



High-Level Conference on:

Water for Agriculture and Energy in Africa: the Challenges of Climate Change

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National Investment Brief

NIGERIA

EXECUTIVE SUMMARY:

When Nigeria's poverty reduction strategy was issued in 2004, 70% of the country's population were living on less than \$1.00 per day, with a similar percentage dependent on small scale, subsistence agriculture for their livelihoods. Yet despite its great agricultural potential and the large number of people depending it for their livelihoods, the sector has failed to grow in line with the population and in fact is decreasing as a percentage of GDP due to economic diversification, that has yet to make a dent on the widespread poverty, which can be registered not only in terms of income, but also in terms of access to basic services. As a result of population growth in excess of agricultural sector growth, Nigeria, which was once an importer of agricultural produce, is now a major importer and for many of its population, this results in significant levels of food insecurity.

Even so, agricultural potential remains large and its development is one of the central tenets of the poverty reduction strategy. The agricultural sector remains dominated by rainfed production, but the wide variation in agro-climatic conditions across the country allow a wide range of crops to be grown. Nonetheless, the strategy recognises the importance of expanded publicly irrigation services (the sub-sector is actually characterised by a large proportion of private schemes based on wetland management). To this end an irrigation policy and strategy has been developed with the assistance of the FAO. It was adopted in 2006 and is targeted at improved water resources management, better use of existing assets and institutional reformulation. The latter has already begun with irrigation specific public institutions, but as yet has to make any real impact in the river basin development authorities. Climate change has already begun to bite in Nigeria, with the inland areas becoming drier, especially in the Sahelian regions and the coastal area becoming more flood prone. This situation, has already led to climate migrants/refugees.

The country's water resources are vast in relation to the demand so far made upon them. The total surface run-off is estimated to be some 250 km³ of which less than 5% is reportedly utilised, mostly by the agricultural sector which accounts for almost 70% of total withdrawals. Water is also important for power generation with some 1900 MW installed capacity already in place at 3 dams. The current energy policy recognises however, that this is small in relation to the estimated potential generating capacity of 10000 MW, which the energy policy of 2003 suggested should be developed by a mixture of large scale and mini-hydro subject to environment and transboundary considerations.

The national development agenda is very much targeted at poverty alleviation, the restoration of declining productivity and the realisation of the country's great potential. The strategy is multi-sectoral and targeted in particular at facilitating growth of the agricultural sector, partially by improved and expanded irrigation, and by increasing exports; of the manufacturing sector and of tourism, as well as improved communications, mineral extraction and environmental management.

The investment envelope consists of US\$ 962 million for the short term, of which US\$ 880 million is allocated for small scale water control, US\$ 64 million to irrigation scheme rehabilitation and US\$ 19 million to large scale hydraulic projects. For the medium term, the total is US\$ 815 million (US\$ 556 million, US\$ 148 million and US\$112 million). And for the long term the total is US\$535 billion (US\$278 billion, US\$ 28 million and US\$229 million).

1. CONTEXT

1.1 AGRICULTURE AND FOOD SECURITY

Agriculture

Although it depends heavily on the oil industry for its budgetary revenues, Nigeria is predominantly still an agricultural society with the sector typically contributing around 41% of GDP, which in 2007 totalled some \$ 132.2 billion (Economist Sep 2008). Ongoing economic diversification is expected to maintain an ongoing decline in agriculture's contribution to GDP (Encyclopedia of the Nations). Approximately 70 percent of the population engages in agricultural production at a subsistence level. Agricultural holdings are generally small and scattered. The country's wide range of climate variations allows it to produce a variety of food and cash crops. Staple food crops include cassava, yams, corn, coco-yams, cow-peas, beans, sweet potatoes, millet, plantains, bananas, rice, sorghum, and a variety of fruits and vegetables. Livestock is also important in the country, but is generally a household rather than commercial enterprise. Cash crops are discussed below in the section dealing with trade.

Total cultivable area is estimated at 61 million ha, which is 66% of the total area of the country (AQUASTAT).

