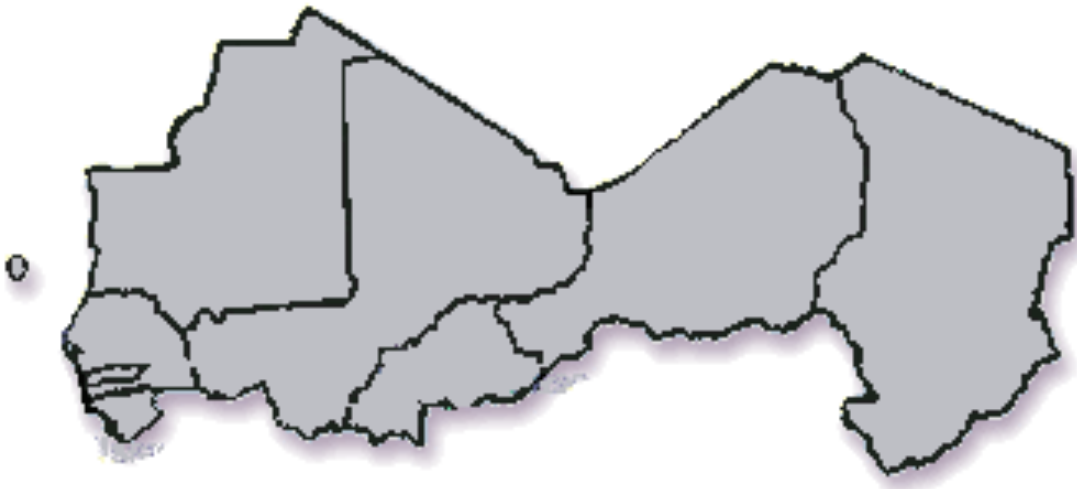


Energy for Poverty Alleviation in Sahel **IE4Sahel**



Assessment of the current situation on energy policy and regulations in Sahel

Contract N°. EIE/04/131/S07.40673

Participants:

IST – Instituto Superior Técnico - Portugal

ESD – Energy for Sustainable Development Ltd. - UK

CRES – Center for Renewable Energy Sources – Greece

ARC - AGRHYMET Regional Center – Niger - subcontractor



**D3 - Assessment of the current situation on energy policy and regulation in Sahel
DRAFT**

Contract No: EIE/04/131/S07.40673

Acronym: IE4SAHEL

Title: Energy for Poverty Alleviation in Sahel

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1. Summary

This report - **Assessment of Current Energy policy and Regulations** - D3 - is a deliverable foreseen by the project *Energy for poverty alleviation in Sahel - IE4Sahel*. The report contains a brief summary of the IE4Sahel project objectives, explains the role of this deliverable in the project, the methodology used to achieve it, and the analysis of the regional and national energy policies and regulations and, in appendix, the policy questionnaire used for the analysis.



2. The IE4Sahel project.

The objective of the IE4SAHEL project is to contribute to poverty alleviation for a wide variety of energy users through the development and dissemination of appropriate and sustainable energy policies at a regional and national level in the Sahel region. Efficient and effective energy policies and regulations can be a powerful tool to alleviate poverty, creating sustainable energy systems and increasing the penetration of renewable energy technologies and efficient energy use techniques.

The project is designed on two different pillars, on one side scientific and policy research about the role that energy policies can play in poverty reduction in Sahelian Countries, and on the other side, as a cooperation project, the IE4Sahel will perform capacity building and networking activities.

Among the various options to achieve these goals, the creation of a dedicated workforce within an existing local reference centre has been identified as having the greatest potential for sustained long-term impact. The reference centre chosen in the Sahel region is ARC – AGRHYMET¹ Regional Centre, a 30-year long established Research Centre that already has a strong presence in the search for appropriate technology and a suitable structure to embrace the task.

A comprehensive assessment of Energy Policies and regulations in the Sahelian Countries is an important step in the process of opening the policy discussion, it helps the circulation of information, and it is a necessary step in the process of empowerment of the centre ARC aghrymeth for dealing with energy issues.

3. - Assessment of Current Energy policy and Regulations - methodology

The assessment of energy policies and regulations is made on the basis of a questionnaire (presented in the annex I). The questionnaire has been used as a grid for the analysis of literature and information referred to any country, and then re-elaborated in this report. The questionnaire is also designed to be disseminated to key actors in the target countries,

¹ AGRHYMET stands for Agriculture, Hydrology and Meteorology



during the first workshop, and the results to be incorporated in the final version of this deliverable.

The methodology to assess the current energy policies and regulations in the Sahel has been based on literature research, in particular for each country they have been analysed, if available:

- Poverty Reduction Strategy Papers and their progress reports;
- Household and Poverty Surveys
- Energy Poverty Action Plans
- IMF and World Bank regular country reports, art. IV consultations, statistics, memorandum of understandings and other policy documents;
- World Bank project database
- Millenium Development Goals country reports
- Human Development reports
- Results from workshops and seminars on energy policies organised by multilateral or regional organisations (ESMAP, ECOWAS, UNDP etc.)
- Data from National Governments
- Data from National Energy Utilities
- Literature on international journals
- International and regional policy agreements
- Energy utilities balance sheets and reports

The aspects analysed for each country have been the followings:

- General Poverty and Development Data and status of the Poverty Reduction Strategy process
- Energy and electricity status: installed capacity, annual production, fuel mix, electrification level, electrification rates, electricity consumptions, electricity tariffs and main development projects.
- Energy Reform Status: Structure of the energy industry, ownership of the energy industry, regulations of the energy industry.



- Regulations in the fossil fuel sector
- Regulations in the biomass / forestry sector
- Energy and poverty linkages: presence of an energy and poverty action plan, presence of an agency for rural electrification, main initiatives to address energy poverty.
- Other issues

The approach utilised is not only the description of the regulations in the various energy sectors of the different countries, but also, where possible, the collection and analysis of data regarding production and consumption patterns, development and policy reforms process. It is evident that regulations and policies are only one aspect of the issue and that the relationship between a regulatory measure and the production and consumption pattern is difficult to isolate, and depends on many other factors, for example financing. It is also true anyway that real field data are the only possible signal of the magnitude of the problems and of the effectiveness of the policy and regulatory framework put in place.

4 - Barriers and limits

The availability of data is very different from country to country. The countries that experienced some process of reforms, and the most populated countries, are naturally the ones with more easily accessible data (Mali, Senegal, Cape Verde). For other countries data are not so easily accessible without a direct contact with the institutions involved in energy in each country and the presence of previous literature is very limited.

Availability and reliability of data is always a serious issue everywhere but specially in developing countries with weaker resources for statistical institutions, and international publishing of laws and regulations. It has also to be noted that data are more likely to be available when the phenomena involved is in some way formal and commercial. In the case of energy in the Sahel this often does not comprehend, or comprehend in limited way, the traditional biomass sector, often informal and often the largest in the countries under investigation. Thanks to the renewed attention to the link between energy and poverty, particularly after the 2002 Johannesburg Conference, data on energy policies, consumption and production are now included often in the poverty and MDG reports, and these have been highly utilized for this study.



5. Brief global policy overview

Regulation and policies in the energy sector.

5.1 The first shift in policies, from state monopoly to the market based reforms

The region under study is very wide and present huge disparities, from the economic, social and environmental point of view, but also many common characteristics. The nine States of Burkina Faso, Cape Verde, Chad, Guinea Bissau, Mali, Mauritania, Niger Senegal and the Gambia all belong to the UN list of Least Developed Countries (LDCs), and with the exception of Cape Verde to the group of 30 Countries with lowest Human Development Index HDI. From the political point of view they all got independence from European countries (UK, Portugal and France) in a period between the 1960 (for the countries occupied by the French) to mid-seventies (for the countries occupied by Portugal and decolonised after the Carnation Revolution).

More specifically for the energy sector all countries present a very high share of traditional biomass in the total energy mix (for Chad, Mali, Burkina Faso and Niger the share is higher than 85%), low electricity consumption and low electrification rates, especially but not limited to rural areas.

From the regulatory and policy point of view, specifically for the electricity sector, we may notice a common path that starts with nationalisation and vertical integration of the electricity industries in the '60s and '70s, in some cases together with the integration between the energy and water utilities. The performance of the nationalised energy companies have not always been satisfactory for many aspects and worsened during the '80s. The main common issues included low quality and low reliability of the service, huge costs for the state budget, difficulties in expanding the access, inefficiency of the management and of whole structure and lack of funds and conditions to implement policies aimed to expand and improve the service.

In the 90's, for all these reasons and also for the different climate in world politics and economical mainstream culture, all developing countries started a wave of liberalisations, structural adjustments, return where possible to free markets and a general "diet" of the functions of the state, with the support of the Bretton Wood institutions, this process happened also in the Sahel. For the Energy Sector the cornerstone of this shift in policies



was a World Bank document of 1993² that claimed for World Bank Support for the following measures:

- Institution of transparent and independent regulatory system
- Importation of services in some LDCs, for example with contract management solutions
- Commercialisation, Corporatization and involvement of the private sector (to be pursued *aggressively*).
- Committed lending (to the reform and restructuring objectives)
- Measures to involve the private sector participation

These new policy objectives represented a great shift from the previous policy to support state-owned monopoly. The model that the World Bank advocated for reforming the power sector in developing countries is a move in the direction of what is called an open competitive system, and was implemented with various degrees and success also in the Sahelian countries during the '90s. It has to be noted that this model has been introduced in the 90's in both OECD and non-OECD countries and that even in the industrialised world the model has been applied with various level of private sector participation and with various degrees of vertical fragmentation of the state monopoly enterprises.

5.2. The second shift in policies, from market reforms to the energy needs of the poor.

If the nineties has been a decade in which the policy focus was on structural adjustments, privatizations and free market, the orientation of the international community switched again with the new Millennium. During the Nineties a growing concern was showed about the relationship between environment and poverty, the concept of sustainable development was widely used (and abused) and to the relationship between energy and poverty was given more and more importance. Moreover, the policies pursued by the Bretton Wood Institutions and by the main international donors moved from the strict structural adjustment policies and refocused on poverty reduction strategies.

The integration of these concepts into development policies and the importance of energy in the poverty reduction strategies have been fully developed only after the year 2000. In particular it could be noted that the relation between energy, poverty reduction and sustainable development was not fully addressed at the Rio Conference in 1992 and not considered to be part of the Millenium Development Goals (even if several African

² The World bank role in the Electric Sector, 1993. World Bank policy Document.



Countries actively advocated for the inclusion of an energy access target into the MDGs). Starting with the ninth session of the Commission on Sustainable Development of the United Nations (2000) energy entered officially into the strategy to combat poverty. Following the progress made into CSD 9, the NEPAD in 2001 stressed the importance of an energy strategy to combat poverty (see later) and the World Summit on Sustainable Development (Rio +10) produced a Johannesburg Action Plan in which energy was one of the pillars. More recently, in 2004, the Bonn declaration reaffirmed the centrality of energy to reach the MDGs and the UN founded UN-Energy, an inter-agency with the specific role of coordinating the role of the UN agencies in the field of energy. In 2006, the 14th session of the UN Commission on Sustainable Development had - again - the relation between energy and poverty at the centre of its works.

During the last years energy has become, from an issue ignored in the Millennium Development Goals, to an obligatory step to achieve MDGs. This conceptual step has been developed, between the others, in a meeting of experts in the framework of the Millennium Project, in New York , in 2001, in which three "energy targets" *necessary to achieve the MDGs* have been formulated³

- for domestic energy: to assure that 50% of the ones that do not have access today to modern energy, gain this access by 2015 and also the provision of ameliorated cookstoves;
- 100% of urban and periurban population to reach access to electricity;
- 100% of villages with some form of mechanic or electric energy

These recommendations have been in certain degrees followed by regional and national institution in fixing their own energy targets. The concept that to achieve the MDGs an energy strategy is necessary has become more and more universally accepted. Nevertheless the majority of national Poverty Reduction Strategy papers do not face the problem of the energy needs of the poor, of the effects of the reform in energy sector on the poor, and do not allocate resources for energy-poverty strategy in their budget commitments.

5.3 The African policy initiatives

In the African continent in the last years there have been several policy initiatives, cooperation programs, policy declarations and real projects to face the energy situation of Africa, at the global level and for the specific sub-regions of the continent. Here it follows a

³ Energy Services for the Millenium Development Goals: Millenium project, UNDP, World Bank, 2005



list of the principal policy agreements and initiatives subscribed by the African states and specifically for the Sahelian States.

5.3.1 The NEPAD energy agenda

The **New Partnership for Africa's Development (NEPAD)** is an initiative adopted by the summit of the head of state of Organization for the African Union (OAU, now African Union) in 2001. NEPAD objectives are to reduce the poverty, promote sustainable development, to halt the marginalisation of Africa in the process of globalisation and to accelerate the empowerment of women. NEPAD is an holistic programme that covers many issues, starting from good governance, peace and security, capacity building, financing, infrastructure etc. It is intended to be a process that is driven by the Africans and achieved also with the support of international donors. The NEPAD framework document includes a section on energy with the following objectives:

- *To increase Africans' access to reliable and affordable commercial energy supply from 10 to 35 per cent or more within 20 years; ·*
- *To improve the reliability and lower cost of energy supply to productive activities in order to enable economic growth of 6 per cent per annum; ·*
- *To rationalize the territorial distribution of existing and unevenly allocated energy resources; · To strive to develop the abundant solar resources; ·*
- *To reverse environmental degradation that is associated with the use of traditional fuels in rural areas; ·*
- *To exploit and develop the hydropower potential of the river basins of Africa; ·*
- *To integrate and transmission grids and gas pipelines so as to facilitate cross-border energy flows; · To reform and harmonise petroleum regulations and legislation on the continent.*

One of the action indicated in the document is to create an **African Forum for Utility Regulation**. Energy related projects in the NEPAD framework are especially related to the modernization of infrastructures.

