

OIL EXPLOITATION IN MAURITANIA



Photo 1: "Lanche" in Banc D'Arguin (Iñigo Azcona)



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Figure 1: Mauritania

1. GENERAL INFORMATION ON THE BANC D'ARGUIN NATIONAL PARK

1.1 Legal Status of the Park

The Banc D'Arguin National Park (BANP) is located in Parallel 20 extending over 180 Km. in the coast of Mauritania. The Park has a surface of 1,200,000 hectares, half of which covers marine areas and the other half coastal zones.

The BANP was created by the Government of Mauritania on June 24, 1976 (Decree No. 76-147). Its main objective is *the dissemination, protection, conservation and management of the flora and fauna, terrestrial and marine, and the protection of geological sites with scientific and particularly esthetic value, and with public recreational interest*¹. Since its creation the park has served scientific research, the monitoring of animal and plant species, marine and coastal, with particular attention paid to colonies of palearctic migratory birds.

In 1977 the Park officially became a Public Establishment and gained legal capacity with financial autonomy. So the BANP became responsibility of the Directorate for the Protection of Natural Resources, under the supervision of the Ministry of Rural Development. In 1979, after several legal amendments, the Office of the Presidency of the Republic became the direct manager of the BANP.

The Park is particularly important because it is the nesting site for more than 2.5 million birds. In 1983 the BANP was recognized as a Wetland of International Importance (RAMSAR site), and in 1989 it became a UNESCO World Heritage Site. Currently, the administration of the Park is in charge of an Administrative Council with four work committees. In 2000 the government passed the Law of the Banc D'Arguin National Park.

¹ Abdel Cheikh and Abdelkader Saleck. "Création et évolution du PNBA, peuplement et identité Imraguen". Project CONSDEV No. ICA 1-2001-10043. Nouakchott, June 2002.

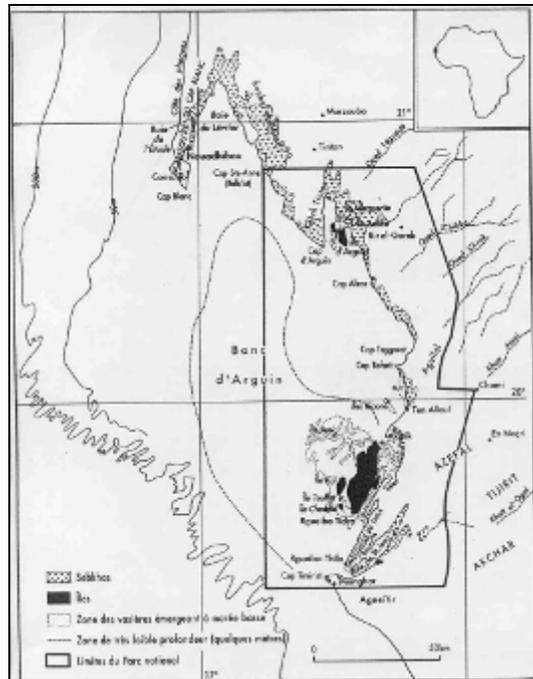


Figure 3: Ecological map of BANP

The marine diversity at BANP is mainly due to the sea currents that push cold waters towards the surface, attracting large amounts of nutrients (plankton and phytoplankton) to the surface. This phenomenon is known as upwelling. The coasts of Mauritania are influenced by the Canaries cold current (between September and April) and the Guinea warm current (between July and November).

Mauritania has an enormous wealth of marine and coastal biodiversity and marine ecosystems like mangroves, estuaries, and sea grass beds. This explains the enormous presence of marine and coastal bird species at the BANP.

And this also explains why fishery activities are so important in the Park, in the rest of the Mauritanian coastline and the neighboring countries of Senegal, Gambia, Guinea Bissau, Guinea and Cape Verde.

The following species have been registered in these countries: 700 species of fish, 23 species of cetaceans, several species of marine turtles and their reproductive areas, and a considerable population of seals. In addition, the area is constantly visited by carnivores like the jackal. These ecosystems are also very important for the enormous variety of marine birds, migratory and sedentary.