Agricultural production has been declining in Nigeria since the advent of the petroleum boom in the early 1970s. The boom in the oil sector brought about a distortion of the labour market. The distortion in turn produced adverse effects on the production levels of both food and cash crops. Successive governments had paid farmers low prices over the years on food for the domestic market in order to satisfy urban demands for cheap basic food products. This policy, in turn, progressively made agricultural work unattractive and enhanced the lure of the cities for farm workers. Collectively, these developments worsened the low productivity, both per unit of land and per worker, due to several factors: inadequate technology, acts of nature such as drought, poor transportation and infrastructure, and trade restrictions.

Efforts since the late 1970s to revitalize agriculture in order to make Nigeria food self-sufficient again and to increase the export of agricultural products have produced only modest results (Encyclopedia of the nations). Thus by 2002, the cultivated area was only 33 million ha, of which arable land covered 30.2 million ha and permanent crops 2.8 million ha (AQUASTAT). About two-thirds of the cropped area is in the north, with the rest about equally distributed between the Middle Belt and the south.

Irrigation and water control

Irrigation potential is estimated to be 2.3 million ha. In 2004, an FAO study estimated that the area developed for irrigation was 364,000ha, the area equipped for irrigation was 293,000ha and the area actually under irrigation was 218,800ha. Of the latter, 173,000ha was under private small scale or Fadama irrigation and 29,000 was on Federal Government irrigation schemes with two large schemes (Kano River Project I and Hadejia Valley project) having 21,000ha.

Food security

The largely subsistence agricultural sector has failed to keep up with rapid population growth, with the result that, even though once a large net exporter of food, Nigeria is now forced to import food (World Factbook). To fix this, the Federal Government of Nigeria (FGN) and its development partners have invested extensively in the Public Irrigation Sector in Nigeria. However, the sector's performance has not had the anticipated impact on national food security, employment opportunities and economic growth (FAO 2004). Even so, it is fair to say that progress has been made.

According to the FAO (FAO 2003), Nigeria has a mild level of undernourishment, with 2 out of every 25 persons undernourished. This is nonetheless an improvement. In 1992 for instance the average food supply in kcal/person/day was 2560, whereas by 2001 it had risen to 2770. Similarly, in percentage terms, the undernourished comprised 13% of the population in 1992 and only 8% in 2001,

despite significant population growth in the period. These figures compare well with the West Africa Region and Sub-Saharan Africa as a whole (15% and 33% respectively).

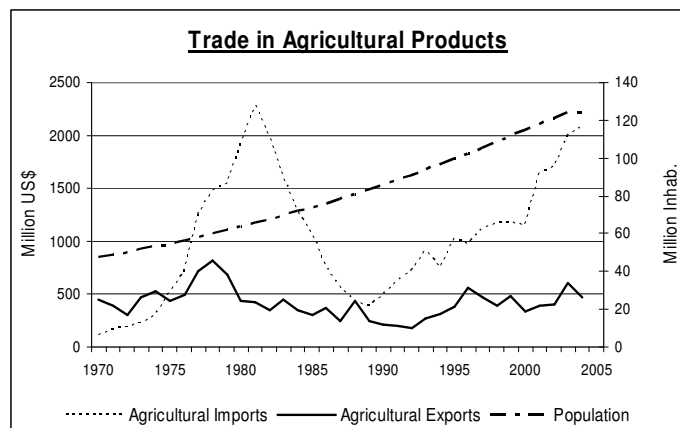
That this situation has room for considerable further improvement is acknowledged at the highest level. In April 2008 for instance, President Yar'Adua convened a meeting with the governors of the country's 36 states specifically to address the challenges of food production and food security. Inter-alia, this meeting authorised the importation of 50000 tonnes of rice from Thailand while deciding to take "very drastic, possibly revolutionary steps to address the challenge of food production and food security". To this significant increases in both national and state budgetary allocations for agriculture are being planned; while special measures have reportedly been put in place aimed at "ensuring the sustenance and enforcement of policies and regulations of government aimed [*in turn*] at stimulating domestic production of food and food products" (ReliefWeb April 2008).

