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Liberalisation Reform, 'Neo-centralism', and Black Market: The Political Diseconomy of Lake Nasser Fishery Development

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ABSTRACT: Despite its relatively modest importance, and the current difficulties faced by the government in implementing liberalisation in the rest of the country, the Egyptian governement decided to embark on a reform of the Lake Nasser fishery in the early 2000s. The objective of this article is to analyse the evolution of this reform from a political economy perspective. The paper looks retrospectively at the general context of the reform, describes the different institutional and economic changes that have resulted from its realisation, identifies how the distribution of power between the different actors has altered the course of its implementation, and finally assesses the outcomes of the reform. The analysis shows that, while some major institutional changes have taken place, those changes have had little to do with a 'liberalisation' as conventionally understood in neo-classical literature. Instead, the new status quo turns out to be one where the central government and its different parastatal agencies have managed to maintain their existing advantages. The failure to reform more thoroughly the system also led fishers and fish traders to engage in a large-scale black market activity in which a substantial amount of fish is smuggled through unofficial trade channels.

KEYWORDS: Small-scale fisheries, governance, political economy, economic reform, Africa, Egypt

INTRODUCTION

Like many other developing countries, Egypt went through several waves of liberalisation reforms at the end of the 20th century, starting in the early 1980s. The International Financial Institutions (IFIs) and their partners have promoted wide-ranging programmes of structural adjustments to push the country to abandon its tradition of state-interventionism inherited from the Nasserian period, and to embrace neo-liberalism (Bush, 1999; Mitchell, 1999; Abdel Khalek, 2002). In order to "create an environment for sustainable economic growth [and] build institutions and capacity to improve the investment climate, increase job opportunities and promote the flow of foreign direct investment" (World Bank, 2006), Egypt was encouraged by those IFIs to shift its economic policies from a centrally-planned economy toward a more market-based system (Dessouki, 1981; World Bank, 1993; World Bank and GoE, 2000; El-Dean, 2002). The first move toward market liberalisation had started, however, immediately after Nasser's death in 1970, when President Anwar el-Sadat (1970-1981) undertook the "de-nasserisation" of the country (Saad, 1988; Abdel Aal, 1998; Bush, 2002a). A major focus of this counter-revolution, which was then continued by President Hosni Mubarak (1981-present), was the agricultural sector and

in particular the land redistribution reform that had been launched through Nasser's 1952 socialist revolution (Hopkins and Westergaard, 1998; Bush, 2002b; Tingay, 2005).[1]

Agriculture in Egypt has always played a central role in the national economy. At the end of the 1990s, despite a continuous decline that started in the 1970s, the sector was still estimated to employ about one third of the national labour force and contribute to about 20% of Egypt's GDP (FAO, 1999; USAID, 1999). In comparison, fisheries and in particular the fishery of Lake Nasser, are a very recent and relatively marginal economic activity. About 8000 fishers operate artisanal boats from the shores of Lake Nasser and the annual official landings, essentially supplying the domestic market, vary between 12,000 and 20,000 tonnes a year (LNDA, unpublished data). Despite this relatively modest importance, and the difficulties faced by the government in implementing liberalisation and land reforms in the rest of the agricultural sector,[2] the Egyptian authority decided to embark on a complete reform of the Lake Nasser fishery in the early 2000s.

The objective of the present article is to analyse the evolution of this reform, using a political economy perspective. In particular, we will look retrospectively at the justification of the reform, describe the different institutional and economic changes that have (or have not) resulted from its realisation, identify how the distribution of power between the different actors has altered the course of its implementation, and finally assess the outcomes (who have been the 'losers' and 'winners'?) of the reform. Wherever possible, reference to the relevant broader literature on political economy of natural resource management, economic development or collective actions is made.

Our research will show that the reform, which may at first sight be (mis)taken for another attempt of the Egyptian Government to pursue the liberalisation of the agricultural sector, has in fact very little to do with this agenda. Instead, the analysis will suggest that the reform of the Lake Nasser fishery has been the result of a combination of three converging drivers. First, the urgent need to respond to a perceived environmental crisis where the resource was seen as over-exploited; second, a despairing attempt to regain control over the management of the fishery; and third, the need to support the Egyptian national food subsidy programme that was at that time dismantled by the government under the pressure of the IFIs.

The rest of the paper is organised as follows. The section, *Creation of the Lake Nasser Fishery*, briefly outlines the development of the fishery following the creation of Lake Nasser. The section, *State-controlled Management of Lake Nasser's Fishery: 1966-2001*, presents the context of the fishery, its main actors and the various management measures that were progressively introduced by the central authority in an attempt to control the activity. The section also shows how those various measures have favoured the emergence of a massive smuggling activity around the lake. The section, *Liberalisation of the Fishery: 2001-Present*, presents the 'liberalisation' reform that was introduced in 2001, its official rationale, its objectives and outcomes. The final section, *Discussion and Concluding Remarks*, revisits some of the elements previously discussed and claims, in particular, that beyond the agenda of the local actors, additional macroeconomic considerations may have influenced the decision-making process that underpinned the reform.