5.3.2 The African Energy Commission - AFREC

In 1980 in Lagos (Nigeria) the African Head of State of the OAU (Organization for the African Unity) adopted a Lagos Plan of Action and recommended the creation of an African



Energy Commission. The recommendation was not implemented immediately and was re-affirmed in several meetings and declarations throughout the nineties. In July 2001, in Algiers, the African Ministers of Energy met and adopted a declaration creating the African Energy Commission, with headquarters in Algiers. The declaration was signed by 37 African states, but only ratified by eleven. It is stated that to enter into force the convention should be ratified by at least 15 African States. In the Sahel region the only Mali and Senegal have ratified.

The commission, when and if it will be fully operative, will have between her duties to map out the energy development policies, strategies and plans based on sub-regional, regional and continental development priorities and recommend their implementation and design, create and up date an energy continental data base and facilitate rapid dissemination of information and exchange of information among Member States, as well as among the Regional Economic Communities (RECs), plus various harmonization, advice, capacity building and seek for financing activities. Part of these activities already started with the support of the World Energy Council WEC and the International Energy Agency IEA that made some efforts to create an **African Energy Information System AEIF**.

5.3.3 The Forum of Energy Ministers of Africa - FEMA

On the 3rd of August 2005 the Energy Ministers of African States established a **Forum of Energy Ministers of Africa (FEMA)** with headquarters in Kampala, Uganda. The vision of the forum is to *achieve effective African and regional cooperation, social and economic development leading to poverty eradication in Africa through the promotion of environmentally sustainable use and management of energy resources.*

Key objectives of FEMA are:

- Raising the profile of the energy sector in national and regional planning to reflect its central role in achieving the Millennium Development Goals.
- Developing a coherent energy strategy for Africa, including re-strategizing in order to increase modern energy supply and access.
- Promoting a common approach expressed through specific, national and regional projects of benefit to African countries.
- Speaking with a common voice and collectively advocating for the financing of regional projects.



- Promoting interconnectivity, and developing common technical standards and codes of conduct.

Fema interim Secretariat is hosted by the Ugandan Minister of Energy (and chaired by the Ugandan Minister), it already received support both from ESMAP and GTZ (the German technical cooperation) and it is designed on the basis of the previous successful experiences of other African Forums, like the African Ministerial Conference on the Environment, (AMCEN) operational since 1985 and the African Ministerial Council on Water (AMCOW) from 2002.

The Forum of Energy Ministers shall meet every two years, while the steering committee has an annual meeting schedule.

In order to achieve its objectives and the Millenium Development goals, the FEMA proposed to fulfill the following energy targets:

- doubling the consumption of modern fuels
- 50% of inhabitants in rural areas should use modern fuels for cooking
- 75% of the poor in urban and peri urban areas should have access to modern energy services
- 75% of schools clinics and community centers should have access to electricity as this would enhance their *competitiveness*
- Motive power should be available to rural areas.

Financing needs to achieve these goals are huge, for the electricity sector only it is estimated an annual requirement of 4 USD billions for operation and infrastructure plus an additional 4,8 USD billions to provide electricity to 150 additional millions of people in SSA.

The FEMA is expected to complement and and collaborate with AFREC once this will be fully operative.

More specifically for the Sahel region, the most important policy steps in the field of energy have been carried out in the framework of two organizations that comprehend the majority of the States of the region under study. The UEMOA⁴ and the ECOWAS⁵. Here it follows a

⁴ The UEMOA is the West African Economic and Monetary Uniobn or Union économique et monétaire ouest-africaine in French and comprehends Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.



brief list of the principal regional energy policies and initiatives in ECOWAS/UEMOA member states

5.3.4 The Common Energy Policy - La Politique Energetique Commune (PEC)

In 2001 the states of UEMOA adopted an ENERGY Common Policy with the objectives of

- to put in place an integrated energy planning system
- to promote renewable energies
- accelerate the interconnection of energy systems in collaboration with the ECOWAS

5.3.5 The WEST AFRICAN Power Pool

The institution of a West African Power Pool - WAPP was decided by ECOWAS members in 1999 with the objective of multiply by four the interconnection capacity between member states for the period 2005-2020. The WAPP project is to extend for more than 5600 km the interconnection lines between Nigeria, Benin, Togo, Ghana, Ivory Cost, Niger, Burkina Faso and Mali) with investment to be realised for about 11,8 billions of dollars in 19 years. The objective is to reach, for the ecowas region, a capacvity of 17000MW of installed capacity in order to satisfy the planned demand for the year 2023.

5.3.6 The ECOWAS energy protocol

The ECOWAS ENERGY PROTOCOL is a legal text formalising the juridical framework of enterprises in the energy sector, and has been designed as a guarantee for the foreign direct investments in the energy sector. The adoption and ratification of this convention is an eligibility criteria to have access to the World Bank Facility for the WAPP.

5.3.7 Interstate natural resources management OMVS, ABN, OMVG

⁵ ECOWAS is the Economic Community of West African States and comprehend Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.



There already exist sub regional institutions created in order to manage water and energy resources. The *Organisation pour la Mise en Valeur du fleuve Sénégal* OMVS, manage the Manantali dam and shares resources between Mali, Sénégal and Mauritanie. The *Organisation pour la mise en valeur du fleuve Gambie* OMVG and the *Autorite du Bassin Du Niger* ABN also are other examples of interstate cooperation in the field of natural resources.

5.3.8 The ECOWAS / UEMOA initiative and the White Book for a Regional Policy

The most ambitious regional project in the field of energy is summarised in the "white book for a regional policy". Following the engagements taken by NEPAD and later by the Summit of African Energy Ministers at FEMA in 2005, the 29th Conference of the Head of State of ECOWAS/UEMOA in Niamey on the 12th of January 2006 with the decision A/DEC.24/01/06 adopted an ECOWAS/UEMOA regional policy on access to energy services for populations on rural and peri-urban areas for poverty reduction in line with achieving the MDGs in Member States. The policy objectives and the accompanying white book guidelines are very ambitious and call for:

- One global objective:

*Increase Access to modern energy services of rural and periurban populations, to provide by 2015, access to modern energy services to **at least half** the populations living in rural and periurban areas. This entails multiplying by four the number of people with access to modern energy services in comparison to 2005. This also entails supplying 36 million more households and 49 000 more localities with Access to Energy Services.*

- Three Specific Objectives:

[1] To strengthen regional integration by pooling knowledge of good practices, exchanging experiences, adopting a regional information system and developing cross-border co-operation, with a view to fostering development and building capacities.

[2] To help harmonise political and institutional frameworks (i.e. PRSPs, MDG monitoring framework, etc.), in taking into account essential role energy services play in boosting human development and achieving the MDGs.

[3] To develop, on the basis of national political frameworks, coherent energy policies based on reducing poverty in rural and peri-urban areas and achieving the MDGs. The energy programmes will focus in particular on: •Stimulating productive activities, especially those related to processing



and added value to agricultural produce, •Modernising basic social services (healthcare, education, water, etc.) and improving living conditions, •Improving the situation of women, who are disproportionately, affected by all aspects of poverty, most particularly health problems (arising from the difficulty of chores such as wood-gathering and water-drawing, etc.).

- Three targets

[1] 100% of the total populations or 325 million people, will have access to a modern cooking fuel;

[2] At least 60% of people living in rural areas will have access to productive energy services in villages, in particular motive power to boost the productivity of economic activities;

[3] 66% of the population, or 214 million people, will have access to an individual electricity supply, or: (a) 100% of urban and peri-urban areas; (b) 36% of rural populations; (c) Moreover, 60% of the rural population will live in localities with (i) modernised basic social services – healthcare, drinking water, communication, lighting, etc. (ii) access to lighting, audiovisual and telecommunications service, etc. and (iii) the coverage of isolated populations with decentralised approaches.

The document states also that the actions should conform to several guiding principles and between them we may mention: subsidiarity, participatory approach, cohesion, consultation and co-operation, multisectorial approach, technological neutrality, public-private partnerships, sustainable development, gender equity, security of supply, optimisation and raising of current financial resources.

The White Book not only affirms the link between the provision of energy services and the achieving of the Millenium Development Goals but also makes an action plan, a cost estimation of the action that have to be taken in order to reach its ambitious objectives.

The implementation of the regional UEMOA/ECOWAS energy policy is led by a steering committee comprhending:

- the ECOWAS/UEMOA Technical Secretariat
- The ECOWAS/UEMOA Energy Committee
- the regional multi-sectorial committee
- representative of civil society
- donors.

The political level coordination is to be held by an annual **Regional Forum of Access to Energy in ECOWAS Countries** attended at ministerial level. A high profile annual meeting is considered of an extreme importance for the visibility of the sector, experience sharing and political guidance.



The implementation work has to be done by a dedicated permanent **Regional Agency for Access to Energy Services** with operational autonomy. This Agency, whose legal status has to be negotiated between member states, would be after a first initial period, financially autonomous through a levy on the additional investments that it would be able to mobilize and its functions would be revised on a 5 to 5 year basis.

Finally the total **costs and the investments** estimated by the UEMOA/ECOWAS white book are the following:

- 17.5 billions of dollars over ten years for investment in equipment, studies and accompanying measures.
- 34.6 billions of dollars over ten years for energy costs
- the total cost is estimated to be 5.2 USD billions each year, that is about 4,6% of regional GDP and 16 USD per year per inhabitant.

these costs appear very high, but it has to be reminded that the above figures include the whole cost of the investment, studies and consumption of energy in the entire region.

The **ECOWAS/UEMOA Regional Action Plan** is the action plan designed to start this process and mobilize further investments, its cost is estimated to be of 248 USD millions over ten years, subdivided in the following action lines:

- capacity building for private and public actors - 83.1 USD millions - including 34.8 USD millions for feasibility studies
- support to fund mobilization - 121.2 USD millions - including 90 USD millions for 200 demonstration projects.
- promotion and dissemination of experiences - 15.6 USD millions
- promotion of local production of energy service equipment - 12 USD millions
- preparatory activities and operation of the energy - 16.8 USD millions. The regional agency for the promotion of energy access is estimated to have an annual cost of 1 USD million.



5.4 The energy sector in the Sahel

Sahelian Countries presents huge disparities and common issues. All the countries have as policy priorities poverty reduction and economic development: the relation between these objectives and the provision of reliable and affordable energy services is strong and evident.

The majority of the population in almost all the countries heavily relies on traditional biomass to satisfy its energy needs, with a percentage in some cases higher than 80% of the total energy use, with severe adverse effects on the environment.

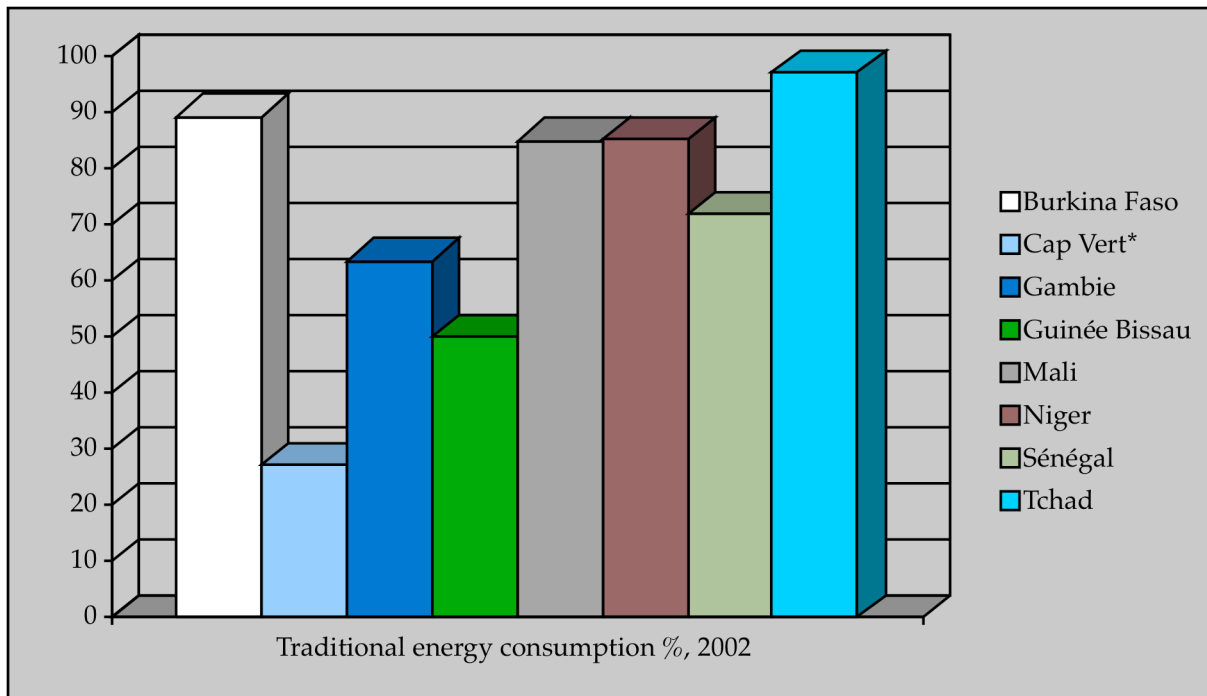


Table 1, Traditional fuel consumption. (source: UNDP 2005, *for Cape Verde PPEAS independent study, data not available for Mauritania)

The high dependence on traditional energy is caused both by an infrastructure issue, with the insufficient production capacity, low reliability and extension of the energy distribution network, and also by an economic issue, as modern energy services when available may be too expensive for the poor. The price and availability of modern energy services highly affects also the development of any economic activities and so of the effectiveness of the strategies to reduce the poverty. Costs are even higher when we consider the necessity of using self-generation in any situation in which the consistency of supply is critical. At the national level, the high dependency of imported fossil fuels is among the most important



expenses in foreign currencies and represent a considerable part of all export revenues. International price shocks in fossil fuels highly affect trade balances, state budget and street prices.

Most of the countries have undergone several political actions and reforms on the energy sector, at national or regional level, and some countries inserted energy issues in their poverty reduction strategies.

5.4.1 Electricity

The electrification rate in Sahelian Countries is very low, especially in rural areas where most of the times there is no infrastructure at all. In urban areas the electrification levels can be also very low levels (Niger 9%, Mali 12%). Electricity consumption per capita is generally very low but growing, and production is not able to satisfy demand in most of the cases, with resulting low reliability of the service and need for additional investment to raise production capacity and reduce the system losses. The electricity sector is in the difficult situation of needing consistent investment in infrastructures but with uncertain returns, due to the low power consumption and the difficulties and adverse effects of raising tariffs after a certain level. State owned utilities often have not excelled in transparency of the budget, and relied heavily on the state for the repayment of the passivity: the state itself is the first client of the electric industry but not always the best.