Food and agriculture trade and import balance

The leading cash crops are cocoa, citrus, cotton, groundnuts (peanuts), palm oil, palm kernel, benniseed, and rubber. They were also Nigeria's major exports in the 1960s and early 1970s until petroleum surpassed them in the 1970s. Chief among the export destinations for Nigerian agricultural exports are Britain, the United States, Canada, France, and Germany (Encyclopedia of the Nations).

As food production could not keep pace with its increasing population, Nigeria began to import food. It also lost its status

as a net exporter of such cash crops as cocoa, palm oil, and groundnuts. According to U.S. Department of State FY2001 Country Commercial Guide, Nigeria's total food and agricultural imports are valued at approximately US\$1.6 billion per year. Among the major imports from the United States are wheat, sugar, milk powder, and consumer-ready food products.



1.2 WATER RESOURCES AND HYDROPOWER

The climate is governed by the seasonal movement of the inter-tropical convergence zone (ITCZ), which results in a humid south where temperatures range from 240C to 280 C, and a semi arid north with temperatures ranging from 300 C to 350C. Under the governance of the ITCZ, rainfall occurs between the months of June and September over the more northerly latitudes (120-140), lengthening to April to November further south. The annual rainfall varies from over 4000mm in the south east to below 250mm in the extreme north east. The resultant surface runoff estimated at about 250 billion m³ per year, is drained across the country via a network of river basins. The four principal surface water basins are the Niger and Benue basin, the Lake Chad basin, the Eastern littoral, made up of Cross River and the Imo River, and the Western littoral, which consists of a number of smaller catchments such as Ogun, Oshun, Benin and Owena basins (FAO 2004). It has been estimated that a total of 8.01 billion m³ per year are withdrawn, of which around 70% is used in the agricultural sector (World Factbook).

In 2006 there were three operational hydropower dams in Nigeria; the Jebba, Kainji and Shiroro with installed capacities of 540, 760 and 600 MW respectively ((Okoro, Gavender and Chikuni, 2006), but they are reportedly in less than satisfactory condition to the extent that government has sought investment in both restoration of existing and the construction of new facilities (AllAfrica.com). Since then the China Gezhouba Group Corporation (CGGC), the main constructor of the Three Gorges project, has won a contract to build the 2600 Megawatt (Mw) Mambilla plateau hydropower station. It should be noted however, that water levels must be raised and lowered at the dams in the course of generating hydroelectric power. Operating rules that prioritise power generation affect the amount of water available to irrigation projects downstream or upstream of such operations, and the influence of

these institutions on irrigation activities should be taken into consideration (FAO 2004), as will be seen in the next section, this is acknowledged in Nigeria's climate change adaptation strategy.

A detailed examination of the country's hydropower potential was commissioned by the NEPA. The implementation programme of the Power System Development Plan was based on the recommendation of the reports of this examination. The inventory of potential sites was completed and the power output for each site was calculated using firm flow and average head. This study revealed approximately 32 sites with potential for hydropower development, 15 of which are classified as possible small-hydroelectric stations. It has been stated that a total of 8000 MW installed capacity is intended for development out an estimated potential of 30690 GWh/yr (International Small Hydro Atlas). Not all of this will involve large scale dams however. The National Medium Term Investment Programme itself stresses the importance of small scale facilities. In this context, the International Small Hydro Atlas notes that there are currently 41 small hydroelectric stations in operation, with a total capacity of 32 MW (defining small hydro is as less than 5 MW installed capacity). The same source notes that Nigeria has reviewed the development of a programme of small hydro construction that will eventually result in 702 MW of installed capacity at 236 sites and 400 MW from mini hydro plants.