CREATION OF THE LAKE NASSER FISHERY

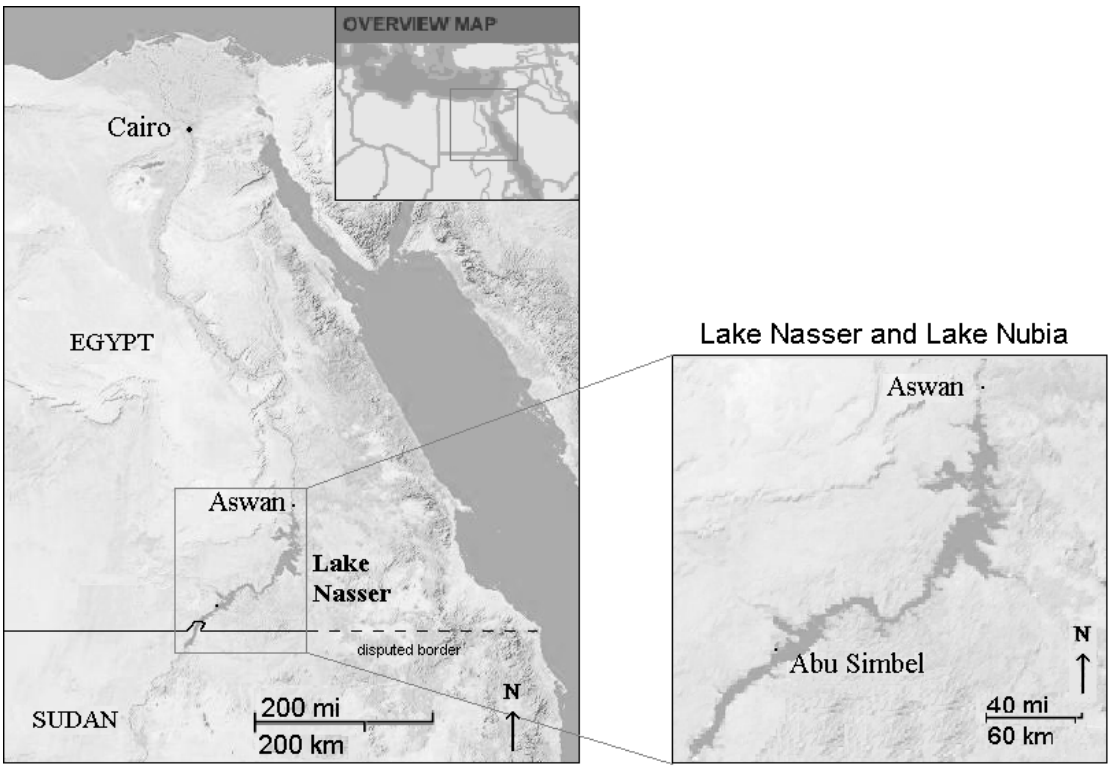
The Lake Nasser fishery started in 1961, with the construction in Aswan of what was to become the "High Dam". This 'pharaonic' project, a perfect example of a strong centralist economic planning, had been decided by Nasser in order to "bring back the Nile's source within Egypt's international borders"

[1] In the agricultural sector, one of the main tools to implement the counter-reform ('denasserisation') has been the establishment of a market-based system for land through the Tenancy Land Law No. 96.

[2] The agrarian counter-reform tentatively imposed by the successive governments has faced strong opposition movements in the country, which has often been repressed with violence by the authorities. The Land Center for Human Right reports, for instance, that during the months that followed the implementation of the Tenancy Land Law reform in October 1997, 119 people died, 846 were injured and 1409 were arrested during police operations related to land disputes (LCHR, 2001).

(quoted in Ayeb, 2002). The main objectives of the project, which was built with the support of the then USSR, were to regularise the flow of the Nile river, to store water, to provide resource for permanent irrigation, and to produce electricity (Farid, 1975; Biswas, 2002).[3] Behind its structure, the High Dam created a gigantic man-made lake, the Lake Nasser,[4] that spreads across Upper Egypt and Sudan along 490 km, with an average width of 15 km (figure 1). The long and narrow shape of the lake is composed of a main body, following the former riverbed, surrounded by 100 major creeks (*khors*) and numerous minor ones. This dendritic shape creates a shoreline stretching as much as 7800 km (Entz, 1974). In fact, Lake Nasser presents more characteristics of an extremely slow flowing river than of a real lake (Entz, 1976). It is characterised by a high primary productivity due to the millions of tonnes of the Nile's slits that slowly sediment in the southern part of the lake (Entz, 1980). Rich in sediment and thus in nutrients, the lake supports an abundant fish population.[5] Tilapia (*Oreochromis niloticus*) is the most common species and represents about 80% of the catches. In addition, Nile perch (*Lates niloticus*), Tiger fish (*Hydrocynus forskalii*) and *Alestes spp.* are also important for the fishery (Latif, 1974; Rashid, 1995). While tilapia and Nile perch are landed fresh, Tiger fish and *Alestes* are usually processed by fishers before being sold as salted fish.[6]

Figure 1. Location of the Lake Nasser-Nubia at the border between Egypt and Sudan (Source: National Geographic).



[3] In addition to those straightforward 'development' objectives, more 'political' motivations were also certainly at stake, in particular in an attempt to present the dam as a symbol of the successful state-led development process and the evidence of the new Egyptian state's capacity (Ayeb, 2002).

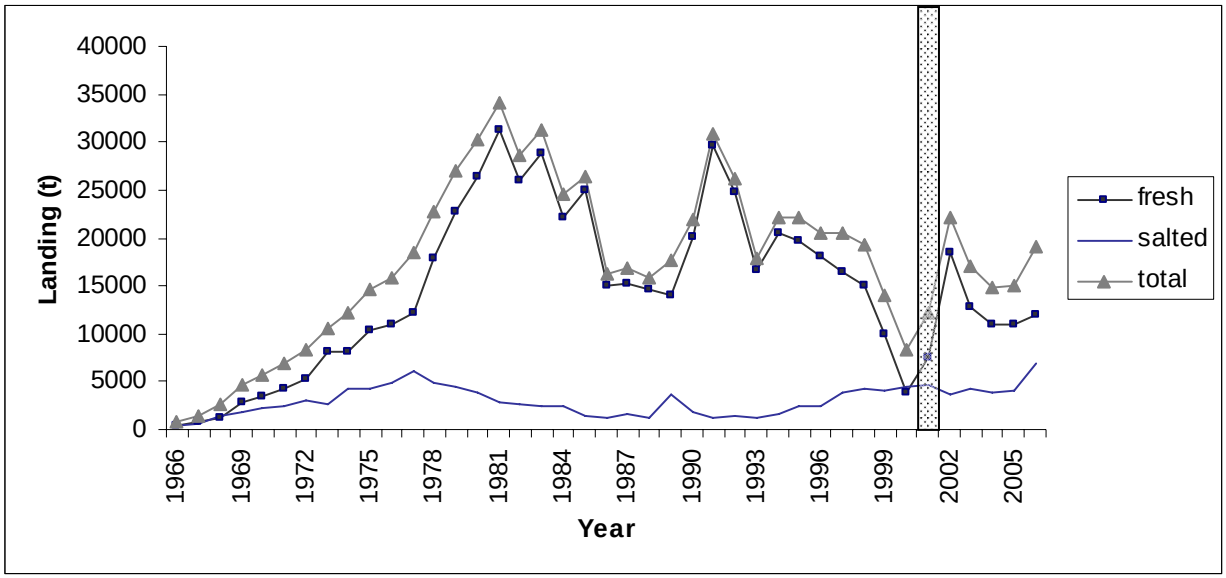
[4] The lake created by the High Dam spreads in both Egypt (300 km^2) and Sudan (190 km^2). The continuation of the lake in Sudan is called the Lake Nubia.