To face all those issues, a number of policy reforms have been undergone in the energy sector in the Sahel in three directions, ownership, vertical integration and regulation of the electricity sector.

5.4.2 Ownership of the electricity industry

In the mid of the nineties the energy sector in all the countries under studies was dominated by the state. Electricity was provided either by private, but state controlled, enterprises or directly by a specific state department.

The process of commercialisation and privatisation started almost simultaneously in all the nine countries, but was completed only in Cape Verde, Mali and Senegal. However both in Mali and Senegal the process at a certain point was reversed and the state re-gained control of the sector while in Cape Verde the relation between the government and the privatized ELECTRA proved very difficult.



Following the priority policies fixed by the 1993 World Bank document, the energy enterprises have first undergone a process of commercialisation (so they have been transformed in *sociétés de droit privé*), and then put under a contract management with a technological partner or directly sold to the private sector, generally to an European or American energy enterprise, and partially to the local stock market or local municipalities.

Contract management have been the first option explored in the region, but they did not give satisfactory results and the contracts have been cancelled few years later in Chad, Guinea-Bissau and Mali.

In Mali in 1995 Electricité du Mali delegated its management - as a first step to privatise - to a French Canadian consortium (SAUR, Hydro-Quebec, EDF, CRC SOGEMA), but in 1998 the contract was ended the state re-gained the control of the sector. In 2002 there was another attempt to privatize and the majority stock of EDM was sold to a consortium composed of Saur International (France) for 39% and IPS 21% (part of the Aga Khan group), the state conserved a 40% of the stock. Anyway in october 2005 Saur International decided to withdraw from EDF for unresolved differences with the government (especially about tariffs). After this decision the stock of EDM is now owned for the 66% by the state and for the remaining 34% by IPS.

Senegal sold in 1999 34% of the shares of SENELEC to a consortium of Hydro-Quebec (Canada) and Elyo (France) who gained full control. Shortly after, the state re-acquired the shares as the consortium did not proved able to increase the generation capacity. A second tentative of privatisation was held shortly after, with Vivendi International (France) and AES (USA) but was not concretized and the state stopped the privatisation process in 2002.

In Cape Verde the 51% of the stocks of ELECTRA was sold in 1999 to a Portuguese consortium (EDP, ADP) partially controlled by the Portuguese Government. The remaining stoks for the 34% remained in the hands of the Government of Cape Verde and four municipalities own the rest. The Portuguese consortium committed to invest 65 millions of Euros but, following the decision of the Cape Verde Government to freeze tariff in 2001 and to the rise in fuel costs, the company suffered severe financial difficulties that led also in a series of power cuts in the capital, Praia, in September 2005. With a fuel tariff deficit around 14.5 USD millions ELECTRA refused to further implement its investment plan. World Bank mediated between the two counterparts and an agreement was reached on a partial tariff compensation (9 EUR billions) and on the development of an automatic and transparent tariff adjustment mechanism that should prevent these disputes in the future.



All the other countries expressed the intention, and made some steps, to privatize the sector but none completed the process yet. This the case of Burkina Faso (in 2001 planned privatisation by 2007), Chad , the Gambia, Guinea Bissau, Mauritania, Niger.

The difficulties have raised in particular by the lack of investors / buyers, due to the bad economic conditions of the state controlled electric utilities, the huge need of investment, the political instability and - in general - by the uncertainty of the return on the investment. If we exclude the case of Cape Verde, whose energy and water sector has been sold to a partially public Portuguese consortium, the tentative of igniting the power sector in Sahel with private investments revealed - till now - unsuccessful.

5.4.3 Structure of the electricity industry

The process of reforms did not only concerned privatisation but also the vertical and horizontal structure of the societies. The changes in the structure however have not been radical, and most of the countries still conserve a vertical integrated company handling generation, transmission and distribution in the whole country, being so very far from the multi player competitive market established in other developing countries.

The most important vertical innovation has been the introduction of Independent Power Producers - IPPs - to address quickly the lack of production capacity. IPPs are already producing a large part of electricity in Senegal (and in many other African countries) and are foreseen from the new electricity acts in other Sahelian countries. . The Energy produced by IPPs is then self-used and/or resold to the national utility that acts as a single buyer.

Horizontally the main innovation has been, in some cases, the provision of concession for areas not yet served by the main enterprise to smaller local societies. In Burkina Faso and Senegal the law allows independent generation and distribution in the zones not yet served, in Mali there exists two Decentralised Services Societies and in Niger SONICHAR produce electricity mainly for the uranium mines and partially also for the state owned utility NIGELEC. Anyway the process has not been homogeneous. In Cape Verde, for example, there has been a process of horizontal integration between ELECTRA and the municipalities' utilities that were serving water and electricity in various islands. Between 1998 and 2004, due to these merges, the number of employees of ELECTRA nearly doubled, and the number of clients for water and energy more than doubled.



5.4.4 Regulations of the electricity sector

The reform process regarded also the regulation of the electricity sectors. In most of the cases a new electricity act has been approved by the parliament, defining the entities responsible for regulations, the role of the state, of the private sectors and the rights of the clients. One of the most delicate issues to be regulated is the electricity tariffs and their adjustments, as the cases of Cape Verde and Mali clearly demonstrate. Tariffs freezing or even reductions are often used as a policy measure to mitigate prices and obtain consensus, but these measures seriously undermine the financial stability of the energy utilities. On the other hand it is true that a raise of the tariffs, a part for being highly unpopular and for having adverse effects on the economy, is difficult due to justify with the actual low quality of the services, even with the good reason that the raise of the tariffs is necessary to make the investments for improving the quality in the future.

Before the reform in all countries the rules of the game were decided by the competent ministry of energy and applied directly to the state owned utility. This is still the case in many countries, however the ones that advanced more in the process of reform established specific Regulatory Agencies. This is the case of Cape Verde (that established an Economic Regulatory Agency), of the Gambia (Public Utilities Authority), of Mali (Water and Electricity Regulation Commission), of Niger (Multisectorial Regulation Authority) and of Senegal (Regulatory Commission of the Electricity Sector). The role of the State, the degrees of power and independence of the different Regulatory bodies vary from state to state and the most positive experiences, by many observers, belongs to the regulatory agencies that cover more than one sector.

In all the other countries (Burkina Faso, Chad, Guinea Bissau and Mauritania) the sector is directly regulated by the Government through the Minister of Energy.

5.4.5 Rural electrification agencies

In rural areas, modern energy services are inaccessible in most of the cases, and specific programs are being implemented in many countries to address this situation. The rural electrification strategies are of two types: centralised and decentralised and their financing is made by cross-subsidies or by direct financing by the State or by the donors.



A Rural Electrification fund is foreseen in Burkina Faso and in Niger (financed through a levy on each kWh sold), while in Mali, in Mauritania and Senegal a specific agency has been already established. In Senegal the Agence Senegalaise d'Electrification Rurale ASER has divided the country in several concession to be assigned to private companies, with 35% of the costs subsidised and another 35% by a medium or long term loan guaranteed by ASER itself. In Mali about 500 Multi-functional platforms have been installed in rural isolated villages to provide mechanical energy and electricity, generally owned and managed by women cooperatives and partially financed by the Government, UNDP and other donors.

5.4.6 The Fossil Fuel Sector

In the region under examination only Chad and Mauritania produce fossil fuels, but exploration is underway in other countries. In Chad in 2003 a pipeline linking the oil fields in the south of the country to the sea terminal in Cameroon was inaugurated. The 4.1 USD billion project was almost entirely financed by the oil companies, but the support of the World Bank was considered essential to assure the right political conditions. The Bank therefore supported the project and assured a financing of 90 USD millions to the two governments, on the basis of a Petroleum Revenue Management Program that should have assured that a consistent part of oil revenues would have been spent in poverty reduction strategy. However at the end of 2005 Chad government modified the law managing the distribution of oil revenues and the Bank subsequently suspended all loans and grants to Chad. Currently consultations are in progress between the donors and the government to reach an agreement on the subject.

Senegal is the only country in the region that carried out, since the seventies, a comprehensive strategy to favour the penetration of GPL in the country. With public investments in infrastructure and several subsidies, now progressively phased out, the country has been particularly successful in this field. Dakar is the city of the region with major penetration of GPL for house cooking, and also the other urban centers present much higher levels than neighbouring countries. At present in Senegal there is a large and well-established market, and production facilities able to serve also neighbouring countries.



5.4.7 Forestry and Biomass

As traditional fuelwood is the most used energy source in the region, the sustainable management of the forestry resources is crucial for each country to limit the desertification process, protect the environment and ensure a durable and rationale use of the resources. Several countries adopted specific codes to regulate what kind of forest resources may be cut, how much and by whom. For example in Gambia and in Mali reforms have been carried out in the direction of a decentralised use and control of the resources, promoting community management and sustainable use, incentivating more professionalism in the sector and establishing local markets. In Senegal the LPG program highly reduced the consumption of fuelwood for cooking, and the pressure on local forests. Burkina Faso also recently implemented a new forestry act.

5.4.8 Presence of a specific energy action plan in the poverty reduction strategies

Energy is not present in all the Poverty Reduction Strategy in the same way. Some countries present detailed energy-poverty action plan, with budgetary resources allocated, while others take into account energy only as a factor of production to be assured in a reliable way and at a competitive price. In Burkina Faso the 2004-2006 strategy extensively deal with energy and a intersectorial committee to deal with energy poverty has been created, in Mauritania there exist a National Energy and Poverty Reduction Strategy, in Senegal Multi Sectorial Energy Projects (PREMS) have been launched, in Mali there exist several projects dedicated to this issue and budgetary resources allocated, as well in Niger energy is in the PRSP related development budget. The other countries however do not specifically presented measures to increase the access to modern energy services for the poor.

5.5 Preliminary Conclusions

Provision of affordable, reliable and sustainable energy services is central in any strategy aimed to pursue the reduction of the poverty and economic development. Sahelian countries have all undergone in recent years a process of reform of their energy sector and in some cases energy has been considered as a key factor in the Poverty Reduction Strategies.



The process of reforms in Sahel suffered many obstacles: from nine countries starting only one completed (Cape Verde) but presenting severe dispute between the government and the energy and water utility about the fixation of tariffs and the investment plans. Other two countries, Mali and Senegal, reversed the process and regained control of the sector, at least for the moment. In both cases disputes arose between the new buyers and the governments about the amount of investments, the quality of the service and tariff adjustments. In all the other countries the privatisation of the energy sector, even if planned, has not been for the moment completed essentially for the difficulties in finding private sector partners interested in so little and difficult markets and available to commit themselves with huge investments of uncertain return. As a matter of fact the only company successfully privatized has been acquired by the national semi-public electric and water utilities of the ex-colonial power.

Several innovations have been done especially on the regulatory sector of electricity, and in several countries various Regulatory Bodies have been established, defining better the relationship between the State, the public utilities and the consumers. A truly independent regulatory body is central for the correct functioning of a multi player system, and plays a key role in defining a sustainable and fair tariff system for all the subjects involved.

The initiatives taken at the national level to specifically address the energy poverty varies from state to state. Certain Countries are carrying several programs on this specific issue, establishing rural electrification agencies, cross subsidies schemes, decentralised electrification and specific pro-poor tariffs but for others the situation not yet improving. The importance of regional approach, like the one proposed in the framework of UEMOA/ECOWAS, and of cooperation between countries is evident as it is evident that to reach the objectives fixed by NEPAD, ECOWAS and the MDGs much effort has to be done. In particular the process of reforms of the sector has to be shaped on the particular energy and development needs of the different countries and must cooperate with the poverty reduction strategies and not the contrary. To achieve both the Millenium Development Goals and the related energy objectives, African Countries need consistent financial support from the donors, good governance, political commitment and the ability and possibility to transform good plans in good projects that will help the life of millions of poor and boost the development of the countries.



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Appendix 1 - Country Profiles

BURKINA FASO PROFILE



POVERTY

HDI	175 out of 177 - value 0.317 (2003)	[1]
GNI PER CAPITA	300 USD PPP Atlas method (2003)	[13]
POPULATION (URBAN/RURAL)	13.23 Millions (2005) 18% URBAN - 82% RURAL	[2]
OFFICIAL POVERTY LINE	82.672 FCFA (2003) - (0.13 EUR at fixed rate)	[3]
POPULATION UNDER POVERTY LINE	46.4% total - 52.3% Rural and 19.9% Urban (2003) There have been three poverty surveys in the country at three different moments. In 1994 the overall headcount of people below the poverty line was 44.5%, while in 1998 was 45.3%. World Bank affirms that the three studies are not comparable due to different methodologies but that instead <i>using a comparable welfare measure (...) the poverty headcount declined by about 8 percentage points between 1998 and 2003</i> [4].	[3] [4]
PRSP PROCESS	The first PRSP is dated 2000. The Government Objective is to reduce the incidence of poverty to less than 35 % by 2015, an annual increase of at least 4 % in per capita GDP beginning in 2004 and increasing life expectancy to at least 60 years by 2015. The first revision of the PRSP is in 2003.	[5] [14]