1.3 CLIMATE CHANGE

The effects of climate change have been detectable in Nigeria since the 160s and differ across the country. While excessive flooding, especially during the past decade, has impacted negatively on farming in coastal communities, desertification is ravaging the Sahel. Traditionally, desertification in the Sahel has been blamed on overgrazing practices of the local population. But it has been discovered that the real problem is climate change. Rainfall in the Sahel has been declining steadily since the 1960s. The result has been the loss of farmlands and the conflicts between farmers and herdsmen over ever decreasing land. Many different communities, including fishermen, farmers and herdsmen are now confronted with difficulties arising from climatic changes. Peoples' livelihoods are being harmed, and already poor people are becoming even more impoverished. Climate refugees are being created, as climate change makes some land unlivable and impacts water supplies. (Friends of the Earth, date unknown). In general terms IPCC models, as reported by FAO (2008), as time progress precipitation will increase over the entire country, but with run-off more pronounced in the coastal areas. Evaporation will also increase, especially in the central and coastal regions of the country.

Another source (Government of Nigeria 2003) adds the following information:

- The most significant changes are with respect to temperature and temperature related parameters. There has been a tendency to emphasize changes in temperature in the temperate latitudes and to imply that similar changes will not occur in tropical areas. Given some of the emission scenarios changes in minimum and maximum temperatures of the order of 7°C or more could be expected in certain parts of the country. This is likely to create a significantly different world with implications in vulnerability and adaptive capacity. The impacts of such changes will be felt in multiple sectors including: health, water, biodiversity, agriculture and forestry.
- Night time temperatures will in general increase at a higher rate than day time temperatures. Crops and other plants requiring low temperature conditioning may in the short run survive through autonomous adaptations, but in the long run, may suffer extinction.
- Day time temperatures may in future attain levels unknown to areas outside the hot desert regions. In areas with perennially humid air, this has the potential to produce sultriness usually associated with the oppressive heat.
- There has been an observed trend towards aridity in Sub Saharan West Africa. Findings suggest that that this trend will be arrested or reversed as the century progresses. There are possibilities however, that the additional water need created by higher temperatures may not be met by the increases in rainfall.
- One aspect of the current climate pattern that will be carried forward into the potential climate of the future is zonation. All the parameter values are still likely to increase or decrease with distance

from the coastline. Rainfall and humidity will decrease, while temperature will increase with distance from the sea.

- Uncertainties regarding climate change will most likely be in terms of magnitude rather than of direction. The more significant uncertainties pertain to temperature and temperature related parameters in respect of which the expected changes are relatively large. With respect to moisture, the projections are for an increase rather than a decrease. The worst case scenarios are the situations in which the moisture level does not change.

2. NATIONAL STRATEGIES FOR WATER, AGRICULTURE AND ENERGY

2.1 POLICY CONTEXT

Nigeria's national development agenda is essentially driven by its PRSP which was promulgated in the form of 2004's *National Economic Empowerment and Development Strategy "Meeting Everyone's Needs"* (Government of Nigeria 2004). Known by its acronym NEEDS, it is a wide ranging document covering all sectors relevant to the socio-economic development of the country and was based on comprehensive grass roots consultations. Of particular relevance here is that the NEEDS calls for annual increases in agricultural sector growth of 6% and for the country to become a net exporter of agricultural produce. The NEEDS will be or is supported and/or complemented by several sector specific policies.

As far as agriculture is concerned, NEEDS refers to it as Nigeria's second-largest source of national wealth, after oil. The merging policy framework for agriculture is therefore intended - *inter-alia* - to promote the cultivation of improved, higher yielding crop varieties; to provide extra support to agricultural research and training; to encourage increased participation of the private sector and to offer farmers improved irrigation, machinery, and crop varieties. To this end, with FAOs support a National Irrigation Policy and Strategy has been formulated.

The Irrigation Policy and Strategy was adopted in 2006 and recommended integrated water resource management, consolidation of existing investments where commercially viable, institutional change and reform for the river basin development authorities (RBDA's), land and water legislation and the development of beneficiary led irrigation schemes. To date reforms have occurred in Government ministries responsible for irrigation development but the RBDA's still remain largely unchanged.

An action plan for irrigation development followed on from the policy and strategy with 12 schemes proposed for development. One of the first developments has been in rice irrigation in Kwara State at Tada Shonga (2,700ha public private partnership scheme costing US\$49 million) utilising water from the Niger River.