[5] Fifty-seven species of fish have been recorded in the lake. As all these species originally come from a riverine environment, they do not prosper in open, deep waters (Entz, 1976). As a consequence, open waters amount for 80% of the lake's volume but only 6% of its catches. The shorelines and in particular the *khors* are the highly productive parts of the lake.

[6] The production of salted fish steadily increased until 1977. Since then the production has been fluctuating between 2000 and 5000 tonnes per year, which represents about 15% of the total landings of the lake (LNDA, unpublished data).

The recorded yields of the fishery have varied considerably since the creation of the lake (figure 2). In the first two years following the filling up of the lake, the production reached 1000 tonnes that was caught by a few hundred fishers (Farid, 1975). From then on, the development of the fishery accelerated. The number of fishers multiplied tenfold to reach about 8000, and the landings reached a peak of 34,206 tonnes in 1981.[7] Following this, the landings then stagnated around 20,000 tonnes for some years with very important variations that reflected changing water levels, but also social, economical and political factors. Official landings eventually reached an alarmingly low level of 8281 tonnes in 2000 (LNDA unpublished data). Since then, annual landings remained low, far below the potential of the Lake, estimated to be between 50,000 and 80,000 tonnes. In 2005, the estimated commercial value of the fishery (including both fresh and salted fish) was around US$17 million.[8]

Figure 2. Evolution of the landings for fresh, salted and total landing from Lake Nasser's fishery.



Source: LNDA (unpublished) landing data. The shaded area (2001-2002) indicates the free-pricing period (see text for detail).

STATE-CONTROLLED MANAGEMENT OF LAKE NASSER'S FISHERY: 1966-2001

The central authority

As soon as 1963, while the first stage of construction of the High Dam was about to be completed, the Governorate of Aswan established the Regional Planning Authority to cope with the changes created by the High Dam. Five years later, the Egyptian Government invited the United Nations Development Programme (UNDP) and the Food and Agriculture Organisation of the United Nations (FAO) to establish the Lake Nasser Development Centre in order to assess the development potential of the new water-body and its surroundings. At the end of its mandate, in 1975, the Centre submitted a report with findings and recommendations about how to develop Lake Nasser regarding agriculture, fisheries, public health, settlement planning, tourism and transportation (UNDP-FAO, 1975).

In order to pursue and implement the work started by the United Nations, the Lake Nasser Development Authority (LNDA) was established in 1975. It was made responsible for the overall

[7] This pattern can be identified by examining each set of data; nevertheless, absolute numbers vary according to sources. For example, Crul and Roest (1995) estimate the number of fishers to have been 4500 in 1975, 7000 in 1980 and 5815 in 1991. Other studies (Scudder, 2003) estimate that there were 5000 fishers in 1975, 8000 in 1980 and about 7000 in 2005.

[8] This is based on our own calculation. Despite the existence of official statistics for landings and a system of continuous record for the price, no estimates of the commercial value of the fishery have been officially published.

development and utilisation of the natural resources in the Lake Nasser region. This institution has played and is still currently playing a crucial role in the development of the fishery. Over the years, the LNDA has seen its prerogatives gradually extend up to the point of becoming the only governmental agency in charge of the fishery since 2001.

In 1983, President Mubarak established the General Authority for Fish Resources Development (GAFRD) under the Ministry of Agriculture and Land Reclamation (MALR) "believing that fish production is an important substitute to fulfil the food gap in animal proteins" (MALR, n.d.). GAFRD was aimed at increasing and improving the national production of fish and is, today, responsible for the development and management of fishery resources including aquaculture. To facilitate its tasks and to assure smooth cooperation with all governmental bodies involved in policies related to fisheries, representatives from at least 20 ministries and other entities are represented in the GAFRD board. Overall, GAFRD has many similar, or even identical, responsibilities to LNDA.

The cooperatives and the fishers

Since the first years of existence of the Lake Nasser fishery, one cooperative (called "Mother Cooperative") has been active. Mother Cooperative did not, strictly speaking, emerge from the will of the fishers in order to facilitate their activities, increase their bargaining power, or improve access to fishing inputs or services. In fact, far from comprising a homogenous and coherent social group, the majority of the individuals involved in the fishing activity are seasonal, unsettled, workers coming from different parts of the country to exploit the fishery with which they have no real historical (long-term) connection.[9] Mother Cooperative had, therefore, no vocation to either federate or represent these seasonal workers. Instead, its first duty was to link the fishing camps from which those fishers operated with the harbour of Aswan in an attempt to 'centralise' the landing/production of the fishery. For this purpose, Mother Cooperative operated half a dozen large carrier boats that visited the fishing camps on a regular basis, providing fishers with food and other inputs and collecting their fish in return (Mohieddin, 2000).

In the early 1970s, the growing potential of the fishery rapidly attracted an increasing number of migrants from all parts of Egypt. Along with the development of the fishery and its economic potential, interest for this new income opportunity also steadily increased amongst the local populations. In particular, the Nubians and people from Aswan Governorate suddenly developed an interest in fishing and wished to create their own cooperatives. In 1979, the Nubian Cooperative Society for Fishing (hereafter referred to as the "Nubian Cooperative") was established. Soon after, two other cooperatives were also created: Aswan's Sons and El Takamol.

In order to reduce the potential conflicts that the entry of these new actors might have created, a licence system was introduced by the GAFRD in the fishery. Without a licence, fishers were not allowed to operate on the lake. Originally, the ownership of a fishing boat gave the right to claim for a licence, and boat/licence owners were thus the majority of the cooperative members. The number of licences in each cooperative was used to calculate the portion of shoreline that each cooperative was to control. It is interesting to note that the division was based on the length of the shoreline, not on the surface of the lake – as the productivity of the lake is recognised to be more directly related to the shoreline length than to the area or volume of water (see footnote 5). Initially, licences could be sold and/or exchanged. Some boat owners thus managed to acquire as many as 100 licences.[10] Recently, new

[9] A recent socio-economic survey completed by the authors (unpublished data) shows that overall 95.2% of the fishers operating in the fishery come from other regions in Egypt, and 39% still 'commute' every year back to their original region during their non-fishing period.

