of fishing is constrained by increased salinisation and pollution of surface water. With limited opportunities for further development in agriculture, the growing labour force is mainly dependent on an expansion of manufacturing industries for gainful employment. This is hampered by the shortage of skilled labour, and by complex rules and regulations which reduce the possibilities for attracting private investments. Moreover, Fayoum has to compete with other locations in attracting investments, the new desert towns in particular.

The Fayoum Governorate tries to create a conducive environment for further development chiefly by improving the physical infrastructure, and by developing industrial sites on its fringes. Allocations to infrastructure (including transportation, electricity, drinking water and sanitation) have consistently dominated development plans and public investment since the mid-1980s. There are no statistics on private investment. During the early 1990s, the public sector share of total investments was in the order of 60 per cent, some

8 per cent was contributed by local communities, and the remaining 32 per cent was covered by foreign aid. Decreasing government budgets under the economic reform programme, however, entail that government expenditure is increasingly needed for recurrent expenditure such as salaries. Consequently, donor contributions continue to be important for the further development of Fayoum.

10.3 Netherlands assistance

Netherlands' support to development activities in Fayoum Governorate dates back to the mid-1970s. Initially, it was focused on fisheries and poultry production. In the 1980s the Netherlands expanded its assistance to agriculture with the still on-going horticultural development project and with major contributions to water management improvement through the construction of a pumping station for the re-use of drainage water, and the setting-up of a water monitoring network. In the second half of the 1980s assistance in water management shifted to improved water distribution and irrigation efficiency, testing of drainage improvement and better weed control. In the 1990s institutional development through technical training and experiments with water users associations were added. In this period, the Netherlands also supported a drinking water and sanitation project and a rural health and family planning project. Finally, it helped to finance the construction of a grain silo in Fayoum. Apart from these major projects which represent some 90–95 per cent of total disbursements, a wide range of smaller projects was financed, including the improvement of olive and mango production, the supply of equipment for local small-scale drug production, bilharzia and tuberculosis control and rural health units, and several studies including an environmental profile.

Netherlands development aid to Fayoum totalled about Dfl. 90 million. Average annual disbursements rose from Dfl. 1.3 million in 1975/85 to Dfl. 9.5 million in 1991/96. The latter level is in accordance with the volume agreed upon between Egypt and the Netherlands in 1990. Details are given in Table 10.1.

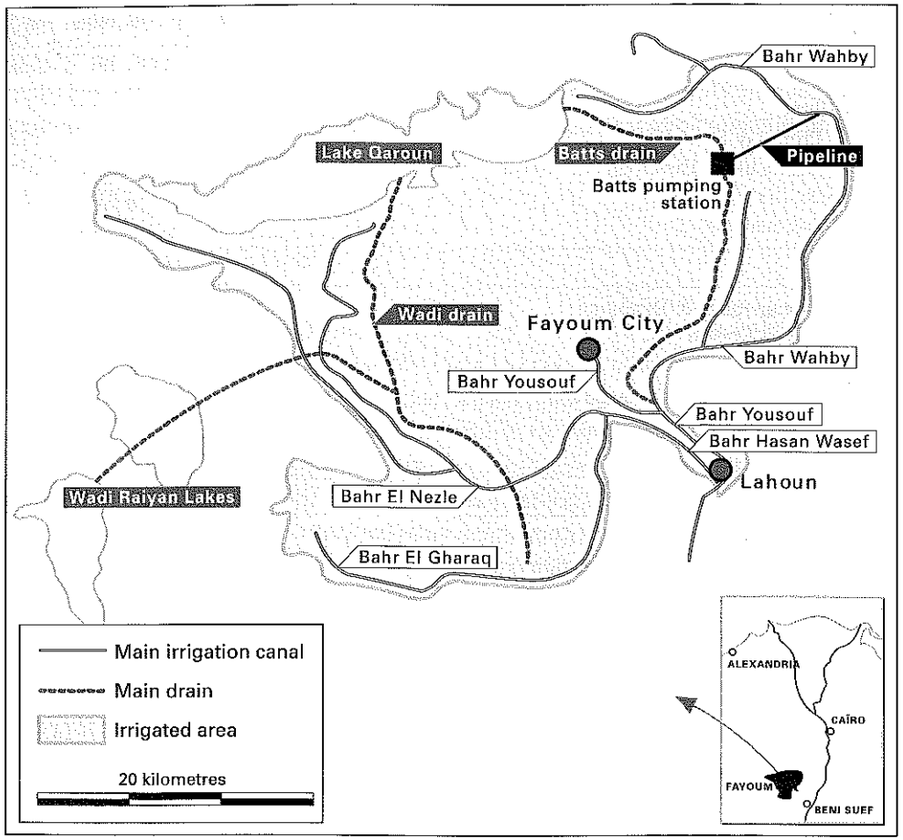
Whereas agriculture absorbed more than 95 per cent of disbursements up to the mid-1980s, its relative importance began to decrease considerably thereafter in favour of water management, drinking water and sanitation, and health and population. In absolute terms, however, the agricultural sector continued to receive the largest amount, mainly due to support given to the construction of a 23,000 ton grain silo in 1992–94. Disbursements exclude a few national level activities supported by the Netherlands which are partly implemented in Fayoum Governorate, such as the Social Fund for Development and the women's role in food production project.