ENERGY AND ELECTRICITY



INSTALLED CAPACITY	171 MW (2002), 78 MW (1992)	[6] [7]
ANNUAL PRODUCTION AND FUEL MIX	444.6 GWh - 78,4% Thermal, 21,6% Hydro (2003). There are 30 Thermic plants and 4 Hydro plants Starting from 2001 SONABEL imports electricity from Ivory Coast and Ghana	[6]
ELECTRIFICATION LEVEL (URBAN/RURAL)	Urban electrification growth from 29 % (1994) to 34% (1998) to 45.7 % (2003). Rural electrification level in 2003 was stable at 1.1 %, in 1994 was 1%.	[8]
NEW CUSTOMER EACH YEAR (URBAN/RURAL)	The number of low tension connections raised of 6,52% in 2002 and 11 % in 2003 on a year to year basis. The total number of low and medium voltage connections was respectively 226,025 and 666 (in 2003).	[6]
ELECTRICITY CONSUMPTION PER CAPITA	35 kWh in 2002 (estimate)	[14]
IMPORTS OF ENERGY	In 2003 BF imports of fuel and energy reached 139 USD millions (23,5% of total imports). It imported 69 GWh of electricity.	[6] [9]
ELECTRICITY TARIFF	Burkina Faso has one of the highest electricity tariff in SSA, 22.5 US cents/kWh for households on average. Nevertheless the tariff is not sufficient to repay supply costs. The government Action program for PRSP states the government intention to revise the cost structure. Ita has to be noted that rural cooperatives have to buy gasoline at market price to produce electricity, while SONABEL has access to subsidies.	[10] [5] [14]
MAIN DEVELOPMENT PROJECTS	Construction of the Bobo-Ouagadougou Transmission Line (to connect with Côte d'Ivoire), reinforcement of the Existing Transmission Lines Bagre Kompienga-Ouagadougou and construction of a 14MW thermal generation in Kossodo. This is a part of the Power Sector Development Project, whose budget is 130 USD millions, financed for 63 USD m. by a World Bank loan and for the rest by other donors and by the Government of Burkina Faso. Burkina Faso is part of the ECOWAS, and participate to the project to implement a West African Power Pool (WAPP), In the 2004-2006 Action program it is foreseen the connection of ten new localities to the national grid or to the grid of the neighbouring countries when this is more cost-effective.	[12] [5]

ENERGY REGULATIONS

STRUCTURE OF THE ELECTRICITY INDUSTRY	The present structure is a vertically integrated industry with SONABEL handling generation, transmission and distribution. The law N° 060/98/AN predict the end of the monopoly for generation transmission and distribution but at present only little auto-generation plants are private owned. The law allow independent generation and and private distribution in the zones not yet served. The government plans are to revise the law to have a greater liberalisation of the sector. In the meanwhile a operational plan for the development of the energy sector has been applied in 2004 and two entities have been created: a	[6] [7] [14]
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	<p>committee for the study of the reform of the sector of the energy (CERE - Cellule de Réflexion élargie sur la réforme du secteur de l'énergie) and a reform implementation unit (UER, Unité d'implémentation de la réforme).</p>	
OWNERSHIP OF THE ELECTRICITY INDUSTRY	<p>After various changes in the corporate structure, in 1995 SONABEL became une "Société d'Etat" (State Society). Under the law N° 012-2001/AN, the parliament authorised the privatisation of SONABEL that should be completed by 2007.</p>	[6] [7]
REGULATION OF THE ELECTRICITY INDUSTRY	<p>Since the year 2000 the Ministry of Mines, Quarries and Energy is in charge to define and implement energy policies and regulations.</p>	[7]
REGULATION OF THE FOSSIL FUEL SECTOR	<p>There are plans to open the capital of SONABHY to the private sector and of the creation of an independent regulatory system.</p>	

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN	<p>The PRSP underlines the importance of the access to energy for combating poverty and the need for rural electrification. Anyway there is not a specific energy poverty action plan. The original PRSP in 2000 stressed that <i>without taking into account rent, wood was the most important expenditure item (15.1 %) in poor households. More was spent on them than for health care (14.1 %) and education (6.3 %).</i></p> <p>The Burkina Faso: Priority Action Program to Implement the Poverty Reduction Strategy Paper 2004–2006 extensively deal with energy. A comitée intersectorial to coordinate the action in the field of energy and poverty met for the first time in April 2005.</p>	[8] [11] [14] [15]
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION	<p>The Law 060/98/AN predicted an electrification fund, through a leverage for every kWh, but it is yet not operational.</p>	[7] [8]
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY	<p>There are government project to extend electrification also with the support of international cooperation (EU, DANIDA and AFD) with the creation of rural electricity cooperatives.</p> <p>Plateformes Multifonctionnelles are being installed in the country, after the first successful installation of five pilot plants a plan has been made to extend the experience to 400 villages, basing on the majority of the cases on women cooperatives and management.</p>	

ENVIRONMENT

REGULATION IN THE BIOMASS FORESTRY SECTORS	<p>Several programs have been put in place, in the natural management sectors. The main are:</p> <ul style="list-style-type: none"> - Agriculture Reforme (Reforme Agraire and Foncière - RAF) - Text d'Orientation et décentralisation - Le Code Forestier <p>le code de l'environnement</p>	[14]
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CAPE VERDE



POVERTY

Human Development Index	Value 0.721 Rank 105 out of 177	[1]
Human Poverty Index	Value 18.7 Rank 45 out of 107	[1]
GDP 2003	0.8 USD billions current - 2.4 USD billions PPP	[1]
GDP per capita (2003)	1698 USD Current 5214 USD PPP	[1]
POPULATION 2005	0.5 millions - 2.3 % growth	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES	The household income and expenditure survey of 2001-2002 indicates that 37% of the population is poor and 20% very poor.	[1]
PRSP PROCESS	Growth and Poverty Reduction Strategy Paper has been finalised in 2004	[3]



ENERGY AND ELECTRICITY

INSTALLED CAPACITY	At the end of 2004 Electra was running 22 power stations, for a total installed capacity of 79.36 MW of which 76.19 MW diesel (96%), 2.4MW wind (3%) and 0.77MW thermal (1%)	[4]
ANNUAL PRODUCTION AND FUEL MIX	In 2004 production has been 218.813.232 kWh (96.1% diesel, 2.9% wind, 1% térmica)	[4]
ELECTRIFICATION LEVEL	58.2% of households in 2002	[3]
NEW CUSTOMER EACH YEAR	see the table below.	[9]
ELECTRICITY CONSUMPTION PER CAPITA		
IMPORTS OF ENERGY	In 2004 Electra consumed 17.7 millions of litres of diesel, 25.4 millions of litres of fuel oil 180 and 8.5 millions of liters of fuel oil 380.	[4]
ELECTRICITY TARIFF (residential/commercial/hotel)	An average of 17 CVE kwh In the memorandum of understanding between the GoCV and IMF of July 2004 is stated that the Board of ARE (Economic Regulatory Agency) will publish by the end of 2004 an automatic and transparent tariff revision mechanisms on the basis of the costs. (postponed to june 2005) There is a dispute yet to be settled between Electra and the GoCV about the non-adjustment of the tariffs for electricity and water during the years 2000-2002.	[4] [5] [6]
MAIN DEVELOPMENT PROJECTS	To support the Power Sector Reform, WorldBank and GEF have issued two projects (P040990, P042054) with a loan of 17.5 USD millions from WB and a grant from GEF of 4.7 USD millions. The projects are scheduled for the period 1999-2006.	[10]
TRADITIONAL FUEL CONSUMPTION		

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	ELECTRA SARL is an integrated corporation that handle generation, transmission and distribution of electricity in all the country. It is also responsible for desalinated water distribution and sewage water treatment in several islands.	[8]
OWNERSHIP OF THE ENERGY INDUSTRY	In December 1999, 51% the shares of ELECTRA SARL have been sold to EDP- Electricidade de Portugal (30.6%), and ADP Águas de Portugal SGPS (20.4%) the consortium assumed the management of the society in January 2000.	[8]



REGULATION OF THE ENERGY INDUSTRY	An Economic Regulatory Agency (ARE) has been created to supervise the energy and telecommunication sector. The president of ARE is <i>Renato Lima</i>	[7]
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The privatisation process of electra.

ELECTRA E.P. was created in 1982 as public enterprise from the merge of Electricidade e Água do Mindelo (EAM), Central Eléctrica da Praia (CEP) and Electricidade e Agua do Sal (EAS).

In 1998 the government decided to reform the sector following two guidelines:

1. The extension of the activities of ELECTRA to the whole country, starting from April 1999 incorporating the activities previously managed by municipal services in S. Nicolau, Mosteiros, Brava, S. Miguel, Tarrafal, Maio, S. Domingos, Santa Catarina, Praia Rural, Paúl, Ribeira Grande, Porto Novo, Rabil na Boavista and also of EMAP, Empresa Municipal de Água da Praia. Electra gradually opened delegations in all the islands, the last ones at the end of 2000. The "enlarged" Electra had 686 workers in 2000 (and 653 in 2004).

ELECTRA	Workers	Clients electricity	Electricity produced	Clients water	Water produced
31-12-1998 ELECTRA SARL	362	29114	100'775'749 kWh	9919	1'785'998 m3
31-12-1999 with several municipality services integrated	594	38122	116'281'046 kWh	14983	1'785'457 m3
31-12-2000 with the integration of S.Antão and Rabil na Boavista	686	47149	142'326'760 kWh	16558	2'218'138 m3
31-12-2001 Integration of S.Felipe	725 of which 423 permanent	54485	164.331.892 kwh	18311	3'005'679 m3 (75% desalination)
31-12-2002 integration of the whole country	729 of which 468 permanent	60724	181,004,000 kwh	19585	3'639'255 m3
31-12-2003	681 of which 458 permanent	65538	198.652.284 kWh	22578	4.049.930 m3 (85% desalination)
31-12-2004	653 of which 534 permanent	71243	218.813.232 kWh	25102	4 085 786 m3 (85% desalination)

source: ELECTRA SARL Relatorio e Contas, 2001, 2002, 2003, 2004



2. The privatisation of the enlarged Electra: the 9th December 1999 51% of the shares of electra have been sold to EDP- Electricidade de Portugal (30.6%), and ADP Águas de Portugal SGPS (20.4%), private corporations with a consistent share owned by the Portuguese Government. The consortium took the management in January 2000.

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN		
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION		
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY		

ENVIRONMENT

REGULATION IN THE BIOMASS FORESTRY SECTORS		
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OTHER ISSUES

10.5% of total produced electricity is used in the water desalinization process [4]

technical and commercial losses of electricity grow from 19.7% in 2003 to 18.5% in 2004 [4]

In most islands, access to electricity is a privilege of the non-poor. The great majority (85%) of families use electricity as their main source of lighting while 27% use petroleum for lighting. Thus, the energy consumption pattern is different for the poor families: about 51% use petroleum as their main source of energy for lighting and only 32% use electricity as their source of lighting. On the other hand, 62% of the poor families use wood for cooking which constitutes a permanent pressure on the limited existing vegetation. In contrast, about 74% of non-poor families use butane gas for cooking purposes and as source of energy. [3]

Some of the conditions of the PRGF arrangements with the IMF are: to eliminate budgetary subsidies to the national airline (TACV) and water and electricity company (Electra); (iii) to approve an automatic and transparent mechanism for adjusting electricity and water tariffs; (iv) to calculate the government’s liabilities to Electra; [6]



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- [6] IMF, 2005. Cape Verde: 2005 Article IV Consultation, Sixth Review Under the Poverty Reduction and Growth Facility, and Request for Waiver of Performance Criterion. IMF Country Report No. 05/320
- [7] Government of Cape Verde
- [8] ELECTRA www.electra.cv
- [9] ELECTRA, Relatorio e Contas, 2001, 2002, 2003, 2004
- [10] World Bank project database. www.worldbank.org/projects/



CHAD



POVERTY

Human Development Index	Value 0.341 - Rank 172 out of 177	[1]
Human Poverty Index	Value 58.8 - Rank 100 out of 103	[1]
GDP (2003)	Current 2.6 USD bl - PPP 10.4 USD bl	[1]
GDP per capita (2003)	Current 304 USD - PPP 1210 USD	[1]
POPULATION (Total / growth rate / urban) 2005	Total 9.7 millions Growth 3% Urban 26 %	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES	64% (National Poverty Line)	[1]
PRSP PROCESS	The PRSP has been presented in 2003	[3]



ENERGY AND ELECTRICITY

INSTALLED CAPACITY	N'Djamena - 22 MW, Sarh - 6,2 MW, Moundou - 1,7 MW d'Abeché - 0,9 MW	[6]
ANNUAL PRODUCTION and CONSUMPTION (thousand of KWh)	1995 - 75800 p - 65180 c 1996 - 78600 p - 68634 c 1997 - 76600 p - 60467 c 1998 - 78600 p - 56489 c 1999 - 89300 p 2000 - 82300 p - 81800 c 2001 - 90870 p 2002 - 106606 p	[5]
ELECTRIFICATION LEVEL	9% N'Djamena 1% rural	
NEW CUSTOMER EACH YEAR		
ELECTRICITY CONSUMPTION PER CAPITA		
IMPORTS OF ENERGY		
ELECTRICITY TARIFF	Around CFA 170 Kwh	[4]
MAIN DEVELOPMENT PROJECTS	A grid interconnection with Cameroon project, to bring electricity to Bongor, Pala, Relé, Fianga, Gonougaya and Binder is looking for financing.	[4]
TRADITIONAL FUEL CONSUMPTION	72.1%	[1]

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	Societe Tchadienne D'eau et D'electricite (STEE) is vertically integrated.	
OWNERSHIP OF THE ENERGY INDUSTRY	In 2000 Veolia (ex-vivendi) obtained a management contract for 30 years as a first step to privatisation. In 2002 international institutions frozen funds because of lack of transparency. In August 2004 Veolia abandoned the	



	contract. World Bank instituted a "electricité critique" programme. France offered 4 millions for the privatisation process (verify source: http://eau.apinc.org/article.php3?id_article=381)	
REGULATION OF THE ENERGY INDUSTRY	Ministère des Mines, de l'Energie et du Pétrole	

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN	<p>In 2003 a Chad - Cameroon pipeline has been inaugurated to allow the deployment of three oil field in the south of Chad in the Doba Basin (Bolo, Kome and Miandoun) and the transport of the oil till the export facilities near Kribi. The private-project total cost is about 4.1bls USD, mostly financed by the private sector. World Bank assured a loan of about 90 USD millions (40 to Chad and 53 to Cameroon) to both governments for the pipeline on the basis of a Petroleum Revenue Management program.</p> <p>In December 2005 however Chad parliament approved a law to change the distribution of oil revenues, suppressing the weakening the poverty focus Chad previously committed with the Bank. As a result of this in January 6th World Bank suspended all loans and grants to Chad. Currently consultations are in progress within the Chad government and donors.</p>	
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION		
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY	The national urban and periurban electrification program is underway.	[4]