[10] The short-lived Fishery Development Authority that was initially in charge of the licencing system is often accused by the fishers of distributing those licences according to personal and political interests rather than through a fair and transparent process. Those licences are renewed annually, for a cost depending on the features of the boat and usually under EGP100, i.e. US$18 (US$1=EGP 5.5).

restrictions on the renewal of licences were introduced and the regulations have changed in an attempt to clamp down on the smuggling activity (see below). In particular, an upper limit of 3000 licences has been fixed and those licences cannot be sold or exchanged any longer.

Fishers operate from temporary fishing camps established along the 7800 km of the lake's shorelines. With no electricity, no running water and no access to public services, the living conditions in those remote camps are rough. Only male fishers live there, usually staying in rudimentary cane-made shelters for up to seven months. Those fishers work either for a company or under the banner of a cooperative. They either own their own licence or 'rent' the licence from another owner. Two contract systems allow this second type of arrangement: leasing and sharecropping.[11] Today, approximately 50% of the licence owners are actual fishers and the other half is owned by urban-based entrepreneurs (Mohieddin, 2000).

State owned companies and fixed price

During the first years of the Lake Nasser fishery development, when Mother Cooperative was still the only cooperative collecting the fish from the fisher camps, a single state-owned company organised the marketing of the fish in Aswan. This company, the Egyptian Company for Fish Marketing (hereafter called Taswik), is linked administratively to the Ministry of Supply. At that time, the fishery, as well as the fisherfolk, were of little concern to the central government whose main interest was to provide the country with cheap protein[12] (Farid, 1975). The price of fish from Lake Nasser was, therefore, fixed at a very low level and the whole commercialisation process was under state control.[13] The cooperatives collected the fish from fishers and then delivered it to Taswik. The money they received from this state-owned company was then redistributed to the fishers and boat owners.

However, in order to improve the marketing process, another company, Misr Aswan Fishery and Fish Processing Company (hereafter called Misr Aswan), was established in 1979. This company, which did not depend on the Ministry of Supply (as Taswik did), had its shares held by a variety of different actors including the National Bank of Egypt, the A-Chark Insurance Company (affiliated to the Ministry of Investment), and the New Urban Communities Authority (part of the Ministry of Housing, Utility and Urban Communities). It was thus clearly a second state-owned company but with wider functions and mandate than Taswik. Not only did Misr Aswan bring fish to the national market but they also had their own fishing activities and carried out some processing activities.

Declining catches and conservation measures

Over the two decades following the landing peak of 1981 where 34,000 tonnes were landed, the fishery yield diminished continuously. It passed from 650 kg/boat/day in 1981 to a mere 35 kg/boat/day in 2000. This declining trend has been interpreted by many scientists as the sign of serious ecological over-exploitation of the resource (e.g. Khalifa et al., 2000; MALR-LNDA, 2001) despite the fact that the number of fishers had not necessarily increased over that specific period. Faced with those decreasing landings, the management agencies introduced a series of new measures. GAFRD proposed to control each licenced boat that was effectively operating and ensure that its catch was recorded and not smuggled away. In addition, a closed period was introduced in an attempt to release the pressure over the resource, and the LNDA imposed a minimal legal size on the catch: for each fisher's landing load, a maximum of 10% of undersized fish (e.g. 500 grams for tilapia) was tolerated. If a fisher's proportion of

[11] Under the leasing system, fishers pay a certain amount of money to the licence owner and then manage their activity and their catch on their own. Sharecropping is more common as it is usually observed in fisheries (Platteau and Nugent, 1992; Béné, 1997). Under this system, fishers and licence owners will share the profit of the catch, with usually half of the profit going to the licence owners. Owning licences can thus become very profitable.

[12] Thus the administrative link of Taswik to the Ministry of Supply.

[13] This fixed price system did not, however, include salted fish, the price of which had been set free since the beginning of the fishery.

undersized fish was recurrently observed to be higher than the 10% limit, the fisher's whole catch was confiscated.

As the rest of this section will show, those various economic and management measures have in fact had a counterproductive effect on the management of the fishery. They eventually encouraged an increasing number of fishers to engage in a parallel black market whereby a substantial part of the production started to be smuggled away from the 'centralised' commercialisation channels, thus reducing further the control that the central authority was trying to re-establish on the fishery.

Explaining the magnitude of smuggling

While the price of fish in Egypt was already free in the 1980s, the government continued to maintain a fixed price for Lake Nasser landings over the whole period 1961-2000. This exception was officially justified by the recent history of the lake: whereas other lakes and coastlines in Egypt had been supporting long-established fishing communities, Lake Nasser was not hosting any permanent fishing population but only seasonal fishers. It was argued that this particular situation was a good reason for the central authority to control the fishery, with no other (social) consideration than maximising the supply of cheap fish to the rest of the increasing urban population of Egypt.

Albeit having increased over time, passing, for instance, from EGP 0.64 to EGP 1.05 per kg between 1988 and 1990, the fixed price was still more than 25% below the free national market at that time. This situation gave both fishers and traders a very good incentive to engage in a parallel black market whereby an increasing quantity of fish was diverted from the official channels. Secretly landed in isolated creeks at night, these fish were loaded on trucks and sold directly on the urban markets of Cairo and other main towns of the country. Smuggling fish traders could offer a better price (than the fixed price) to the fishers and still make a profit as the difference between the price at the Lake's harbours and at the national Souk el Abour market was substantial.

In addition to a higher price, smuggling also offered fishers the opportunity to avoid some of the constraining government regulations. For instance, the government levied taxes on the official market to finance the development of the fishery, the management of the harbours and the social security system for the workers. These taxes may not be prohibitive but still contributed to making smuggling more profitable than official business.[14] More importantly, smuggling offers the possibility to circumvent the stringent resource conservation regulations put in place by the government. When the proportion of undersized catch was greater than the minimum 10% limit, the black market allowed fishers to trade their catch without the risk of losing the whole load.