Table 10.1 Netherlands development aid to Fayoum Governorate 1975–96 (Dfl. mln)

Project	1975–85	1986–90	1991–96	Total
Agriculture				
Poultry Project & Feedmill	10.6	2.7	0.3	13.6
Fayoum Horticulture Development Project	1.8	3.5	5.6	10.9
Grain Silo	–	–	12.1	12.1
Other (olive/mango)	1.4	–	–	1.4
Sub-total	13.8	6.2	18.0	38.0
Water Management & Drainage				
Batts Pumping Station	–	5.4	1.5	6.9
Fayoum Weed Control	–	3.6	3.8	7.4
Water Management and Drainage Improvement	–	2.0	3.6	5.6
Water Management	–	–	10.5	10.5
Other (WSB study)	–	1.0	0.7	1.7
Sub-total	–	12.0	20.1	32.1
Drinking Water & Sanitation				
Fayoum Drinking Water and Sanitation Project	–	0.8	12.9	13.7
Health and Population				
Fayoum Rural Health and Family Planning	–	0.4	5.5	5.9
Other	0.4	–	–	0.4
Sub-total	0.4	0.4	5.5	6.3
Miscellaneous				
Environment Profile	–	–	0.4	0.4
Fish Resources Project	0.4	1.0	–	1.4
Other	0.1	–	–	0.1
Sub-total	0.5	1.0	0.4	1.9
Total	14.7	20.4	56.9	92.0

Netherlands aid to Fayoum was mainly in the form of technical assistance, covering about 60 per cent of total disbursements. Three major projects focused chiefly on commodity supply: the Batts pumping station for the re-use of drainage water, the grain silo and the poultry project. Together with commodity supplies in some other projects (fisheries, medical equipment), this represented about 40 per cent of total disbursements.

The Netherlands-funded projects in Fayoum constitute separate activities. The selection of Fayoum as a concentration area was based implicitly on the assumption that closer co-operation with the governorate administration would lead to an integrated rural development project. Suggestions from the Netherlands that technical assistance could be



Map 4 Fayoum Governorate—irrigation and drainage system

provided to support planning and implementation co-ordination were not accepted by Egypt, which preferred a sector-wise project support.

The gradual expansion of projects since the early 1990s reflects a growing emphasis on the environment, institutional development and the social sectors. While technical and physical improvement and a focus on productive activities remain more or less constant factors in most projects of long duration, successive project phases show a gradual shift towards a community focus and the incorporation of human resources and institutional development aspects. This shift has coincided with increased complexity of projects objectives.