ENVIRONMENT

REGULATIONS IN FORESTRY / BIOMASS		
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OTHER ISSUES

In the energy sector, the government's reforms focus on increasing production and addressing financial difficulties facing the water and power company (STEE). To increase capacity in the short run, the government has decided both to recondition old generators and to purchase three new ones to meet existing demand. However, this strategy is likely to cause STEE's financial situation to deteriorate because the generators operate with expensive fuel, with average costs estimated at CFAF 300 per kilowatt hour, while the average electricity



tariff is CFAF 170 per kilowatt hour. Strategies providing for smaller increases in output but at lower average cost are being considered, with assistance from the World Bank. In the medium term, the government plans to build a new power plant at Farcha, financed with a concessional loan from the Islamic Development Bank. The plant is meant to reduce Chad's dependence on high-cost diesel fuel. Oil from the Se'digui field near Lake Chad could be used to supply the new facility. However, it will take several years to complete this project. In the interim, three options are being contemplated: (i) use Doba crude oil, (ii) use the light fraction of Doba oil produced from a topping plant; or (iii) use gas field condensate. On the financial situation of STEE, an action plan to improve its performance is under way with assistance from the World Bank. It entails lowering production costs, controlling the use of diesel by limiting production from old and inefficient generators, improving marketing procedures, and freezing investment until production costs have been lowered substantially. [4]

SOURCES

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- (3) IMF Chad: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, Feb 04 2005.
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- (5) IMF, 2004. Chad - Statistical Appendix. IMF Country Report No 04/115 April 2004
- (6) IEPF - Institut de l'énergie et de l'environnement de la Francophonie



THE GAMBIA



POVERTY

Human Development Index	Value 0.470 - Rank 155 out of 177	[1]
Human Poverty Index	Value 44.7 - Rank 88 out of 177	[1]
GDP	Current 0.4 USD billions (2003) PPP 2.6 USD billions (2003)	[1]
GDP per capita	Current 278 USD (2003) PPP 1859 USD (2003)	[1]
POPULATION 2005	1.5 millions growth rate 2.6% 26% urban population	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES	59.3% <1USD 82.9% <2USD 64% < National Poverty Line	[1]
PRSP PROCESS	A first Strategy for Poverty Alleviation (SPAI) was conceived before the HIPC initiative in 1992, and presented to Donors in 1994. It was implemented for four years and from this experience, starting in 2000 it was developed the actual PRSP (SPAI) that was presented in 2002.	[7]

ENERGY AND ELECTRICITY



INSTALLED CAPACITY	<p>Installed and available capacity is 27 -30MW (Kotu power station), in rural areas there are other 6 small power stations that together do not exceed 2.2 MW of installed capacity (largely insufficient to meet demand). There exist also an independent Power producer - Gampower - with a plant of 8.5 MW that sells electricity to NOWELEEC.</p> <p><i>The electric power supply has, over the past years, been grossly inadequate, inefficient, erratic and extremely Unreliable (IMF)</i></p>	[5] [6] [7]
ANNUAL PRODUCTION AND FUEL MIX	<p>1996/1997 - 93 631 MWh</p> <p>2003 - 160 958 MWh (huge year by year fluctuations)</p> <p>the main central power station is in Kotu and runs on Heavy Fuel Oil, other 6 smaller power stations run on diesel.</p>	[4] [7]
ELECTRIFICATION LEVEL (urban/rural)	In Banjoul the electrification rate is about 70%, in the Greater Banjoul Area and in other provinces is no more than 20%	[7]
NEW CUSTOMER EACH YEAR (urban/rural)	Residential cons. 25,496 (1996); 62,060 (2002) (huge fluctuations on a year per year basis)	[4]
ELECTRICITY CONSUMPTION PER CAPITA	In 1998 the gross energy consumption has been of 308.100 TOE. Net energy demand is estimated at 287.100 TOE, met by firewood (225.500 TOE) petroleum products (61.100 TOE) and electricity (6.300 TOE)	[11]
IMPORTS OF ENERGY		
ELECTRICITY TARIFF	<p>1996 (D2.08 / D 2.21 / D 2.54)</p> <p>2003 (D 1.81/D 2.21 / D 2.54)</p> <p>2004 prov (1.55-6.98 / 7.25 /8.02)</p>	[4] [8]
MAIN DEVELOPMENT PROJECTS	<p>The main rural electrification project is based on a study of Lahmeyer International of 1997 and envisages the construction of six power stations, adequate transmission and distribution facilities and additional services. The cost of the proposed plan is of 22 USD millions, of which 19 to be funded by donors (IDB, AfDb, BADEA).</p> <p>The implementation of this plan will let 289000 rural habitants to have access to electricity by 2016.</p>	[7]
TRADITIONAL FUEL CONSUMPTION	<p>63.6% (2002 undp)</p> <p>83.42 % (2002 energy balance IMF)</p>	[1] [10]

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	The National Water and Electricity Company NAWEC is a vertically integrated company and single buyer for the independent power producers.	
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OWNERSHIP OF THE ENERGY INDUSTRY	Gambia set up a Gambia Divestiture Agency to dismis state participation in several entreprises. between them also The National Water and Electricity Company NAWEC, whose ownership is at 97% owned by the government.	[3]
REGULATION OF THE ENERGY INDUSTRY	<p>A public utilities authority was established in 2001.</p> <p>In 2005 a National Energy Policy (NEP) has been approved. The most important measures contained therein are:</p> <ul style="list-style-type: none"> - a new electricity law - a new petroleum act - a multisectorial utility regulatory agency - preparation of NAWEC for privatisation (public-private partnership); - establishment of a rural electrification agency; - creation of a National energy commission; - new legislation on fuelwood energy, renewables and energy efficiency. 	[7]
REGULATION OF THE FOSSIL FUEL SECTOR	The fossil fuel sector is almost deregulated in the Gambia, taxes varies greatly between products. Kerosene is subsidised, LPG has no taxes and other fuels may reach up to 40% of taxes.	[7]

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN		
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION		
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY		

ENVIRONMENT

REGULATIONS IN THE FORESTRY SECTOR	<p>Two main act regulate the sector:</p> <ul style="list-style-type: none"> - the Forestry Act of 1998 - that set the obligatory of licences for the production, the commerce and the trasportation of wood, it also regulate what kind of trees may be cutted and the number of workers for each licence. - the New Forestry Policy (1995-2005) - that promotes conservation and reforestation, community management and education on the subject. 	
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The fuelwood market is *de facto* controlled by the Fuelwood Vendors Association FVA established in 1996. price of fuelwood is uniform throughout the country

OTHER ISSUES

However, the PRSP fails to present a clear strategy for infrastructure development, including in such key subsectors as energy and water. The costings of the PRSP, nonetheless, point to plans to commit approximately 13 percent of the 2004 budget to these two subsectors (IMF 2002) [9]

Overall, the energy situation has not improved since 2002 but instead the energy problems have worsened making energy a priority for any meaningful socio-economic advancement in the country. According to the Energy Balance 2002, 83.42% of energy consumed comes from fuel wood, 13.86% comes from petroleum products, electricity accounts for only 2.34% and LPG and renewable energy account for less than 1%. The decline in electricity services coupled with increased fuel wood consumption over the last two years has resulted in low economic activity in the rural areas. (IMF 2006) [10]

SOURCES

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- [3] Republic of The Gambia, Gambia Divestiture Act, 2001
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- [7] The Gambia Public Utilities Regulatory Act, 2001.
- [8] IMF, Country Report No. 06/10, The Gambia: Statistical Appendix, January 2006
- [9] Poverty Reduction Strategy Paper Joint Staff Assessment. June 20, 2002
- [10] IMF Country Report No. 06/12, The Gambia: Poverty Reduction Strategy Paper—Annual Progress Report 2006
- [11] The Gambia. Country Report for regional policy based on "increasing access to energy services for populations in rural and sub urban areas in order to achieve the millenium development goals" prepared by KITE for UNDP-REPP and ECOWAS



GUINEA BISSAU



POVERTY

Human Development Index	Value 0.348 / rank 172 out of 177	[1]
Human Poverty Index	Value 48.2 - rank 93 out of 103	[1]
GDP (current and PPP USD billions 2003)	0.2 billions current / 1.1 billions PPP	[1]
GDP per capita (current and PPP USD 2003)	160 USD current / 711 USD PPP	[1]
POPULATION (Total / growth rate / urban) 2005	1.6 millions / 3% growth rate	[6]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINEs	21% (1 USD - 1985 prices) 65% (2 USD - 1985 prices) 48,7% (National P.L.)	[1]
PRSP PROCESS	An Interim PRSP has been issued in 2000. A full PRSP has not yet been implemented	[2]

ENERGY AND ELECTRICITY



INSTALLED CAPACITY	In 2003 the total installed nominal capacity (estimated) is of 25,2 MW, of which 17,5 MW in Bissau and 7,7 MW in the rest of the country. The installed capacity effectively available is estimated to be the 50% of the nominal capacity. Due also to the highly unreliability of the service, self production is widely used in the country and estimated to account for around 15 MW	[8]																				
ANNUAL PRODUCTION (thousand of Kwh) AND FUEL MIX	<table border="1"> <thead> <tr> <th>Year</th> <th>production</th> <th>(of wich Bissau)</th> <th>consumption</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>44.1</td> <td>40.1</td> <td>39.7</td> </tr> <tr> <td>1999</td> <td>15.5</td> <td>12.0</td> <td>13.9</td> </tr> <tr> <td>2000</td> <td>20.8</td> <td>17.3</td> <td>18.7</td> </tr> <tr> <td>2001est.</td> <td>20.0</td> <td>16.5</td> <td>18.0</td> </tr> </tbody> </table> <p>100% diesel generation (to verify)</p> <p>The production of electricity has been highly affected by the 1998/1999 war.</p>	Year	production	(of wich Bissau)	consumption	1998	44.1	40.1	39.7	1999	15.5	12.0	13.9	2000	20.8	17.3	18.7	2001est.	20.0	16.5	18.0	[3]
Year	production	(of wich Bissau)	consumption																			
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2000	20.8	17.3	18.7																			
2001est.	20.0	16.5	18.0																			
ELECTRIFICATION LEVEL (URBAN/RURAL)	Overall 4%	[5]																				
NEW CUSTOMER EACH YEAR																						
ELECTRICITY CONSUMPTION PER CAPITA																						
IMPORTS OF ENERGY	<p>Petroleum imports / total imports (USD millions)</p> <p>1997 - 9.5 / 88.6</p> <p>1998 - 6.1 / 64.8</p> <p>1999 - 7.9 / 82</p> <p>2000 - 4.7 / 103.8</p> <p>2001 - 6.0 / 96.7</p>	[3]																				
ELECTRICITY TARIFF (residential/commercial/hotel)	<p>Electricity in Guinea is relatively expensive compared to neighbouring countries.</p> <p>The free of connection are: ???</p> <p>The low tension tariff is 128 CFA (< 200kWh/month) or 245 CFA (>200kwh/month)</p> <p>The Social tariff is 81 CFA (<50kWh/month) 161 CFA (50< cons. <200 kWh/ month) or 322 CFA (> 200kwh/month)</p> <p>This data refers to 1997</p>	[8]																				
MAIN DEVELOPMENT PROJECTS																						



TRADITIONAL FUEL CONSUMPTION	Woodfuel represent about 90% of the total energy consumption, about 960.000 tonnes a year or 1.46 millions of cube meters	[4]
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ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY		
OWNERSHIP OF THE ENERGY INDUSTRY	EAGB (energy and water) is a private type society but controlled by the state. A management contract has been cancelled and the company. The privatisation process, initiated in 2000 has not been yet carried out.	[3]
REGULATION OF THE ENERGY INDUSTRY	Energy sector is under the responsibility of the Ministry of Energy and Natural Resources (M.E.R.N.), within it policies are defined by the Energy Secretariat (S.E.E) and the Energy General Direction (D.G.E.) is the executive body for the energy policy.	

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN		
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION		
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY		

ENVIRONMENT

REGULATIONS IN FORESTRY / BIOMASS		
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SOURCES

- [1] UNDP 2005. Human Development Report 2005 – International cooperation at a crossroads. Aid, trade and security in an unequal world. United Nations. New York.
- [2] IMF 2005, Guinea Bissau, selected issues and statistical appendix. IMF Country Report n. 05/93
- [3] IMF 2002, Guinea Bissau - Statistical appendix. IMF Country Report n. 02/152



[4] República da Guiné-Bissau. Ministério da Agricultura e do Desenvolvimento Rural. Relatório Nacional 2004 de Mise en Œuvre de la Convention des Nations Unies de Lutte contre la Désertification en vue du CRIC3 Profil de la dégradation des terres en Guinée-Bissau. Indicateurs géo-topographiques, biophysiques et socio-économiques

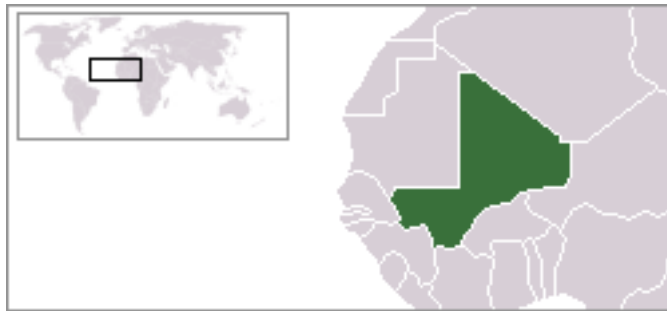
[5] Global Network on Energy for Sustainable Development, 2004. "Energy Access" Working Group.

[6] UNFPA 2005. State of World Population 2005 – The promise of equality. Gender, Equity, Reproductive Health and the Millennium Development Goals. United Nations. New York.