In addition to fixed price and government regulations, another major reason that made smuggling a widely practiced activity was the bad management and inefficiency of the state-owned companies. Despite enjoying a complete monopoly for years in the marketing sector with a low buying price, higher selling price and reasonable transportation, processing and marketing costs, their poor management led the state-owned companies to constantly face financial difficulties. Their numerous administrative staff absorbed an important part of their income and, because of operational inefficiency, important quantities of landed fish were being wasted. By 2000, the two companies together had accumulated a debt of EGP 2.5 million towards the cooperatives from which they were buying fish. This failure of payment in turn had repercussions on the cooperatives that could no longer implement some of their activities and duties. They gradually abandoned most of their functions and eventually even stopped having the monopoly on transporting fish to the harbour as they could no longer operate all their carrier boats.[15]

Finally, while smuggling to avoid low price or state regulations was mainly motivated by the expectation of higher profits, failure of payment also encouraged fishers to accept to smuggle even at a

[14] A tax is also levied on salted fish (EGP 10 per 17 kg tin of salted fish). The fact that both salted and fresh fish are subject to taxes but that salted fish is not smuggled is a clear indication that tax is not, in itself, an incentive to smuggle.
[15] Since 2002, anybody, even an individual fisher, can own and operate carrier boats.

very low price, as cooperatives were known to have a tendency to fail to pay for the fish they handled. In these cases, fishers had no choice but to turn to the black market to try to get a minimum remuneration for their catch.

Besides this combination of endured or chosen smuggling activity, the problem of failure of payment badly affected the fishery, from a relational and social point of view. It led fishers to deeply mistrust the public companies and the cooperatives they belonged to. Mistrust also emerged as the state-owned companies tended to demonstrate bad business practices. Reportedly, in some occasions those companies refused to pay for the fish being delivered to them, arguing on its quality and relying on corrupt officials that sided with them.[16] This mistrust toward cooperatives and state companies could be seen, on a moral perspective, as an additional 'justification' for fishers to engage in smuggling: unfairly treated fishers would feel no moral obligation to deal with trading partners who had repeatedly shown signs of corruption and/or low ethics in the past, on an honest basis.[17] This situation is in line with the general literature on cooperative behaviour where empirical and more theoretical works (e.g. Axelrod, 1984; Good, 2000) have emphasised the critical role of trust in the establishment of long-term cooperative interpersonal relations. Coming from a slightly different perspective, a series of recent papers propose to unpack and describe more thoroughly the rational and incentives of actors engaged in illegal activities and/or non-compliance behaviours (see, e.g. Gezelius, 2004; Jenny et al., 2007; Keane et al., 2008). Although no general consensus emerges from those studies, they all emphasise the local-specific nature of those incentives and the importance of collective versus individual interpretations of 'morality' and what behaviour is perceived as 'legitimate' and 'acceptable'.

Another major factor that has contributed to the magnitude of the smuggling is that the Lake Nasser fishery – like a large number of artisanal fisheries in the developing world[18] – has been attracting an increasing number of poor people from all over the country. In Egypt, where Nasser's land reform has been progressively dismantled by several series of counter-reforms, it is estimated that about 75% of the small tenants have been forced to leave the agricultural sector in the last 10 years[19] (Bush, 2002a). In those conditions, the Lake Nasser fishery played a substantial role as 'labour buffer' (Jul-Larsen et al., 2003) for many poor or landless *fellahin* who turned to the fishery as a safety net activity. As a result, many illegal unlicenced fishers (who cannot land their catch through the official system) are now operating in the fishery. In 2006, the number of unlicenced fishers was estimated to be about 3000 (Habib, 2006).

Finally, the form of ownership of the fishing rights and the nature of the labour arrangements also encouraged registered fishers to smuggle. While the boat-owners have good incentives to hide some of their production (due to corruption in the cooperatives and their frequent failure to pay their dues), the labourers operating under a sharecropping system have also good reasons to engage in smuggling. For those labourers, even a price much below the free market level often left them better-off than with the revenues that they would have obtained through the sharecropping system.[20]

[16] These practices are no longer possible as the new organisation of the harbour prevents these companies, particularly Taswik, from dealing directly with the fishers operating in their respective sector.

[17] This distinct motivation for smuggling does not refer to an economic incentive but to social and moral behaviour. As such, it may be much more difficult to remedy.

[18] FAO estimates that between 1970 and 1990 the number of fishers in the world more than doubled (FAO, 1997). This represents a higher growth rate than in most of the other economic sectors, including agriculture. As the majority of these fishers are rural unskilled dwellers, small-scale fisheries are recognized to have been a crucial limiting factor in rural-urban migration in many areas where they have been supported. Ninety percent of the small-scale fishers operated in developing countries (in developed countries this number has actually decreased).

[19] The Law 96, which was promulgated in 1992, allows landowners to set a market-based rent for their land. Since then, the rent has jumped from 7 to 22 times the land tax within a few months and has increased by 400% in a year (Sakr and Tarcir, 2007) making it very difficult for the small tenants to remain in the sector.

[20] Some may even argue that the 'often-perceived-as-unfair' sharecropping system offers similarities with the semi-feudalism system that had characterized Egyptian agriculture before Nasser's reform, creating resentment that could, to some extent, 'justify' a cheating behaviour.

In short, our analysis shows that many actors are facing various, sometimes additive or complementary, reasons to support and participate in black market activity. Additionally, the fact that smuggling benefits actors on both sides of the trade equation (fishers and fish traders) makes the whole cycle even less likely to be broken. In this regard, the statistics are impressive. In 2006 alone, the police and the LNDA arrested as many as 357 trucks filled with smuggled fish, that is, more than one truck a day if we account for the fishery closed season. This statistic gives an idea of the intensity of the smuggling and of the large economic and institutional forces that create it. In effect, fish smuggling does not involve only poor fishers but also a substantial number of better-off fish traders. It is a 'big business' and many actors in the sector would agree that it has become almost a formal activity. The Lake Nasser situation is, in this respect, not an exception as it is widely acknowledged in the literature that informal economy and its frequently associated black markets still constitute the vast majority of the natural resources economy in developing countries (e.g. Sethuraman, 1982; Briassoulis, 1999; Schneider, 2005). In fishery, the FAO, with the support of the World Bank, has recently launched a campaign against IUU (Illegal, Unregulated and Unreported) fishing, arguing that those IUU activities severely jeopardised the capacities of the states and the international community to maintain the sustainability of the fisheries resources (FAO, 2002; Doulman, 2008).