10.4 Aid effectiveness

Over 90 per cent of total expenditure under the Netherlands aid to Fayoum went to nine major projects in four sectors: three projects in agriculture (37 per cent), four in water management (33 per cent), one in drinking water and sanitation (15 per cent) and one in health and population (7 per cent).

The three projects in agriculture were completely separate activities: the construction of a hatchery with chicken houses and a feed mill; the promotion of horticulture, tomato cultivation in particular; and the construction of a grain silo. The water management projects focused initially on the construction of a pumping station and applied research, but gradually activities became more integrated and emphasis shifted to strengthening public sector institutions and promoting farmer participation in water management. The drinking water and sanitation project evolved from surveying and mapping the water distribution network and the design of a master plan to strengthening what in due course became the Economic General Authority for Drinking Water Supply and Sanitary Drainage. The health project focused from its beginning on reproductive health care and family planning; it started as a pilot project in one district but has recently expanded its activities to a neighbouring district.

With regard to water management, Netherlands support created the technical basis for better water management. Basic water distribution problems and bottlenecks were identified by means of applied research. The design of the monitoring system, the model for water management and the rehabilitation of works, created conditions for a more equitable distribution of irrigation water. The major bottleneck to that is socio-political: the vested interests of a group of powerful farmers. Available data indicate that a more equitable distribution of irrigation water has not yet materialised. The pumping station constructed for the re-use of drainage water for irrigation purposes allowed expansion of the cultivable area, but the higher than expected salt content and delays in improving drainage in the new land areas create serious risks of soil salinisation.

Improved mechanical and manual weed control techniques have been introduced, contributing to higher irrigation efficiency. In a follow-up project financed under the Social Fund for Development these manual weed control methods were carried out in other governorates. And in two pilot areas, experiments with water user associations have resulted in the successful participation of farmers in water management.

In sum, support to water management in Fayoum has been quite effective. It has helped to strengthen the recipient organisation through staff training and management support. In addition, infrastructural improvements have rectified bottlenecks in the distribution

system. Furthermore, re-use of drainage water allows for a higher water supply to tail-end areas and raises overall irrigation efficiency. An overall judgement on the ultimate impact of the support in terms of higher yield levels and better farm incomes is hampered by non-availability of basic socio-economic information.

The results of the support to agriculture were mixed. For the poultry project they have been quite satisfactory. The equipment of the poultry farm is still in good condition after some fifteen years of intensive use. The unit has been operating at full capacity, as it offers a variety of breeds that are in high demand. The poultry feed mill operates well under its capacity and cannot compete with other producers. The effects of the horticultural project focused on tomato cultivation, a crop which occupies almost half the area under vegetables in Fayoum. By developing a tolerant hybrid and adjusting cultivation methods, the project was instrumental in curbing a serious disease and consequently prospects for tomato cultivation have been considerably improved. Moreover, specialised staff has been trained and research on pest and disease management has created possibilities for farmers to use ecologically less harmful herbicides.

The grain silo project has been partly successful. Its principal objective was to improve the transport and storage of imported grain by replacing less efficient bagged road transport by bulk rail transport. The silo is used intensively; there is no information regarding the reduction of storage losses. Effectiveness is below original expectations, as savings through rail transport have not yet materialised and bulk handling concerns only half the total throughput.

With regard to drinking water and sanitation, the project's efforts have strengthened financial management systems, established a department for customer relations and services, and improved maintenance practices and technical skills in both water supply and sanitation. Performance in terms of improved water services continue to be constrained. House connection coverage has been raised from 40 to 55 per cent and some 20 per cent of public taps have been rehabilitated or upgraded, although half the population depend on them. By the end of 1996 the volume of water sold remained at less than 30 per cent of the quantity produced, indicating low efficiency of the overall water supply system.

The effectiveness of the rural health project has been high in terms of improving the physical infrastructure of public rural health units, in training village health workers and establishing a system of community-based health promoters. The home visit system raised awareness of health issues among the rural population, women in the reproductive age categories in particular. There is no conclusive evidence on the impact of the work of health promoters. Consequently, it is not possible to judge the effectiveness of the project in terms of its general objective, i.e. the effect on family planning practices and the improvement of the overall health situation of women and children.