The National Water Policy was promulgated in 2003 and although based on the principles of Integrated Water Resources Management, although claims have been made that it is inadequate in terms of water resources management (Didi Odigie & Bola Fajemirokun, 2005). In addition, it is considered controversial in some quarters respect to its stand on water pricing. Its principle thrust is to ensure equitable access to safe and reliable water resources for all by 2011.

The National Energy policy was promulgated in April 2003 with nine objectives between them targeted at cost effectiveness, technological diversity, reliability and international cooperation (Energy Commission of Nigeria 2003). With specific respect to hydropower, the policy recognises that the country's vast potential, estimated to be some 10000 MW, is under-utilised. Accordingly it calls for the full development of this potential, but does not limit the technology merely to large scale dams. Instead it promotes min-hydro as an alternative, while insisting that any development should be environmentally responsible while, in the case of transboundary rivers, without compromising any applicable agreements.

Finally, it is important to note that Nigeria has developed detailed and comprehensive mitigation and adaption strategies with respect to climate change.

Mitigation Strategies for the agricultural and natural resources sectors¹ in order of anticipated impact are afforestation, agro-forestry and forest protection. Adaptation strategies for agricultural sector include varietal diversification, improved land management and fertiliser practices, expanded irrigation service coverage, improved meteorological information services, conservation tillage and public awareness. For water resources, the adaptation strategies are based on improvements to existing assets and their utilisation,; increasing the water supply by the construction of new assets including dams and reservoirs and the application of new operating rules at both new and existing dams/reservoirs.

2.2 INVESTMENT ENVELOPE

The investment envelope for the short, medium and long term is presented in the Table below and expressed in million US \$ (based on CAADP investment projections).

| Time scale | Type of investment (million US\$) | | | |
|--------------|-----------------------------------|------------------------------|--------------------------------|-------------|
| | Small scale water control | Rehabilitation of irrigation | Large scale hydraulic projects | Total |
| Short-term | 880 | 64 | 19 | 962 |
| Medium-term | 556 | 148 | 112 | 815 |
| Long-term | 278 | 28 | 229 | 535 |
| Total | 1713 | 240 | 359 | 2313 |

2.3 PROJECT PORTFOLIO

Section 3 presents recently achieved, active and pipeline projects related to the above investment envelope. The Table is based on the 2006 National Medium Term Investment Programme (Government of Nigeria 2006) and clearly indicates an emphasis on food security for which almost \$500 million has been or is earmarked. As far as irrigation is concerned, expenditures have been and remains heavily oriented towards fadama development (US\$655 million). Other irrigation expenditure is embedded as components of broader initiatives such as the food security programmes (US\$450 million) or general agriculture initiatives (US\$189 million). The only expenditure specifically allocated to the irrigation sector had an evaluation and planning focus, namely the 2003-2004 Public Irrigation Sub-sector Study (US\$1.3 million).

In addition, but not shown in the table are several ongoing multi-purpose dam programmes most of which include irrigation components. Total cost of these is almost US\$105 million, but it is neither possible nor meaningful to allocate any specific proportion of this to irrigation.

¹ Mitigation and/or adaptation strategies have also been developed for all other sectors including energy, transportation, industrial sectors etc.

PROJECT PROFILES (ON-GOING AND PROJECTED)