LIBERALISATION OF THE FISHERY: 2001-PRESENT

Privatisation of the resource as the solution

After recorded landings fell to a catastrophic level of only 8281 tonnes in 2000, a commission representing the stakeholders involved in the management of the fishery was called in 2001 to address the alarming situation of the Lake's fishery.[21] The commission pointed out overfishing, rather than environmental change,[22] as the main cause of the poor fishery performances (MALR-LNDA, 2001). This overfishing was reported to be closely related with smuggling and mismanagement of the resource. In turn, smuggling was diagnosed to result from the imposition of a fixed price system. To overcome these two major defects, the commission recommended liberalising the fishery. Through this liberalisation, the resources of the lake were to be allocated to "investment companies" that would takeover the entire productive chain, from fishing to marketing.[23] Privatising the resource exploitation, it was thought, would make the actors more responsible for their share of the resource and, therefore, provide them with incentives not to deplete their 'own capital'. This recommendation was in fact in line with the widely accepted view that strengthening private property rights is a necessary condition for fisheries, and more broadly natural resources, to be preserved from over-exploitation (Anderson, 1977; Hannesson, 1996; WHAT, 2000).

[21] The "Commission of enquiry about the optimum way to increase the productivity of the High Dam Lake fishery". The commission included representatives from the MALR, the LNDA, the Aswan Governorate, the four cooperatives, the two state companies, and the Cooperative Union for Aquatic Resources (MALR-LNDA, 2001).

[22] In fishery reservoirs, the water level is recognized to play a particularly important role in the productivity of the fishery (Kolding and van Zweiten, 2006). In Lake Nasser the varying water level of the lake directly depends on rain precipitation of the basin. Africa went through a particularly dry period from 1970-1980 and the water level of Lake Nasser (like some other Sahelian Lake, e.g. Lake Chad) showed an overall decreasing trend over that period. This potentially affected the productivity of the *khors* whose total surface was drastically reduced.

[23] It should be mentioned here, however, that what the commission was aiming at when it recommended to 'liberalize' the fishery was not necessarily the abolition of the cooperative system and the re-attribution of the whole resource 'ownership' to foreign private investors. Rather, it intended to encourage the cooperatives to transform themselves into private, soundly managed and efficient companies, responsibly exploiting their resource. The cooperative refused this option as they had, for years, fished for free and would have to pay a lease over what used to be their 'own' fishing ground. It was indeed planned that the new companies operating in the fishery would have to pay a lease in proportion to the lake's surface they would be allocated. The cooperatives, who were already facing financial difficulties, rejected the proposition.

In addition to this basic principle, the move towards the liberalisation of the fishery was meant to deregulate the price and improve the management of the sector. In turn, this would curb smuggling and reinstate some control over the fishery. The commission's report also included other recommendations. In particular, in order to increase the productivity of the lake, the report called for increased public and private investment and encouraged the development of fishery enclosures.[24] The commission also suggested to strengthen control over the Lake and to toughen penalties.

Following the commission's recommendations, the government launched a selection process to invite interested private investors to develop business plans to enter the fishery. Twenty-one bids by different private investors were received. However, while the selection process was still ongoing, the cooperatives warned against potentially severe socio-economic troubles if they were to disappear through this privatisation process. Eventually, after a few months of a rather un-transparent selection process, the call was closed. Out of the 21 bids received, a selection committee selected six companies after thoroughly examining their business plans, technical expertise and security plans. Not surprisingly, the two state-owned companies, Taswik and Misr Aswan, were both amongst the list of six 'winners'. It was said that despite their relative low efficiency, these companies had to be chosen "as they were already active in the fishery". The four other selected companies were H.U., Misr Kuweit, Small Investors Association and Grand Lake.

In this process, the cooperatives also managed to maintain most of their existing privileges. They were offered to exploit 60% of the lake surface. The investment companies were thus left with a mere 40%. Moreover, the 40% included only a very small fraction (6%) of the very productive *khors* areas. This new repartition, by attributing on average 85% of the investment companies sectors in open waters, was meant to encourage these private companies to deploy fishing activities in the so-far under-exploited open waters of the lake. The cooperatives had always neglected these less productive areas and the two state-owned companies had made it clear that they would not be able to operate there. Another category of actor was, therefore, necessary if the potential of the Lake was to be fully developed. The decision of the central authority was 'justified' on the basis that good fishing potentials exist in the open waters, but investment is needed (in particular in the form of cage culture) before these areas can become profitable. Investment companies were, therefore, viewed as the only actors that could make the necessary efforts (and bear all the risks…).[25]

In order to encourage those investment companies and provide them with enough fish to make marketing profitable, a compensation measure was also introduced by the central authorities. While the companies could only fish on a small fraction of the shorelines, they were entitled to get a part of the landings of the cooperatives. Thus, investment companies were offered the right to process 58% of the cooperatives landing on their sector. The two state companies Taswik and Misr Aswan, on the other hand, kept the monopoly of their initial sectors and were entitled to process the whole production in those sectors. These two companies, however, suffer from severe mismanagement and the hard competition with the private companies has forced them to improve their practices and organisation. Misr Aswan, for example, reduced considerably its administration but failed to keep its infrastructure

[24] Enclosures are created by closing up the entrance of the *khors* with the use of large nets, and stocking (i.e. releasing fingerlings or fries) into the closed area. The net prevents the released fingerlings to escape into the open water. Once the fingerlings have grown and reached a commercial size, the enclosure is fished. If properly managed, enclosures are usually characterized by higher productivity than 'natural' productivity (Cowx, 1998).

[25] Under the new arrangement, one *feddan* of open water (1 *feddan* = 4200 m^2) is leased at EGP 17 a year (i.e. US$7/ha), while the lease charge for the same area in the *khors* is EGP 25 per year (US$10/ha). Taking into account the huge discrepancy in productivity between the open water and the *khors*, this difference of 8 pounds is relatively small. As a result, as of today, companies have preferred not to exploit the open waters and do not pay the associated lease. This makes the whole measure, originally aimed at increasing the productivity of open waters a failure. The LNDA brought the case to court in 2006 since legally all the companies should pay the open water leases as they are contractually obliged to. The legal process is long and the vested interest of some of the major shareholders of these companies may be successful in influencing the ruling of the court. Finally, note that the state companies, reluctant to comply with their own new obligations, also fail to forfeit the lease they are supposed to pay for the *khors* they exploit.

operational. In fact, even under the new system, these two companies are still perceived by the fishers to do very little, except continuing to benefit from the monopoly over the processing of the fish caught in their sector of the lake.

Since the introduction of private companies in the fishery, the cooperatives have also tried to improve their management and practices. Through rationalisation, Mother Cooperative managed to reduce its administrative staff tenfold within a few years and other cooperatives have gone through the same process.