The most important site in terms of biodiversity is the BANP that concentrates the largest reproductive colonies of marine birds in Western Africa, and the biggest populations of wintering limicole birds (shorebirds) in the world; forty-three genders and 273 species of birds have been identified. A temporary colony of more than

2.5 million birds is concentrated in the BANP. The presence of these birds is an indicator of the enormous diversity of ichthyologic fauna, with at least 15 families of fish registered. Unfortunately there are no detailed or recent studies on the fishing fauna in Mauritania.

BANP is one of the best conserved marine wetlands site in the world, thanks to the managerial and conservation work undertaken by the Government of Mauritania, and to the role played by the traditional fishermen in the handling and interaction with the marine ecosystem.

Even though the populations and diversity of fishes are still high, fishermen have suggested that fishing is diminishing. There are two important periods that mark the descent in fishing. The first one was 15 years ago, and the probable reason was the presence of big fishing ships off the coasts of the Park. The second period of descent was registered 4 or 5 years ago, coinciding with the start of exploration activities to develop offshore oil facilities in the coast of Mauritania.

The following terrestrial mammals are found in the BANP: Cape hare, at least 10 species of rodents, jackals, foxes, fene foxes, skunks, hyenas, and two species of wild cats. Among the artiodactyls or cloven-hooved mammals we find the gazelles, although in small numbers; and the cheetahs have practically disappeared. The sighting of these last two animals was registered during the 1950s, when there were still rains in the area.

Regarding marine mammals, we can name: the monk seal and several species of dolphins. In shallow waters we find the humpback dolphin ("Flipper") and the Guinea bottlenose dolphin; and at least 5 more species have been sighted in deeper waters. We can also find a species of common orca whale; and in deep waters there are at least 5 species of the gender *Balaenoptera sp.*, among others, and two species of sperm whales.

The BANP also hosts various species of reptiles: 16 species of registered lizards, 7 species of snakes, and 5 species of turtles.

Regarding vegetation, we should mention the important presence of mangroves in the Park. The last sites of mangrove forests in Mauritania are found at BANP. Many of the vegetation species at BANP have adapted to drought, and there are at least 46 families of plants and numerous species of algae, fungi and lichens.

The first human traces in Mauritania are as ancient as 100,000 years old. Several human groups have settled in the country and specifically in the BANP, especially if we take into account that the country and the Sahara were not always deserted, but rather underwent periods of rain and drought alternately.

BANP has also registered numerous species of benthonic fauna, with a total of 130 species, especially the bivalves.



Photo 2: : Birds in the Isle of Tidra (Iñigo Azcona)



Photo 3: Flamingos at BANP (Iñigo Azcona)

2. THE LOCAL POPULATION

Besides its enormous marine biological diversity, the Park also registers human settlements that go back more than 100,000 years. Numerous remains of carved rocks and shell dumps can be found inside the park, some of which can be dated between 20,000 and 12,000 years. There are vestiges inside the Park of the so-called Almoravide Civilization.

Currently, 1,300 traditional fishermen live inside the BANP; and there are two types of territorial occupancy. On the one hand, the maritime zone that is settled by the traditional Imraguen fishermen; and on the other hand, the inland area settled

mainly by nomads, as the most representative group. Very few raise goats, sheep and camels. Of the 2,296 inhabitants registered in BANP in 2000, 560 were nomads and the rest sedentary.

The traditional population inside the BANP has a Moorish culture, made up by the confluence of the African blacks, Berbers and Arabs.

The coastal population of Mauritania is a linguistic confluence of fishermen people, with family systems, hierarchic structures, and political order, brought about by the Moorish culture. The traditional social structure of the Moors is tribal. The traditional system clearly distinguished the warriors from the Marabouts (holy men who held the knowledge written in their books). Previous tribes formed depending on the tenancy of the land: cultivation lands, water wells, shepherding zones, or fishing zones, just like the BANP. Once the social tribal system ended, the demographics inside the BANP changed radically.