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MALI



POVERTY

Human Development Index	Value 0.333 - Rank 172 out of 179	[1]
Human Poverty Index	Value 60.3 Rank 101 out of 107	[1]
GDP (current and PPP USD billions 2003)	4.3 current - 11.6 PPP	[1]
GDP per capita (current and PPP USD 2003)	304 current - 1210 PPP	[1]
POPULATION (Total / growth rate / urban) 2005	13.5 total - 2.9% growth - 32% urban	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES (1USD / 2 USD / NPL)	1 USD - 72,3% 2 USD - 90.6% NPL - 63.8%	[1]
PRSP PROCESS	The final PRSP has been published in 2002	[3]



ENERGY AND ELECTRICITY

INSTALLED CAPACITY	186.1 MW total, of which 92.7 MW thermal 92.6 MW Hydro 0.85 MW PV	[4] [5]
ANNUAL PRODUCTION (thousand of Kwh) AND FUEL MIX	521,4 GWh (73% Hydropower)	[4] [5]
ELECTRIFICATION LEVEL (URBAN/RURAL)	Total 1990 - 5% 1995- 6% 1996 - 8.4% 1997 - 8.3% 1998 - 9% 1999 - 9.2% 2000 - 9% 2001 - 9.3% 2002 - 12% (rural electrification is in the order of 2% and stable during the period considred)	[5]
NEW CUSTOMER EACH YEAR (URBAN/RURAL)	After the reforms there has been a huge increase in new low voltage subscribers (2000 - 2142 2001 - 8751 2002 - 27756	[5]
ELECTRICITY CONSUMPTION PER CAPITA	1990 - 21.7 kwh 2000 - 34 kwh 2001 - 37.1 kwh 2002 - 40.3 kwh	[5]
IMPORTS OF ENERGY		
ELECTRICITY TARIFF (residential/commercial/hotel)	For Low voltage consumers there are two class of tariffs, the social and the normal tariff. The social tariff, for supplies of less than 5 Amp, is divided in four levels, level 1 <50kwh, level 2 51-100 kwh, level 3 101-200 kwh, level 4 more than 201 kwh. The normal tariff has two levels: 1 less than 200 kwh and, 2 more than 200 kwh.	[4] [5]



	<table border="1"> <tr> <th>Social price CFA/kwh 2 meters cable and 5 amp</th> <th>1999</th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> </tr> <tr> <td>Level 1</td> <td>64</td> <td>64</td> <td>65</td> <td>67</td> <td>64</td> </tr> <tr> <td>Level 2</td> <td>99</td> <td>99</td> <td>100</td> <td>103</td> <td>99</td> </tr> <tr> <td>Level 3</td> <td>99</td> <td>99</td> <td>100</td> <td>103</td> <td>99</td> </tr> <tr> <td>Level 4</td> <td>115</td> <td>115</td> <td>117</td> <td>121</td> <td>115</td> </tr> </table>	Social price CFA/kwh 2 meters cable and 5 amp	1999	2000	2001	2002	2003	Level 1	64	64	65	67	64	Level 2	99	99	100	103	99	Level 3	99	99	100	103	99	Level 4	115	115	117	121	115	
Social price CFA/kwh 2 meters cable and 5 amp	1999	2000	2001	2002	2003																											
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	<table border="1"> <tr> <th>Normalprice CFA/kwh 4 meters cable and > 5 amp</th> <th>1999</th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> </tr> <tr> <td>Level 1</td> <td>99</td> <td>112</td> <td>120</td> <td>128</td> <td>112</td> </tr> <tr> <td>Level 2</td> <td>99</td> <td>112</td> <td>120</td> <td>128</td> <td>112</td> </tr> <tr> <td>Level 3</td> <td>99</td> <td>112</td> <td>120</td> <td>128</td> <td>112</td> </tr> <tr> <td>Level 4</td> <td>115</td> <td>131</td> <td>140</td> <td>149</td> <td>112</td> </tr> </table>	Normalprice CFA/kwh 4 meters cable and > 5 amp	1999	2000	2001	2002	2003	Level 1	99	112	120	128	112	Level 2	99	112	120	128	112	Level 3	99	112	120	128	112	Level 4	115	131	140	149	112	
Normalprice CFA/kwh 4 meters cable and > 5 amp	1999	2000	2001	2002	2003																											
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Level 4	115	131	140	149	112																											
	<p>NOTE: adjusting for inflection the data shows a little decrease between 1995 and 2002. The fall in 2003 tariff is the effect of a direct contribution of the government.</p> <p>The Connection fees are 150 USD (for normal?)</p>																															
MAIN DEVELOPMENT PROJECTS	<p>The Mantali Hydro project, will have an installed capacity of 200 MW and an annual production of 800 GWh. It will serve Mali (52%), Senegal (33%) and Mauritania (15%). The Hydro facility and the interconnitng Hi-Vo lines are property of the Organisation pour la mise en Valeur du Fleuve Sénégal (OMVS). OMVS appionted the Societé de Gestion de l'Electricité de Manantali (SOGEM) to manage the project, in collaboration with Eskom (South Africa)</p>		[4]																													
TRADITIONAL FUEL CONSUMPTION	85%		[1]																													

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	<p>EDM SA manages generation, transmission and distribution for 97 localities, two others Decentralised Services Society - SSD Koutiala (NOUN and EDF) and SSD Kayes (EDF and Total) are present in 25 localities with off-grid systems.</p> <p>Two localities (Kadiolo and Zégoula) are connected to the grid of Côte d'Ivoire since 1966.</p>	<p>[4]</p> <p>[5]</p> <p>[6]</p>
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OWNERSHIP OF THE ENERGY INDUSTRY	<p>From 1960 Electricité du Mali EDM shares were 97% property of the State and for 3% of Electricité de France EDF.</p> <p>In 1995 EDM delegated its management to an external consortium, composed of SAUR Internationa, Hydro-Quebec, EDF, and CRC SOGEMA. In 1998 due to unsatisfactory performances the contract management ended.</p> <p>In 2000 the government made shares available to the public (and the society was recapitalised from 4.7 USD millions to 60.2 USD millions.</p> <p>In 2002 the company shares were the following 40% for the government and 60% for the group SAUR/IPS - West Africa. The concession contract for EDM SA covers 97 localities for 20 years. EDM committed to inves 140 USD millions in the first three years. Hydroelectric facilities remain in the ownership of the state. In in october 2005 Saur International decided to withdraw from EDF for unresolved differences with the government (especially about tariffs). After this decision the stock of EDM is now owned for the 66% by the state and for the remaining 34% by IPS.</p> <p>Self-production is allowed and submitted to declaration and authorisation.</p>	<p>[4] [5] [6] [7]</p>
REGULATION OF THE ENERGY INDUSTRY	<p>The Regulation of the energy sector under the responsibility of the Commission de Régulation de l'Eau et de l'Electricité CREE, created in 2000.</p> <p>CREE established tax-exemptions for imported renewable energy equipment and investment subsidies for rural electrification.</p>	<p>[4] [5] [6] [7] [8]</p>

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN	<p>There exists several projects and programs specifically dedicated to this issue, like the</p> <p>Rural electrification program and Multi-functional platform projects.</p> <p>Energy-Poverty issue was not specifically included in the PRSP but was not included in the first PRSP but</p>	
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION	<p>Agence Malienne pour le Developpement de l'Energie Domestique et de l'electrification Rurale has been created to manage the HEURA program.</p>	[3]
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY	<p>In 2003 Household Energy and Universal Rural Access- HEURA - program started. The budget of the programme is 53 USD millions provided by the government, GEF, IDA and UNDP.</p> <p>The Multi Functional Plateform program has started in Mali and now more than 500 MFP are installed and running in rural villages. The experience of MFP has been object of numerous studies and literature, and its success led to the implementation of MFPs to neighbouring countries.</p>	[7]



ENVIRONMENT

<p>REGULATION IN THE BIOMASS / FORESTRY SECTOR</p>	<p>The forestry sector has been reformed by three acts</p> <ol style="list-style-type: none"> 1. the law 95-004 (18 Jan 1995) on the conditions to manage forestry resources 2. the law 95-003 (18 Jan 1995) on the organization of the deployment, transport and commerce of wood 3. the decree 402/P RM (17 Dec 1998) covering the repartition of the taxes between the state and local communities on the exploitation of wood resources. <p>The new legislation is based on the decentralisation of the process and ownership of local communities. Taxes are regulated in order to incentive a more sustainable use of wood resources, better transformation techniques and more professionalism in transportation and commercialization. Forestry resources are divided between state-owned, community owned and private owned and property right are guaranteed.</p> <p>Local authorised markets are defined and controlled throughout the country and the principal cities have "Schemas Directeur d'Approvisionnement des villes en bois energie" that are plans for the supply of wood-energy from priority zones.</p> <p>The empowerment of local populations and a more modern organization of the wood chain are giving positive results improving the sustainable use of forestry resources.</p>	<p>[7]</p>
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OTHER ISSUES

Government is still involved in the electricity sector with huge transfers for tariffs compensations (33.8 millions 2001-2003).

Access has increased over the reform period, but has been largely unrelated to power sector reform, indicating that liberalization alone has not been a catalyst for increased access in Mali. [4]

SOURCES

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 - [6] Hamata Ag Hantafaye, direction nationale de l'énergie, presentation de la situation et politique energetique au Mali
 - [7] Mali, Monographie pays élaborée dans la cadre de la politique regionale pour "l'accroissement de l'acces aux services energetiques des populations rurales et periurbaines pou atteindre les objectifs du millenaire pour le developpment.
 - [8] Economist Intelligence Unit, Mali Country Overview 2006



ISLAMIC REPUBLIC OF MAURITANIA



POVERTY

Human Development Index	Value 0.477 - rank 152 out of 177	[1]
Human Poverty Index	Value 40.5 - rank 79 out of 103	[1]
GDP (2003)	Current 1.1 USD billions PPP 5.0 USD billions	[1]
GDP per capita (2003)	Current 384 USD PPP 1766 USD	[1]
POPULATION 2005	3.1 millions - growth rate 2.9% - urban population 62%	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES	1USD - 25.9% 2USD - 63% NPL - 46.3%	[1]
PRSP PROCESS	PRSP was presented in 2000	

ENERGY AND ELECTRICITY



INSTALLED CAPACITY		
ANNUAL PRODUCTION AND FUEL MIX		[3]
ELECTRIFICATION LEVEL	Urban 41% Rural 2%	[5]
NEW CUSTOMER EACH YEAR		
ELECTRICITY CONSUMPTION PER CAPITA	1980 - 60 kwh 2002 - 58 kwh	[1]
IMPORTS OF ENERGY		
ELECTRICITY TARIFF (residential/commercial/hotel)		
MAIN DEVELOPMENT PROJECTS	<i>mise en service de la centrale électrique de Manantali, le raccordement des villes de Nouakchott, Rosso, Kaédi et Boghé à son réseau et l'extension de la centrale thermique de Nouakchott (fourniture de 2 groupes de 7 MW chacun) ont permis d'améliorer les conditions d'approvisionnement.</i> NEW OIL DEVELOPMENT PROJECTS	[5]
TRADITIONAL FUEL CONSUMPTION		

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY		
OWNERSHIP OF THE ENERGY INDUSTRY	<i>the privatization of SOMELEC could not be completed on time due to technical factors and factors outside the control of the government. (lack of buyers?)</i>	[3]
REGULATION OF THE ENERGY INDUSTRY	Promulgation du Code de l'Electricité (janvier 2001)	

ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY	Stratégie Nationale Energie et Réduction de la Pauvreté (2004)	[5]
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POVERTY ACTION PLAN		
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION	Agence de Développement de l'Électrification Rurale (ADER) et de l'Agence Pour l'Accès Universel aux Services (APAUS)	[5]
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY	élaboration d'un Cadre de Dépenses à Moyen Terme (CDMT) pour l'énergie	[5]

ENVIRONMENT

REGULATIONS IN FORESTRY / BIOMASS		
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OTHER ISSUES

The PRSP state the necessity of liberalisation and privatisations of the sectors of telecommunications, energy, and air transport sectors.

Two important developments should favor development of the electricity sub-sector: (i) the privatization of the electricity branch of SONELEC in 2001 should lead to the mobilization of private financing and contribute to the reduction of factor costs; (ii) the commencement of the operations of the Manantali power station should improve supply, particularly in the Valley area, and permit interconnection with the Nouakchott network, thereby contributing to securing long-term supply and reducing costs. In addition, the establishment of the Rural Electrification Development Agency (ADER) will allow big rural areas to have access to electricity through renewable and low-cost maintenance energy, among other things. (PRSP - 2000).

Structural reforms in the field of energy [4]

Liberalization of imports of petroleum products (1994) -

Introduction of a method for adjusting water and electricity fees (1992-1997) -

Development of a Development Policy Letter for the water and energy sectors (1998) -

Studies, now underway, on reform in the water, sanitation and energy sectors (2000) - Development, now underway, of tMultisectoral Activity) (2000)

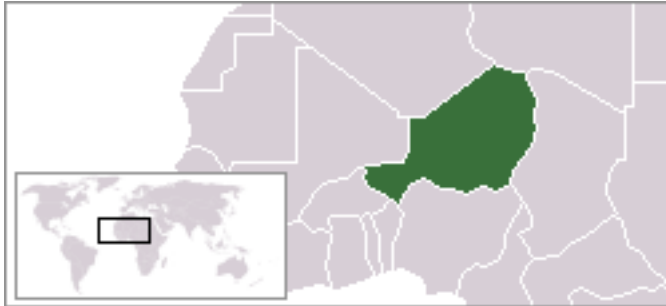


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- [5] REPUBLIQUE ISLAMIQUE DE MAURITANIE, MINISTERE DES AFFAIRES ECONOMIQUES ET DU DEVELOPPEMENT, 2006. Rapport sur la mise en œuvre du Programme d'Action de Bruxelles (2001-2010) en faveur de Pays les Moins Avancés (PMA).