| Project title | Funding Partners | Time Scale | Total Budget | Description |
|--|---|------------|--------------------------------------|--|
| I. PROJECTS RECENTLY IMPLEMENTED | | | | |
| National Fadama Development Project I | FGN | 1992-1998 | US\$104.5 million | 55,000 ha small scale irrigation northern Nigeria. |
| Public Irrigation sub-sector Study | FAO | 2003-2004 | US\$1.3 million | To review the 12 RBDA's irrigation schemes and develop an action plan to enhance their utilisation. |
| Special Programme for Food Security | FGN/ADB | 2001-2007 | US\$45.2 million | 109 sites in 36 states. Some small scale dams and irrigation. |
| II. ON-GOING PROJECTS | | | | |
| Irrigation, Soil and Water Management | World Bank | 2004-2009 | US\$4.39 million | Objective is to overcome water stress from erratic rain fed agriculture and land degradation, and to improve land fertility and increase productivity of crops and livestock |
| Community-Based Agricultural and Rural Development Programme | IFAD, Government, Beneficiaries | 2003-2010 | US\$ 101.6 million | The programme works to: (i) promote awareness and build capacity of public and private sector service providers to respond to the needs of poor rural women and men; (ii) empower poor communities to manage their own development and support vulnerable groups; (iii) improve agricultural practices, resolve conflicts between farmers and pastoralists and intensify crop and livestock production; (iv) develop or upgrade safe water supplies, environmental sanitation, irrigation, and health and education facilities |
| National Fadama Development Project II | FGN/WB | 2003-2010 | US\$126.0 million | 18 states Northern Nigeria. |
| Support to the National Programme for Food Security in Ekiti, Ondo and Cross River States (NPFS) | AfDB, Government of Nigeria, Beneficiaries | 2007-2012 | UA 27.58 million (US\$40.57 million) | The objective of the project is to increase agricultural production and the incomes of rural households and beneficiary communities. The proposed project will have four components, namely: (A) Community Development; (B) Land and Water Development; (C), Production Enhancement and Diversification; and (D) Project Management |
| National Fadama Development Project III | FGN/WB/IsDB/EU | 2008-2013 | \$425.0 million | Nationwide project. Some small scale irrigation projects. |
| National Programme for Food Security | Nigeria AfDB Islamic Bank BADEA IFAD | 2001-2012 | US\$ 363 million | The objective is to improve national food security and reduce poverty on an economically and environmentally sustainable basis. The king pin of the NPFS would be the establishment of Agricultural Production and Demonstration sites to demonstrate improved technologies under real life conditions. The five- year expansion phase would support the following components: a. Site Development: establishment of 218 production/ demonstration sites. b. Outreach: improving critical rural services and facilitating access to these services. c. Community Development: fostering community empowerment and group development and provision of funding for community development projects. d. Management |

| | | | | |
|---|------------|-----------|-------------------|--|
| | | | | Support. |
| III. PIPELINE PROJECTS | | | | |
| The Commercial Agricultural Development Project | World Bank | 2010-2016 | US\$185.0 million | Commercial agricultural project - studies proposed for irrigation development. |

Sources: NMTIP Government of Nigeria 2006.

ANNEX 1: MAP OF WATER CONTROL IN NIGERIA:



ANNEX 2: COUNTRY STATISTICS

| Country and population | | | | | | | | |
|--|----------|-------------|------------------------------------|--------------------|------------|-------------------------|----------|---------------|
| Area of the country | 2005 | 92377 | 1000 ha | | | | | |
| Cultivated area as % of the total area of the country | 2005 | 37.9 | % | | | | | |
| Total population | 2005 | 131530 | 1000 inhab | | | | | |
| • of which rural | 2005 | 52 | % | | | | | |
| Population economically active in agriculture | 2005 | 15191 | 1000 inhab | | | | | |
| • as % of total economically active population | 2005 | 29 | % | | | | | |
| • female | 2005 | 38 | % | | | | | |
| • male | 2005 | 62 | % | | | | | |
| Economy and Development | | | | | | | | |
| Gross Domestic Product (GDP) (current US\$) | 2007 | 132200 | million US\$/yr | | | | | |
| • value added in agriculture (% of GDP) | 2005 | 41 | % | | | | | |
| • GDP per capita | 2007 | 1005 | US\$/yr | | | | | |
| Access to improved drinking water sources | | | | | | | | |
| Total population | 2006 | 47 | % | | | | | |
| Urban population | 2006 | 65 | % | | | | | |
| Rural population | 2006 | 30 | % | | | | | |
| Water Resources and management | | | | | | | | |
| Average precipitation | 2007 | 1062.3 | 10 ⁹ m ³ /yr | | | | | |
| Total actual renewable water resources | 2007 | 286.2 | 10 ⁹ m ³ /yr | | | | | |
| Dependency ratio (transboundary rivers) | 2007 | 22.8 | % | | | | | |
| Total actual renewable water resources per inhabitant | 2007 | 2176 | m ³ /yr | | | | | |
| Total dam capacity | 2000 | 44.166 | 10 ⁹ m ³ | | | | | |
| Total water withdrawal | 2000 | 8.01 | 10 ⁹ m ³ /yr | | | | | |
| • as % of total actual renewable water resources | 2000 | 2.80 | % | | | | | |
| IRRIGATION AND DRAINAGE | | | | | | | | |
| Irrigation potential | 2007 | 2331 | 1000 ha | | | | | |
| Water Management | | | | | | | | |
| Total area equipped for irrigation | 2004 | 364 | 1000 ha | | | | | |
| • as % of cultivated area | 2004 | 0.84 | % | | | | | |
| • annual increase rate | | 1.8 | % | | | | | |
| • power irrigated area as % of total area equipped | 1991 | 55.06 | % | | | | | |
| • % of total area equipped actually irrigated | 2004 | 75 | % | | | | | |
| Non-equipped cultivated wetlands and inland valley bottoms | 2004 | 0.000 | 1000 ha | | | | | |
| Non-equipped flood recession cropping area | 2004 | 681.914 | 1000 ha | | | | | |
| Total water-managed area | 2004 | 975.031 | 1000 ha | | | | | |
| • as % of cultivated area | 2004 | 3 | % | | | | | |
| • drained area as % of cultivated area | | - | % | | | | | |
| Typology of irrigation schemes | | | | | | | | |
| Small-scale schemes (<ha) | | | 1000 ha | | | | | |
| Medium-scale schemes (- ha) | | | 1000 ha | | | | | |
| Large-scale schemes (>ha) | | | 1000 ha | | | | | |
| Irrigated crops | | | | | | | | |
| Wheat | 1999 | 19.0 | 1000 ha | | | | | |
| Rice | 1999 | 7.0 | 1000 ha | | | | | |
| Maize | 1999 | 19.0 | 1000 ha | | | | | |
| Potatoes | 1999 | 4.0 | 1000 ha | | | | | |
| Sugar cane | 1999 | 19.0 | 1000 ha | | | | | |
| Vegetables | 1999 | 64.0 | 1000 ha | | | | | |
| Cotton | 1999 | 8.0 | 1000 ha | | | | | |
| Other annual crops | 1999 | 24.0 | 1000 ha | | | | | |
| ENERGY INDICATORS | | | | | | | | |
| Energy Production | 2005 | 231.78 | Mtoe | | | | | |
| Net Imports | 2005 | -127.10 | Mtoe | | | | | |
| TPES | 2005 | 103.78 | Mtoe | | | | | |
| - TPES/Pop | 2005 | 0.79 | toe/capita | | | | | |
| - TPES/GDP | 2005 | 1.72 | toe/thousand 2000 US\$ | | | | | |
| - TPES/GDO (PPP) | 2005 | 0.79 | toe/thousand 2000 US\$ PPP | | | | | |
| Electricity Consumption | 2005 | 17.90 | TWh | | | | | |
| - EC/Pop | 2005 | 136 | kWh/capita | | | | | |
| ENERGY SUPPLY AND CONSUMPTION (2005)* | | | | | | | | |
| | Coal | Gas | Crude oil | Petroleum products | Hydro | Other Renewable & Waste | Others | TOTAL |
| Production | 5 | 17961 | 132210 | 0 | 684 | 80915 | 0 | 231775 |
| Imports | 0 | 0 | 0 | 7177 | 0 | 0 | 0 | 7177 |
| Exports | 0 | 10201 | 121816 | -2257 | 0 | 0 | 0 | -134274 |
| International Marine | | | | | | | | |
| Bunkers | 0 | 0 | 0 | -634 | 0 | 0 | 0 | -634 |
| Stock Changes | 0 | 0 | -253 | -7 | 0 | 0 | 0 | -260 |
| Total Primary Energy Supply (TPES) | 5 | 7761 | 10142 | 4279 | 684 | 80915 | 0 | 103786 |

* in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis.

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