The evaluations of the various sectors provide an overall picture of rather positive results. Sustainability of the results of the aid effort is still uncertain. This is chiefly related to the weak financial basis of public institutions and their basic problems, such as hierarchical structures, vague career perspectives, complex rules and regulations and low salaries. These problems could obviously not be solved at the level of individual projects. The absence of socio-economic baseline studies and lack of data on output in monitoring reports prevent the assessment of the effects of assistance on the living conditions of the population, particularly regarding income improvement and poverty alleviation.

10.5 Perceptions of recipients

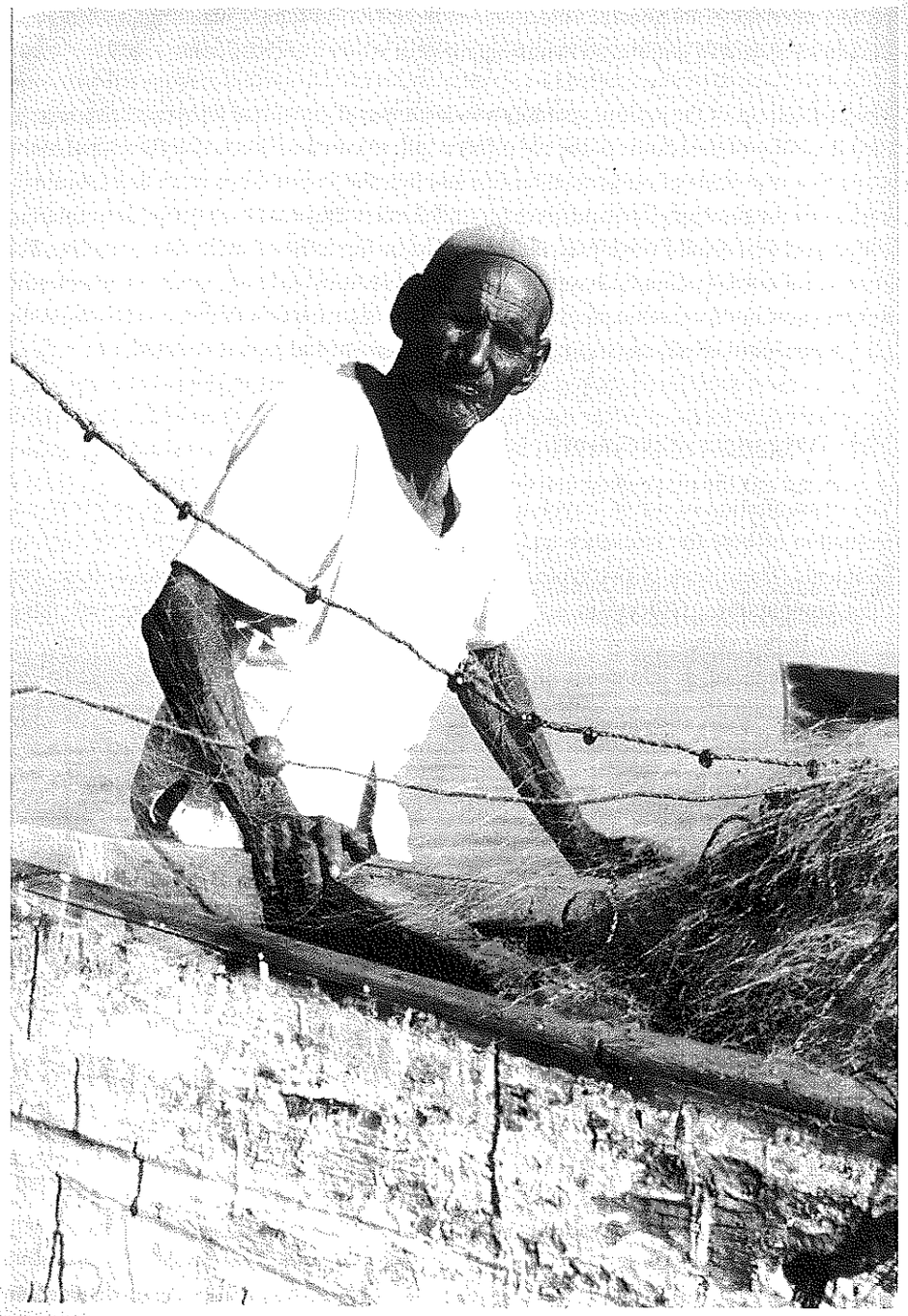
The concentration of aid in Fayoum Governorate offered an opportunity to obtain information of how the relevance and effects of development efforts were perceived by recipients. These were of two types, namely, government officers and organisations, and rural communities. Officers in a broad range of government departments were interviewed. In two village communities the views of the population about the main problems and the effects of development efforts on rural people's livelihood were solicited by means of group discussions with a large variety of respondents and interviews with key informants, including both official and inofficial leaders.