NIGER



POVERTY

Human Development Index	Value 0.281 Rank 177 out of 177	[1]
Human Poverty Index	Value 64.4 Rank 103 out of 103	[1]
GDP (current and PPP USD billions 2003)	2.7 USD billions current - 9.8 USD billions PPP	[1]
GDP per capita (current and PPP USD 2003)	232 current USD - 835 PPP - USD	[1]
POPULATION (URBAN/ RURAL / GROWTH)	13.96 millions (2005) 23.3 % Urban 76,7 % Rural - Growth rate 3.3%	[3]
OFFICIAL POVERTY LINE	The 1994 Poverty Survey set the poverty line at CFAF 75,000 for urban areas and at CFAF 50,000 for rural areas. The extreme poverty line has been fixed to 50,000 CFA and 35,000 CFA for urban and rural areas.	[4]
POPULATION UNDER POVERTY LINE	According to the 1994 poverty survey 63% of the population is poor and 34% is extremely poor. 83% of the poor live in rural areas. No further Poverty Purvey has been conducted yet, but UNDP measured a Human Poverty Index between 1997 and 2000 with value always above 60%. The official data from the Human development report 2005 are: Under 1 USD - 61.4% Under 2 USD - 85.3% Under N.P.L. - 63%	[4]



PRSP PROCESS	PRSP has been approved in 2002.	[4]
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ENERGY AND ELECTRICITY

INSTALLED CAPACITY	103 MW (2003)	[5]
ANNUAL PRODUCTION AND FUEL MIX	191 GWh (2003) 100% thermal.	[5]
ELECTRIFICATION LEVEL	6.49% total, 0.5 % rural and 43% urban (2003)	[5]
NEW CUSTOMER EACH YEAR		
ELECTRICITY CONSUMPTION PER CAPITA		
IMPORTS OF ENERGY	275 Gwh from Nigeria (2003)	[5]
ELECTRICITY TARIFF	The average tariff is 86 CFA Franks for kW /h (0,13 EUR)	[6]
MAIN DEVELOPMENT PROJECTS	Projet de Développement du réseau électrique interconnecté du Niger (DREIN - Project for the Development of Niger's Interconnected Electric Network). The cost of the project is 9.5 billion CFA francs (about US \$15.5 million).	[9]

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	NIGELEC handles production, transmission and distribution in most of the country. SONICHAR produce electricity at 90% for the needs of the uranium mines, and for the rest 10% for NIGELEC.	[5] [7]
OWNERSHIP OF THE ENERGY INDUSTRY	SONICHAR is a mixed company owned at 69 % by the state. NIGELEC is a public company. The planned privatisation of NIGELEC proved difficult.	[7] [8]
REGULATION OF THE ENERGY INDUSTRY	Ministry of Mines and Energy and Multisectorial Regulation Authority (MRA) set up by the electricity law "2003-004".	[5]



ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN		
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION	The government plans to implement a specific agency, for the moment there is a levy on each kwh sold to finance rural electrification programs.	[5]
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY		

ENVIRONMENT

REGULATIONS IN FORESTRY / BIOMASS		
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OTHER ISSUES

In 2005 World Bank published a Project Performance Assessment Report on a NIGER Energy Project, ongoing from 1988 to 1996, regarding several energy subsectors (household energy, electricity and petroleum). The project was not totally implemented (only 55% of the IDA credit was disbursed) and gave mixed results. The World Bank Operation Evaluation Department rates the outcome of the project as *moderately satisfactory*. [10]

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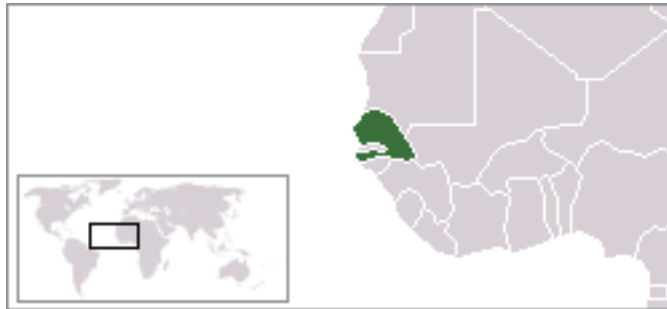
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SENEGAL



POVERTY

Human Development Index	Value 0.458 - Rank 157 out of 177	[1]
Human Poverty Index	Value 44.2 % - Rank 87 out of 107	[1]
GDP (2003)	Current 6.5 USD bls. - PPP 16.9 USD bls.	[1]
GDP per capita (2003)	Current 634 USD - PPP 1648 USD	[1]
POPULATION 2005	11.7 millions - 2.3% growth rate	[2]
NATIONAL POVERTY LINE		
POPULATION UNDER POVERTY LINES	< 1 USD - 26.3% < 2USD - 67.8% < NPL - 33.4 %	[1]
PRSP PROCESS	PRSP was presented in 2002. The Matrix of Measures (2003-2005) contains a sub sector dedicated specifically to Energy containing actions to be taken in the following fields:	[4]



	<p>a) develop production capabilities</p> <p>b) develop energy infrastructures and services</p> <p>c) diversify sources of energy</p> <p>d) improve and ensure stable access by population to domestic fuels</p> <p>e) enhance rural electrification</p> <p>to achieve these objectives the priority action plan allocate for the years 2003-2005 about 57 millions of Euro, 20 % from the Government of Senegal and the others provided by other donors.</p>	
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ENERGY AND ELECTRICITY

INSTALLED CAPACITY	<p>403 MW in total:</p> <ul style="list-style-type: none"> * Connected grid <ul style="list-style-type: none"> o Steam units : 138 MW o Diesel : 137 MW o Gaz : 92 MW * Non interconnected grid : 19,8 MW * Stand alone units : 14 MW <p>Moreover Senegal may count on about 66 MW of the electric capacity of the dam of Manantali (Mali) under the agreement with OMVS (Organisation de la Mise en Valeur du Fleuve Sénégal).</p>	[4] [5]
ANNUAL PRODUCTION AND FUEL MIX		
DISTRIBUTION	<p>HV: 340 km of lines at 90kV 124 km of lines at 225kV (used at 90 kV)</p> <p>MV: 4700 km of lines at (4.16, 5.5, 6.6 et 30 kV)</p> <p>LV: 5640 Km in Low Voltage 2534 MV/LV trasormation units (at 2001)</p>	[4]



<p>ELECTRIFICATION LEVEL</p>	<p style="text-align: center;">Electrification level %</p> <p style="text-align: right;">[5]</p>
<p>NEW CUSTOMER EACH YEAR</p>	<p style="text-align: right;">[6]</p>
<p>ELECTRICITY CONSUMPTION KW/h PER CAPITA</p>	<p>1995 - 105.9 1996 - 107.6 1997 - 114.2 1998 - 118.9 1999 - 114.6 2000 - 120.6 2001 - 132.5 2002 - 134.7 2003 - 140.5 2004 - 145.6</p> <p style="text-align: right;">[8]</p>
<p>IMPORTS OF ENERGY</p>	
<p>ELECTRICITY TARIFF (</p>	<p>The average selling price is 80.5 CFA kw/h (0,12 Euro). There exists a special tariff for poor consumers, to subscribe to this category two</p> <p style="text-align: right;">[5]</p>



	<p>months advance payment has to be payed (CFA 19361 - 29.5 EUR) based on a national average, plus other costs for the meter and administrative fees.</p> <p>(CHECK THE TARIFF FROM ORIGINAL SENELEC SOURCES; as it appears that between 1996 and 1999 the tariff for the poor has been higher than the general tariff)</p>	
MAIN DEVELOPMENT PROJECTS		
TRADITIONAL FUEL CONSUMPTION (2003)	<p>BIOMASS - 43.4% (26.7 % wood and 16.7% wood charcoal)</p> <p>Fossil fuels 49,2% (GPL 6.7%)</p> <p>Electricity 7.4%</p>	[7]

ENERGY REGULATIONS

STRUCTURE OF THE ENERGY INDUSTRY	At present, SENELEC is a vertically integrated industry covering generation, transmission and distribution.	[4]
	SENELEC however has not the monopoly neither in generation, neither in distribution.	[5]
	SENELEC buys electricity from the following Independent Power Producers (IPPs):	[6]
	- Greenwich Turbine (56MW)	[8]
	- Dakar Power (56 MW + 56MW)	[9]
	- Hydro-Quebec (37 MW)	
	other IPPs projects are forthcoming	
	Independent distribution networks are foreseen to enhance the access in rural areas, trough the Agence Senegalaise d'Electrification Rurale -ASER.	
OWNERSHIP OF THE ENERGY INDUSTRY	Between 1966 and 1982 the Senegalese State took progressively the entire control of the electricity sector, previously under private management. SENELEC has been created in 1983 and public managed until 1999.	[4]
	In 1998 the reform process began with two acts (98-29 and 98-06) that transformed SENELEC in a stock company and created a Regulatory Commission of the Electricity Sector (CRSE). In 1999 through a tender process the shares of SENELEC have been divided in: 41% the State, 10% Company employees, 15% floating on the local stock exchange (Bourse Regionale des Valeurs Mobiliaries) and 34% to a consortium of Hydro-Quebec (Canada) and Elyo (France) the latter being a subsidiare of Suez Lyonnaise des Eux. The Consortium however gained full management control. In September 2000 the State re-acquired the shares of the consortium as it was not able to increase the generation capacity as specified in the contract. A second tender was issued and two companies were short-listed, Vivendi International (France) and AES (USA) but the necessary agreement was not concluded, due to the financial difficulties of the two companies.	[5]
		[6]
		[8]
		[9]
	In August 2002 the Government of Senegal stopped the process of privatisation.	
REGULATION OF	The regulation of the industry is set by the ministry of Energy and the	



THE ENERGY INDUSTRY	Regulatory commission of Electricity Sector (CRSE)	
REGULATION IN THE FOSSIL FUEL SECTOR	<p>Sénégal carried out since the seventies an important programme to favourise the implementation of the GPL in the country.</p> <p>With public investments in infrastructure and several subsidies, now progressively phased out, the country has been particularly successful in this field.</p>	[

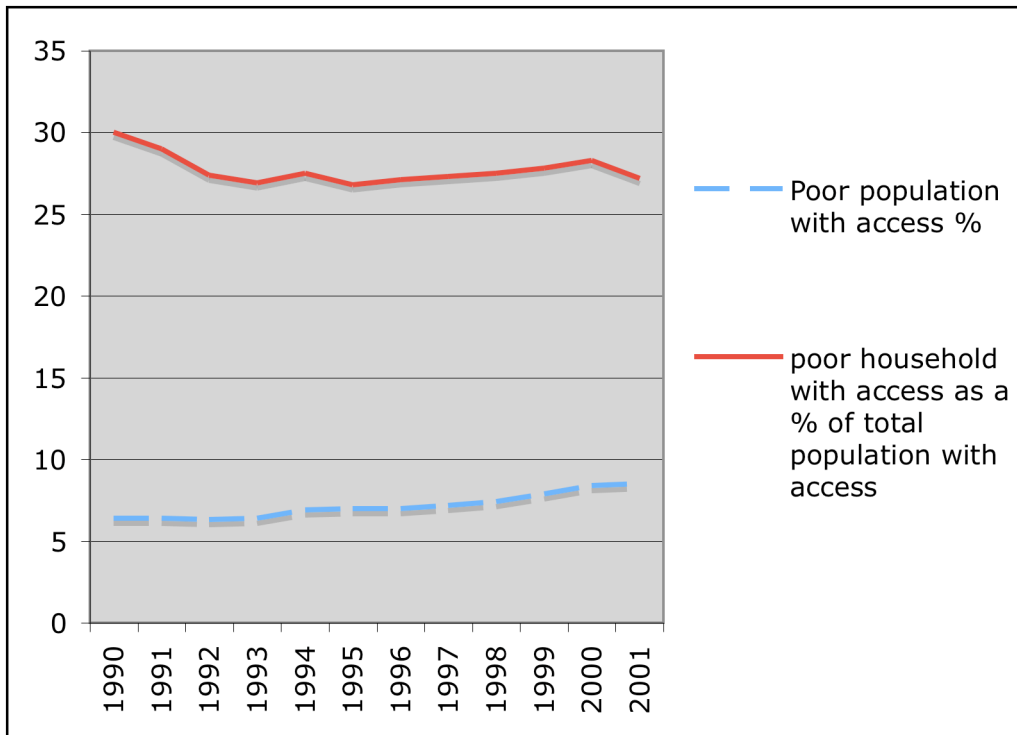
ENERGY AND POVERTY LINKAGES

PRESENCE OF AN ENERGY POVERTY ACTION PLAN	PRSP highlights the role of energy services in reducing the poverty. Moreover ASER launched the PREMS (Multisectorial energy projects) to identify the energy needs of the poor and link energy provision with income generating activities.	[4]
PRESENCE OF AN AGENCY FOR RURAL ELECTRIFICATION	<p>ASER - Agence Senegalaise d'Electrification Rurale created in 1999 has the objective of reach 15% of rural communities by 2005 (100 000 households) and 30% by 2015 (270 000 households).</p> <p>ASER divided the country in several private rural electrification concessions, to be assigned to to private companies. The contractual terms will be supervised by the CRSE and the action plan by ASER. The private concessionaire will have to cover 30% of the investment with private fonds (of wich, the half could be gathered on the local market), 35% of the costs will be subsidised and 35% will be a medium-long term loan partially garanteed by ASER itself.</p>	[7]
MAIN INITIATIVES TO ADDRESS ENERGY POVERTY		

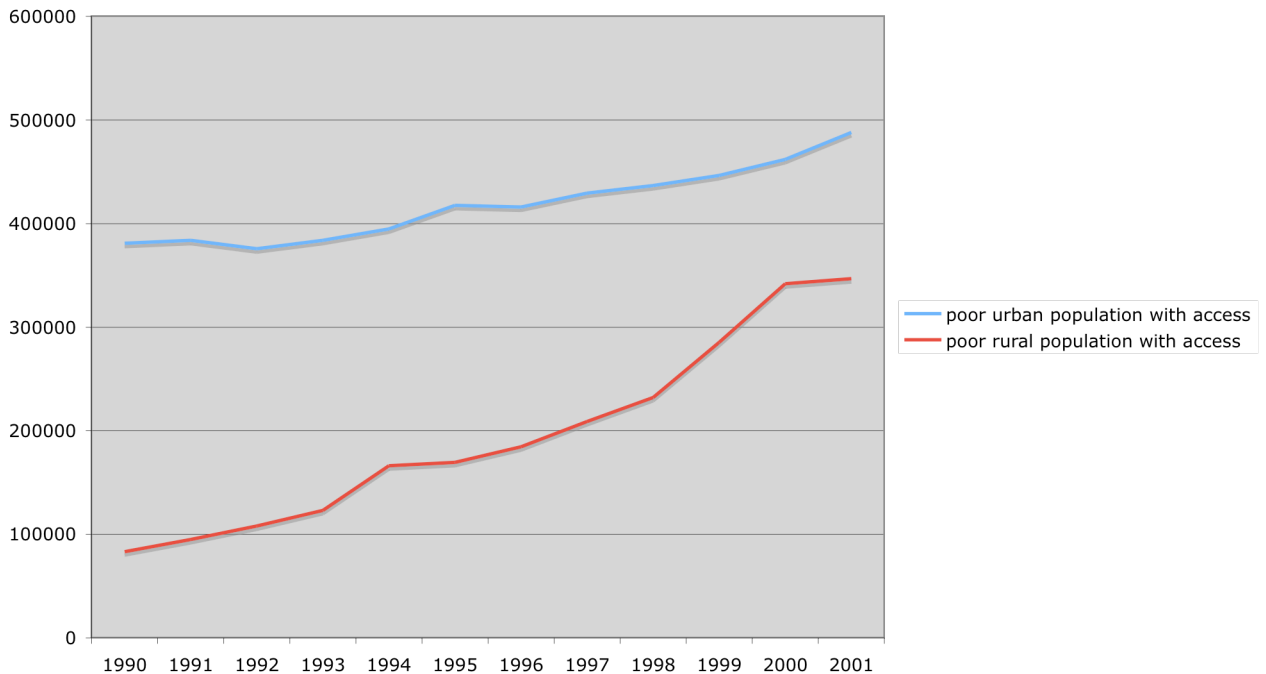
ENVIRONMENT

REGULATIONS IN FORESTRY / BIOMASS		
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OTHER ISSUES



poor urban and rural population with access



As the tables clearly shows the number of poor households and population with access to electricity clearly improved during the decade 1990-2001. Nevertheless we can notice that the portion of poor households electrified on the total households has been stable or descending.