Price deregulation and neo-centralism

In 2001, following the recommendations of the commission, an initial attempt to liberalise the price was made at the lake harbours. Auctions were free and many traders were tensely competing to obtain their part of the landing. Unfortunately, the 'free forces' of the market did not drive the new system in the expected direction. As the competition became intense, the traders progressively started to use increasingly aggressive methods. 'Retaliation' practices also started to be observed by which some traders were pushing the price up to unaffordable levels before suddenly withdrawing from the auction, forcing the other traders to buy fish at prices far above the national price. In sum, the whole system failed to move rapidly towards efficiency. After a few months, in order to bring the situation back into control, it was decided to discontinue the free market experience: fish price would not be determined by auction at the harbour any longer, but, instead, be determined fortnightly by a committee created especially for this purpose. This committee was to be chaired by the chief of the harbour and composed of representatives from the Governorate of Aswan, the LNDA, the Ministry of Supply, and the cooperatives as well as the chamber of commerce. The idea was to set the price at the harbours slightly below the market price, reportedly to reflect the transportation costs arising from the geographical isolation of the Lake.[26]

Although this cannot be rigorously demonstrated, it is worth noticing that the free market pricing that was pursued during those few months in 2001 seems to have had instantaneous effects: soon after it had been implemented, official landings started to increase substantially. In particular, fresh fish landings jumped from 3,908 tonnes in 2000 to 18,513 tonnes in 2002, a 300% increase, before falling down again once the fixed price system was re-established in early 2002 (see figure 2).

The price ceiling was not the only regulation (re)introduced by the central authority after the failure of the 2001 free-pricing experiment. Attracted by the market opportunities, many fish traders entered the sector during the course of the 1990s.[27] However, in order to pay off transportation costs to the national fish market of Souk el Abour, more than 630 km away from Aswan, it was said that each trader needed a minimum of 2.5 tonnes of fish per trip. Somehow, it was feared that the local market would not be able to internalise these costs and that, once again, the government should intervene. Thus, everyday at the harbour, only one private trader (following a rotating system amongst the six traders who were officially associated to each harbour) is entitled to buy a share of the cooperative's landings, alongside with the investment companies and the state-owned companies. The other five fish traders have the choice: either to wait for their turn later during the week, or join the horde of smuggling traders who operate from non-official landing sites along the shores of the lake.

[26] This situation means that only the fishers, not the fish traders or the consumers, bear the cost of the fishery's geographic isolation.

[27] In addition to the potential of the Lake Nasser fishery, the recent boom of aquaculture in Egypt has probably encouraged more self-entrepreneurs to engage in the fish-trading business. Egypt is now the first aquaculture producer in Africa. Production in 2002 was more than ten times the level in 1992 and contributed to about half of the country's total fish production (FAO, 2004).

Today, fresh fish landings are low again – around 20% of the potential production.[28] Overfishing, of course, may be one cause for this poor performance, as the resource is said to be under stress. But the re-emergence of smuggling cannot be ignored. It is currently estimated that official landings probably represent only half of the total catch. With a heavily controlled price and a limited entry through a fixed number of licences, smuggling remains a major problem for the fishery. In addition, the mistrust and refusal to deal with the two state-owned companies remains acute amongst fishers and a good incentive for those operating in their sectors to rely on black market channels instead of the company landing facilities.

DISCUSSION AND CONCLUDING REMARKS

The decision to liberalise Lake Nasser's fishery was made in 2001 following a 20-year decline in the official landings. Interestingly, it was a commission comprising representatives from government or semi-government agencies that had been, and were still, strongly involved in the management and exploitation of the lake's resources who proposed the reform. Liberalisation was perceived as the necessary response to an environmental crisis combined with a governance and economic problem.

From the environmental side, overfishing had been pointed out as the main threat to the fishery. The privatisation of the resource was then viewed by the commission as the solution to this issue. The basic principle was to stop the dynamics of the classical "tragedy of the commons" (Hardin, 1968) by privatising the resource, thus giving incentives to the main stakeholders to responsibly and sustainably manage 'their' own resources in perfect line with standard analyses in modern resource economics (e.g. Clark, 1990; Pearce and Warford, 1993).[29]

From the economic side, with massive amounts of smuggled fish diverted from the official commercialisation channels, liberalisation was viewed as a way to incite soundly managed private companies to takeover the whole business and transform the fishery into an economically efficient activity. Indeed, with quite powerful parastatal agencies enjoying an exclusive control over the resource, refusing to pay for it and poorly managing it, the government assumed that liberalisation was a possible solution to solve many of the economic inefficiencies of the system, in agreement with the mainstream neo-liberal vision widely adopted in the 1990s (e.g. Sachs and Lipton, 1990; Hannesson, 1996; World Bank, 1997; WHAT, 2000).

However, as our analysis reveals, the existing parastatal agencies – although economically inefficient – were politically powerful enough to oppose the radical reshaping of the fishery. As a result, the government had to modify and even drop some parts of its original plan, and eventually invited only four private companies to participate in the new development plan.

It would be tempting, at this point, to make a parallel between the decision made by the authorities to restrain the reform of Lake Nasser fishery and some similar political 'retreats' made a few years earlier when the same government gave up the idea of implementing the first liberalisation reform of the country that had been proposed by the International Monetary Fund (IMF) as part of a larger structural adjustment package. At that time (in 1977), the withdrawal of the IMF reform had been the consequences of the violent unrest (the "Bread riots") that broke out across the whole country to protest against the rise in basic commodity and food prices induced by the IMF programme. A somewhat similar scenario took place few years later (in 1986) when hundreds of Egyptian security troops reacted with fury at the news that the government intended to extend their enlistments (the

[28] It is interesting to note that, at the same time, the quantity of salted fish is currently significantly higher than in the 1980s and 1990s. From 2005 to 2006, it almost even doubled to reach its historical level. Salted fish is a completely free-marketed product; there are no regulations, not even on the minimum size of the fish. This market, with prices on average three-times as high as the prices of fresh fish, seems to currently attract increasing interest, with potential negative effects on the resource.

[29] Those views have, however, been challenged on several occasions (see, e.g. Runge, 1986; Ostrom, 1990) on the basis that common property (as opposed to private property) may still continue in some specific circumstances, to ensure efficient and equitable outcomes.