In both villages agriculture is the dominant economic activity; they differ in patterns of land ownership and importance of migrant labour, and also in the level of community services. Together, they provide a good illustration of conditions in rural Fayoum, and a grassroots level perception of socio-economic change and the role of aid.

Government officials

The overall picture of the perceptions of Egyptian counterparts with regard to the relevance and effectiveness of the Netherlands' support is overwhelmingly positive. It is acknowledged that this support has contributed to development of the area and supplemented the efforts of the Governorate's administration.

Sustainability of the project results is generally perceived to be problematic. This is partly due to the fact that the process of incorporating the various projects into the administrative structure of the counterpart organisation has not been smooth (problems of inadequate local expertise and funding) or is still on-going. In any case, perceptions reflect the



Fisherman at Lake Qaroun (photograph: Arcadis/Euroconsult)

preoccupation of government officials with securing their operational and investment budgets, of which donor funding constitutes an essential part.

Differences of opinion occur between departments and with regard to the various projects. In general, departments included in the implementation of the aid programme were much more positive than those not involved. Apart from the overall advantage of donor aid for departments in terms of budget increases which facilitate regular operations, it must be mentioned that government officers often have a personal advantage of being involved in a donor project in the form of incentive payments and allowances.

In spite of the overall positive perception of Netherlands aid, some critical remarks were made with regard of specific projects. For example, increasing soil salinity and water pollution in the water management sector were seen as issues for concern that did not receive sufficient priority. The low quality of drainage water from the Batts pumping station for horticultural production was especially mentioned in this respect. Also, the timelags in implementation of the various drinking water and sanitation components were singled out as being less positive. Conversely, the poultry and horticultural projects were mentioned as having a positive impact on poverty alleviation and as strengthening the position of women. The Fayoum Rural Health and Family Planning project was considered to have a positive influence on institutional capacity and its credit component to contribute to poverty alleviation, albeit on a very modest scale.

Village communities

There are substantial differences in the perceptions of respondents in the village communities compared with those of government officials at governorate headquarters with regard to the relevance and effects of development efforts and aid programmes.

In general, food security, access to affordable education and better curative health facilities emerged as the most urgent issues in village communities. The main concern of the poorer groups in both village communities appears to be the limited access to productive resources in terms of land or gainful employment.

Aspects of life, that have generally improved over the past years were the increased number of schools and the growth of female enrolment. At the same time, the poorer strata argued that access to good quality education was problematic in terms of the unavoidable costs involved in securing additional private tuition to ensure their children's scholastic success. Better access to drinking water and electricity were a second type of improvement. Finally, more awareness of health and cleanliness was cited as a

perceptible improvement over the past few years. This applied in particular to the increase of immunisation.