SOURCES



- [1] UNDP 2005. Human Development Report 2005 – International cooperation at a crossroads. Aid, trade and security in an unequal world. United Nations. New York.
- [2] UNFPA 2005. State of World Population 2005 – The promise of equality. Gender, Equity, Reproductive Health and the Millenium Development Goals. United Nations. New York.
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Annex II

ENERGY POLICY SURVEY - INTELLIGENT ENERGY FOR SAHEL PROJECT

QUESTIONNAIRE INSTRUCTIONS

The questionnaire is divided in three parts:

- A) Energy Policy Framework
- B) Energy Statistics Indicators
- C) Renewable Energies Status

For each point of the correspondent questionnaire please provide the source(s) of the information and, if possible, include an **electronic copy or photocopy** of the source. If there is any doubt concerning this questionnaire please send an email to **ie4sahel@energyprojects.net** and you will receive an answer from the project consortium in the next working day.

SUPPORTING DOCUMENTS

Please provide a copy (digital copy or photocopy) of the following documents: (Note that the title of the document could be different for each country, in case of doubt please send an email to **ie4sahel@energyprojects.net**).

- **Household Surveys** (any survey directly referred to the household situation, it should include consumption and energy surveys for each income group).
- **Poverty Surveys** (the study that defines national poverty line(s) and describes the poverty situation in the country). It should have been prepared in the Poverty Reduction Strategy Papers Process.
- **Energy Utility Balance Sheets**. In particular if they contain data about cost, investment, revenues, subsidies from the states, debt, financing and estimates of the amount of unpaid electricity bills.
- **Energy Poverty Action Plan** and/or **Rural Electrification Programme**, if present.
- **List of international agreements** related to energy ratified by the country (including regional agreements, energy pools, AFREC African Energy Commission etc.)



A. ENERGY POLICY FRAMEWORK

1. THE ELECTRICITY SECTOR

1.1 Production

- 1.1.1 List the main (> 5 MW) electric energy production plants operating in the country. For each one please list:
- Name and location
 - year of construction
 - Installed capacity (MW)
 - Energy produced (GWh per year)
 - Type of technology and fuel
 - Property (State utility, municipality, local communities, Independent Power Producer etc.)
 - energy destination (national grid, mini grid, industrial use, others)

Please use as a reference the excel table 1.1.1 annexed

- 1.1.2 If Independent Power Producers are present, please indicate if the energy is produced for (industrial use / mini grid residential / the national grid / others)
- 1.1.3 If the energy is sold to the national grid, please indicate the terms of the Purchase Agreement (tariff, duration, etc.)
- 1.1.4 Other issues: production is able to satisfy demand?
Are there any production constraint issues?
- 1.1.5 Is there any project development in the energy production? (new plants being planned or built, restructuring old ones, etc.) please indicate each case and, if possible the same data as in 1.1.1
- 1.1.6 Subsidies: are there any subsidies to the production of electricity?
If yes, please describe them.
- 1.1.7 Other relevant issues.

1.2 Transmission

- 1.2.1 Indicate how many transmission entities are operating in the country for each indicate also property (state utility, municipalities, private sector etc.) and extension (km)

If transmission and production are operated by different entities, please indicate their relationship, in particular:

- at what price/quantities electricity is purchased?
- who is in charge of the decision?
- who is in charge of dispute settling?



- 1.2.2 Are there any Hi-Voltage electrical lines connecting with neighbouring countries?
- 1.2.3 If yes, please indicate partners, prices, quantity and direction of trade. in case of long term contract, please indicate duration (and dispute-settling body).
- 1.2.4 Other issues: loss in transmission. Is there any indicator for the loss in transmission? (please provide data for several years if available)
Is there any action to reduce loss in transmissions?
- 1.2.5 Extension of transmission network.
What have been the developments in the last 10 years? (km per year). If possible provide data for hi and medium voltage lines.
Is there any project to develop the transmission infrastructure, both internal or interconnecting to other countries? If yes, please describe them including financing aspects.
- 1.2.6 Subsidies: are there any subsidies to the transmission of electricity?
If yes, please describe them.
- 1.2.7 Other relevant issues

1.3 Distribution

- 1.3.1 How many distribution entities operate in the country?

For each indicate:

- a) n. of customers / households served for each region / district
- b) if possible indicate (poor / non poor) and (urban/non urban) share in each geographical district
- c) Property (State, local communities, private sector, other..)

- 1.3.2 If property is different than transmission entities, please indicate the relationship between them, in particular:
 - a) at what price / quantities energy is purchased?
 - b) who is in charge of the decision
 - c) who is in charge of the dispute-settlement?
- 1.3.3 How is composed the electricity tariff?
please describe it providing details:
 - a) by user group (industrial / commercial / residential / state / social / special customers/ other..)
 - b) by areas (urban / rural / special areas)
- 1.3.4 Electricity ratio (household or population with electricity on total household / population)



- 1.3.5 Rate of electrification (new customers-connection every year / n. of total customers -connections)
- 1.3.6 Is there any data regarding the theft of electricity (number of illegal connections)? Has been some policies put in place? By whom? With which results?
- 1.3.7 Is there any programme / agency promoting rural electrification and/or access by the poor? (even by the private sector / NGOs / local communities etc.)
- 1.3.8 If yes, please describe it, indicating also date of creation, financing, objectives and results.
- 1.3.9 Subsidies: are there any subsidies for final customers of electricity? If yes please describe them.
- 1.3.10 Other relevant issues

1.4 Regulations

- 1.4.1 Please indicate which authorities are in charge for setting up the rules for
- a) electricity tariff, setting and readjustment;
 - b) licensing of new production plants;
 - c) international electricity trade, if present;
 - d) settle conflicts between different companies operating in the electricity sector (if more than one company is present);
 - e) settle conflicts between consumers (including the state) and the electricity companies.

1.4.2 If an independent "regulatory authority" has been created, please indicate date, legal status, composition and modality of appointment of the executive board with special attention to the relative autonomy with respect to the State and to the electricity industry.

1.4.3 If there have been changes in internal regulations in recent years, please indicate them and describe the situation pre and post reform.

1.4.4 Other relevant issues

1.5 Reforms (Ownership/Management and Structure)



1.5.1 Have reforms been put in place regarding Ownership / Management / Structure / Regulations in the power sector in the last ten years?

1.5.2 If yes, please indicate "objectives of the reform" as stated in the legal documents / speech in the parliament / international donors documents. Indicate also the foreseen timing of the reform (date of entry into force of each step, as planned and

1.5.3 Ownership

Please indicate if in recent years there have been changes in the ownership / management of the electric industry. In particular indicate the status before and after the reform, if it possible identify with one of the following categories:

- a) Government Department or Ministry;
- b) Governed owned company - public corporation;
- c) Management contract with an external company;
- d) Joint venture with international partner;
- e) Private corporation;
- f) Other.

1.5.4 Vertical structure

Please indicate if in the last ten years there have been changes in the vertical structure of the electricity sector. If yes please describe the situation before and after the reform.

If it is possible try to identify with one of the following situations:

- a) no competition at all, a single company handles generation, transmission and distribution for the entire country;
- b) some competition in generation, Independent Power Producers allowed;
- c) competition in generation plus different distribution companies that still have a monopoly over final customers;
- d) competition at all level, all customers may choose their suppliers and different kind of contracts.

1.5.5 Employment in the electricity sector

If reforms have been implemented, please indicate the consequences of the reform on the employment.

Indicate in particular:

- a) number of employees before and after the reform in the main electric companies;



b) number of expatriate experts (consultants, directors etc.) in the management of the national electric company with permanent presence in the country.⁶

c) if data is available, number of new jobs created as a direct consequence of the reform of the electric sector (like in the constructing of new lines/ power plants and in manufacturing activities, new service companies etc.)

1.5.6 Financing

If reforms have been implemented, please indicate their cost and how they have been financed (grants / loans) and by whom (multilateral donors / bilateral donors / private sector / internal financing)

1.5.7 Other relevant issues

2. FOSSIL FUELS

2.1 Production

2.1.1 Is there any production of fossil fuels in the country?

2.1.2 If yes, please indicate:

- a) location;
- b) production / reserves by type of fossil fuel;
- c) property of the plants.

2.2 Refining

2.2.1 Is there any refinery plant present in the country?

2.2.2 If yes, please indicate:

- a) location;
- b) production by type of fossil fuel;
- c) property of the plants.

⁶ This data is particularly relevant if the electricity company has been sold, partially or totally, to a foreign-owned company.



2.3 Distribution

2.3.1 Please describe the distribution network of fossil fuels (gasoline / diesel / lpg / others) in the country.

In particular:

a) which are the companies that distribute FF?

b) the price of fuels is regulated or liberalised? Is it homogeneous in the country?

2.3.4 Does it exist a map of fuel station or distribution facilities in rural isolated areas? If possible provide it, giving details for each region.

2.3.5 If some areas of the country are not officially served, there exist informal distribution networks? Please describe the way they works, and if possible quantify the surcharge for fuel in remote and isolated areas.

2.3.6 Do exist subsidies to fossil fuels in the country? If yes please describe them.

2.3.7 Other relevant issues



3 BIOMASS

3.1 Production

3.1.1 List the main timber and non timber production projects operating in the country, highlighting:

- a) Name and location
- b) Year when start to operate
- c) Total area (m²)
- d) Volume of production (Dry tonne per year)
- e) What percentage of the wood is delivered to timber and what is delivered to other uses, such as fuel wood, charcoal making, etc.
- f) Property (National Private, Multinational, State owned, municipality, local communities, etc.)
- g) Product destination (national market. International market, industrial use, others).

3.1.2 Timber and non timber production is able to satisfy demand? Are there any production constraint issues?

3.1.3 Is there any project development in the field of timber and non timber production? (new areas being planned or developed, reforestation projects, etc.). Please indicate each case and, if possible the same data as in 1.1.1

3.1.4 Other relevant issues.

3.2 Processing and Commercialization of Biomass

3.2.1 What is the transport and distribution structure used for biomass energy products transportation and distribution (Trucks, animal cargo, people with bags, etc).

3.2.2 How much charcoal is produced?

Which are the main production techniques?(in terms of % of the charcoal produced),



if possible split by the country main / sub-regions.

3.2.3 Is there any action to improve efficiency and/or losses in transportation?

3.2.4 The Biomass market is free or regulated?

a) which are the current prices for biomass products?

b) if the market is not free, who is in charge of the decision?

3.2.5 Are there different prices in each area / region of the country for the biomass products (fuel wood and charcoal)?

If yes, please indicate main players partnerships, prices, quantity and direction of trade. In case there any long term contract, please indicate duration (and dispute-settling body).

3.3 Employment in the wood timber and non timber production sector.

3.3.1 If the information is available, please indicate by main area / region of the country.

Number of people employed in the wood related sector, specially in terms of :

- a. People in the biomass for energy production and in the timber products production;
- b. People involved in the charcoal making and in the charcoal distribution network
- c. Share in each category between formal and informal jobs;

If data is available, indicate the age and gender distribution between the workers at the above cited categories;

3.4 Regulations

3.4.1 Please indicate which authorities are in charge for setting up the rules for

- a) Land use and land use change in rural and peri-urban areas
- b) Production of timber products
- c) Implementation of wood production projects, including reforestation projects (licensing of new project, regulation, fiscalisation, etc)



d) Production of energy biomass (such as fuel wood, charcoal, bio-digesters, land gas fields, etc)

e) Setting commercialization prices and specific trades (i.e. exporting wooden products), if present;

3.4.2 What is the environmental regulation applied rural area property in respect to mandatory percentage of area designated to natural reserve and wild life presentation, and what are those rules (in terms of definitions and percentage, i.e, borders of water courses).

3.4.3 If there have been changes in internal regulations in recent years, please indicate them and describe the situation pre and post reform.

3.4.4 Other relevant issues

3.5 Other Issues

3.5.1 Is there any programme / agency promoting improved used of biomass energy products (better technologies for charcoal making, improved stoves, etc)? (even by the private sector / NGOs / local communities etc.)

If yes, please describe it, indicating also date of creation, financing, objectives and results.

3.5.2 Subsidies: are there any subsidies to the production of wooden biomass, been timber and or no timber products, in the country? If yes, please describe them

3.5.3 Subsidies: are there any subsidies to the production of Charcoal? If yes, please describe them

3.5.4 Subsidies: are there any subsidies to the use of biomass as an energy fuel? If yes, please describe them

3.5.5 Are there any LULUCF projects running or going to be implemented in the country? if yes, please list.

3.5.5 Other relevant issues