"Police riots"). Afraid that these riots could lead to a deeper crisis threatening the national security, the government renounced to any potentially disruptive reform in the following months, resulting, in particular, in the postponing of the agrarian reform until the promulgation of the Tenancy Law Reform in 1992. Certainly, those different events are still present in the memories of most policy makers in Egypt and may have influenced the authorities in their decision to alter the Lake Nasser fishery reform, in particular, after the threats from cooperative leaders that potential troubles may break out if those cooperatives were to disappear through the reform.

We argue, however, that this 'threat' factor alone cannot explain the substantial adjustments that were made in the months that followed the initial fishery reform plan. First, as recognised by the central authority itself, the Lake Nasser fishing community only includes a few thousand of isolated, poorly unified fishers, with very little political voice. This is nothing in comparison to the 1977 Bread riots that broke out across the entire country, or even the 1986 police unrest in which several buildings were burned down in Cairo over the course of several days of protests. Second, while one can arguably hypothesise that the cooperatives might have been able to elicit some form of support from the fishers, thus justifying political caution in the way the reform should be handled, the fear of social unrest cannot be brought forward to explain why the state-owned companies were so carefully spared by the central authorities throughout the reform. Indeed, as indicated earlier, a majority of fishers considered those companies as highly inefficient and corrupt. It is unlikely that those fishers would have engaged in any form of protest, had the companies been affected by the fishery reform.

Other elements must, therefore, be considered in explaining the decision of the authorities to downplay the fishery reform. As far as the particular treatment enjoyed by the state-owned companies is concerned, there is little doubt that their close links with many different ministries and central authorities have been a major element in this process, confirming a posteriori some of the fishers' allegations. It is possible, therefore – as it is still the case in the natural resource sectors of many other developing countries (e.g. Robbins, 2000; Mock, 2003; Resosudarmo, 2005; Smith and Walpole, 2005) – that cronyism and nepotism might have been amongst the key factors that shaped the reform and led to its current 'neo-centralised' form.

Another explanation – which complements the cronyism hypothesis above, rather than replacing it – is one that links the Lake Nasser 'liberalisation' reform to the national food subsidy programme implemented in Egypt since World War II. To explore this hypothesis, let us first recall that the objective of the Lake Nasser fishery programme, as it had been defined in the early phase of its development planning, was the production of cheap animal protein. This objective appears as a direct support to the nationwide food subsidy programme that was being pursued at that time in Egypt. Just after World War II, a food rationing system had been put in place in order to provide certain necessities to consumers at relatively low prices. Initially focusing on edible oil, sugar, tea, and kerosene, the programme was extended in the 1950s and 1960s to include beans, lentils, frozen fish and meat, and chicken. By the end of the 1970s, almost 20 food commodities were being heavily subsidised (Alderman and van Braun, 1984).[30] During the 1980s and 1990s, internal budgetary constraints and pressures from the IFIs forced the central authority to considerably 'rationalise' the programme. As a consequence, most of the food items that had been added in the 1960s and 1970s were gradually removed from the programme, and at present only four food items remain subsidised – one type of bread, wheat flour, edible oil and sugar (Adams, 2006).

In this context, the Lake Nasser fishery and its low cost fish supply offered a great opportunity to the central authorities to compensate for the downsizing of the food subsidy programme, at least as far as animal protein is concerned. Several economically unorthodox decisions taken by the central authorities support this hypothesis. The introduction of the rotating system, for instance, whereby only one trader was allowed to purchase the fish landings at the harbour is a good example. The

[30] Those included three types of bread, flour, sugar, edible oil, rice, tea, beans lentils, macaroni, coffee, sesame, imported cheese, frozen meat, fish, eggs and chicken.

monopsonic conditions created by this particular system ensures that the price at which the landed fish is purchased remains artificially low, thus compensating for the high transportation costs between Lake Nasser and the different national markets, and reducing the risks that these costs are reported onto the consumers. The reintroduction of the fixed-price system after the failure of the local market free pricing experience in 2001 is another example. Indeed, while the market had failed to organise itself rapidly, it could be argued that some institutional support or a better enforcement of the rules would have been sufficient to generate the adequate conditions for a free and efficient fish market system to be established in the fishery. Instead, the central authorities decided quickly to revert to a fixed price system, thus going against the most basic economic principle. It seems difficult to explain such a decision, unless, of course, the real objective of the operation was to keep the fish price artificially low.[31]

All these market distortions eventually created enough space for a massive black market to develop. Today, it is estimated that about half of the production of the lake (probably 15,000 tonnes) is smuggled every year. Ironically, while the authorities are actively fighting the smuggling, it might be argued that the black market does constitute an indirect food subsidy programme. Indeed, there is no doubt that the myriad of smugglers (licenced and unlicenced fishers, traders and other intermediates) that extract and trade thousands of tonnes of fish every year at a price below the national market price and deliver this fish to the rest of the country's marketplaces, do contribute, indirectly, to the supply of animal protein at a lower price than the clearing market. Of course, many would retort that allowing existing (and possibly additional) private companies to properly invest and develop an economically efficient market chain would be a more appropriate manner to ensure this to happen, as theory claims that perfect markets eventually allocate resources in the most efficient manner. To some extent, this issue relates to the wider debate about formal *versus* informal economies. While some argue that fast economic growth is mainly achieved through a strong formal economy (e.g. World Bank, 2002; Ihrig and Moe, 2004), many practitioners, especially in Africa, recognise that a large part of the economic development is actually taking place in the informal sector (King, 2001; Garcia Bolivar, 2006; Palmer, 2008). In our case, whether private investment companies, supported by a true free-market policy environment, would indeed ensure a more efficient provision of cheaper fish than the current black market is difficult to determine. What is certain, however, is that the cheap supply of Lake Nasser fish is not currently subsidised by the central government but by the primary stakeholders of the fishery.[32] The fishers are indeed those who are bearing the social and economic costs of the distorted fish price mechanisms put in place by the authorities, for the greatest benefit of the rest of the society. As such, they are indisputably the main losers of this whole 'liberalisation' reform.

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[31] This focus on cheap protein supply may also explain why only official landing statistics are regularly recorded but no statistics of the commercial value of the fishery. It looks like the authorities are not interested in knowing how much (commercially) the fishery is worth, but only interested in monitoring precisely how much fish (food) it produces.

[32] One could argue, however, that the LNDA operating and personnel costs induced by the management and monitoring of the Lake Nasser fishery are true subsidies.

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