Perceptions on aspects of community life, which have deteriorated, differed for socio-economic groups. For men, particularly those active in agricultural production, declining soil fertility, decrease of crop productivity and insufficient irrigation water were considered to have adverse effects on livelihood. The issue of unequal distribution of irrigation water was perceived to be a particular problem for farmers. For unemployed and under-employed male respondents, many formerly involved in unskilled migrant labour to the Gulf States, the lack of local off-farm employment opportunities in a situation where many people are attempting to enter the labour market, was considered a main area of deterioration that affected their lives. Also women, and younger women with some education in particular, expressed the virtual lack of culturally acceptable income-generating opportunities as a major issue.

In general, the perceived needs and priorities are related partially to the type of activities supported by the Netherlands. Improved irrigation and drainage helped to expand the cultivable area and to raise irrigation efficiency, and thus contributed indirectly to higher agricultural production. The poultry and horticulture projects addressed employment and food security problems, while the health and drinking water projects included aspects of curative health (rehabilitation of public health units) and sanitation (in urban centres). The activities were only marginally related to the most urgent priorities of the poor: access to productive resources and gainful employment. It was difficult to address such priorities in the aid programme under the prevailing conditions in Fayoum.

Villagers had great difficulty in directly relating the support by means of individual projects to their urgent needs and priorities. The two village communities were covered by the Water Management and Drainage Improvement Project, the public taps rehabilitation component of the Fayoum Drinking Water and Sanitation Project and the Fayoum Rural Health and Family Planning Project. For example, it was not clear to most respondents to what extent activities in water management and drainage would lead to higher incomes for farmers and increased employment opportunities for landless labourers. In the case of drinking water supply, the improvements were considered to date from before the implementation of the drinking water and sanitation project. And respondents did not explicitly link improved immunisation rates and changed attitudes to family planning to the Fayoum Rural Health and Family Planning project.

The reason why villagers are not able to relate the effects of various projects to their daily life is in all probability the effect of the rather technical nature of the support, which is channelled through regular government structures. Therefore, villagers do not

associate projects with specific donors. In addition, villagers perceive their problems in an integrated way, which does not always correspond to the sectoral project approach. Moreover, the poorer groups are confronted with prevailing power relations which hamper their sharing in the effects of the support.

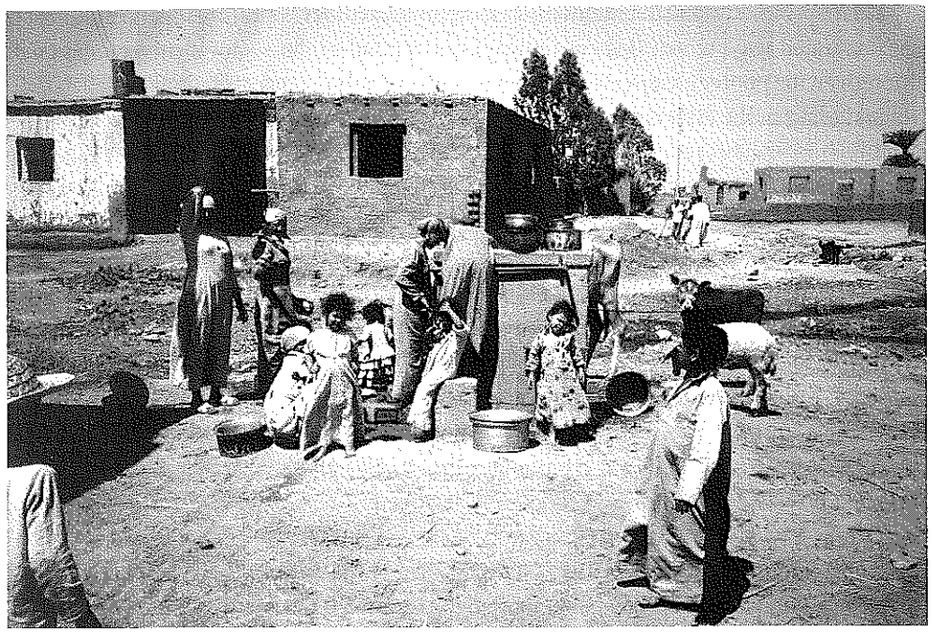
10.6 Geographical concentration

The decision to concentrate a considerable part of total aid volume in Fayoum Governorate was inspired by a mix of effectiveness and efficiency considerations. These considerations comprise increase of the donor's knowledge of development potential, problems and policies; better opportunities to focus aid on constraints and adjust aid to current policies of the Governorate; better possibilities for donor co-ordination and for linkages among projects in the Netherlands aid programme, and better aid management in terms of more efficient project preparation and supervision.

The advantage of more in-depth knowledge has partly materialised and is reflected mainly at the level of individual projects. Support to the Fayoum Governorate was not preceded or accompanied by a baseline study and an identification of main problems and constraints. Poverty and gender profiles have not been written and the environmental profile was not followed up by concrete activities. Thus, much relevant documentation is available at the project and sector level. This vast body of information has not been integrated and used for an in-depth analysis of the area's main socio-economic issues and the consequences for the aid programme.

Policy discussions with the Governorate's administration focused on project and sector level. In 1987 the Netherlands proposed to assist in formulating an Integrated Rural Development Programme. Egypt did not accept this offer. Instead, the Governorate preferred the support to individual projects in weed control, and drinking water and sanitation. The emphasis in Netherlands aid to Fayoum was on support of national level and sector-wise strategies, which were applied under the concrete circumstances in this Governorate. However, the Netherlands' participation in the 1990 Conference on Development Problems and Strategies in Fayoum and the annual consultations facilitated the incorporation of Netherlands aid in the Governorate's development planning. The intensive and good relations between the Governorate and the Netherlands over a long period of time have not yet resulted in a broader joint strategy for effective support to economic growth and poverty alleviation.

Due to the lack of a coherent set of data on the volume and type of aid of donors over the medium-term, it has not been possible to assess the extent to which Netherlands support



Problematic environmental health conditions in Fayoum (photograph: Arcadis/Euroconsult)

differs from or corresponds with that of other donors. Incidental experiences in individual sectors are inconclusive in this respect and project reports contain very few examples of joint donor action or successful donor co-ordination.

The supported development projects addressed relevant problems and constraints in the pertinent sectors. In general, they also complied fairly well with Egypt's national and governorate level development priorities. They corresponded less well with some of the main issues and constraints of the Governorate, such as problems emanating from returning migrant labourers, the need for expansion of non-agricultural employment, and the paucity of marketable skills.

The focus on governorate level created good possibilities for operations at community level and for direct poverty alleviation, including improvements in the position of women. Over the period, the Netherlands' aid for Fayoum showed a gradual incorporation of community and human resources aspects and micro-level perspective, especially in water management and the health sector.

A further advantage of the concentration of aid in a confined geographical area is the possibility to establish links among projects. Recent efforts to incorporate policy priorities of the Netherlands such as poverty alleviation, environmental concerns, women and

development, and institutional strengthening, more explicitly into activities supported in Fayoum, have increased the potential for such linkages. The possibilities for linkages in water management and horticulture, and drinking water/sanitation and health are cases in point. So far, this advantage has hardly been realised and contacts between implementing bodies have been incidental rather than planned and structural.

Finally, geographical concentration might be expected to contribute to more effective aid management. The intensive contacts and good relations between the governorate's administration and the Netherlands Embassy and the staff directly involved in the aid programme, did not lead to less time-consuming project preparations. In fact, projects in governorates under the auspices of central government agencies are administratively more complex.

In conclusion, support to Fayoum Governorate contributed positively to the improvement of physical and economic infrastructure in the Governorate, to the strengthening of public institutions, and the provision of services. This contribution is highly appreciated by the administration and taken into account in the development plans for the Governorate. The potential advantages of geographical concentration at governorate level have partly materialised. The main reasons hampering a further realisation of these advantages are the sectoral emphasis in development planning in Egypt, and the sector- and project-oriented approach in Netherlands support to Fayoum. Nevertheless, concentration of a substantial proportion of aid in Fayoum Governorate was more efficient than a wider distribution of projects over the country.