The French Colonization (1902 – 1960) marked a new and different territorial process. It introduced new notions like “public domain”, “expropriation due to public interest” or “protected space”. Despite these changes, due to practical reasons, they maintained the ancient tribal forms of land appropriation. In fact, the first independent legislature of Mauritania, of August 1960, explicitly recognizes the traditional and collective rights (understood as tribal) as well as the individual rights, even when they kept the French influence that allowed the expropriation of territories for public interest purposes. It also recognizes the State as the owner of any space made up by “vacant and owner-less lands” (without constructions, without water wells, with no crops, or where there has been no economic activity or no occupancy for more than 10 years).

These laws for the protection of collective rights were reformed little by little until 1983, when they passed a law to abolish the traditional system of land tenancy, individualizing the property of the land. This is a very significant change especially for those places where water wells are found. This law establishes that any water well located outside a private property will be of public domain and all the lands expropriated will become property of the State. Even when individualization is a growing rule, certain norms are established that allow the collective property of the land for tribal purposes and an equitable distribution among its members, as is the case of the lands inside the BANP.

It must be pointed out the Law of the National Park passed in 2000, is a law that encompasses all aspects of a protected area, defines BANP as a “national heritage” and in theory no portion of its land can be alienated. For this reason, the Park’s Administrative Council must ensure a harmony between conservation and the respect for the collective rights of the people that have lived in it for hundreds of years.



Photo 4: Nouamghar girls and youngsters (Iñigo Azcona)

2.1 The Imraguen

Etymologically, Imraguen was possibly the name given to the sort-of sedentary fishermen who lived in what is today the BANP. Before that, they were groups that depended on the warrior or Marabout tribes, many of whom used to be slaves. The half-bred tribal association (Arabs, Berbers and Blacks), territorial occupancy and fishing techniques denote the Imraguen identity.

Many of the Imraguen settled in the protected area due to the serious climatic crisis and the subsequent drought that occurred during the middle of last century, mainly during the years 1941 – 1943; a drought that worsened during the 1970s. Other settlers arrived following inter-tribal conflicts (1975-1979) that aggravated into the war for the Saharawi territory, and the independence battle of the POLISARIO Front.

The deterioration of shepherding activities and hunger pushed nomad families to the coast. This situation generated severe conflicts between the people that had already settled in the fishing areas and the newly arrived.

The Imraguen are internationally known for their symbiotic relationship with dolphins. These cetaceans pushed the schools of grey mullets towards the fishermen's nets once the fishermen had sighted the bank at sea and called the dolphins.

This type of manual collective fishing has practically disappeared because the dolphins have moved away from the coast. It is believed that this has happened during the past 10 years, coincidentally when oil exploration activities began offshore the coasts of Mauritania.



Photo 5: Imraguen women making sails (Iñigo Azcona)

Nowadays, fishing is done in sail boats (“*lanches*”) that are original from the Canary Islands, and that were introduced in Mauritania during the 1920s and 1930s. Starting in the 1960s, the demand for fish, mainly from European countries and the ex-USSR put great pressure over the marine resources, causing a large descent of the fish banks and of other species previously more frequent in the coasts of the Park. The Imraguen went from being survival fishermen to suppliers of the industrial ships. Once BANP was declared a protected area, this type of activity that had even started using small out-board motorboats ended, at least inside the reserve, but not along the rest of the Mauritanian coastline. It is presumed that the use of the motorboats may have been another cause for the decline of the fish population in BANP.

We can conclude that the Imraguen identity is based on the traditional capture and navigation techniques used for fishing, which were formally registered only in the middle of last century, but that at the moment are kept almost strictly by the populations of the 9 villages located inside the BANP, using their *lanches*.

Despite the sedentariness processes of the 1940s, the nomad condition of the Imraguen remained, especially during fishing periods for croakers or grey mullets.

The BANP Law passed in 2000 recognizes the traditional use that the Imraguen gave to the territory, including²:

- Artisanal fishing by foot (Imraguen traditional fishing);

² Abdel Cheikh. “Modes d’accès et de régulation de l’accès aux ressources naturelles renouvelables”. Project CONSDEV No. ICA 4-2001-10043. IRD/PNBA. Nouakchott, October 2003.

- Deployment and establishment of camps in travel routes, a traditional practice among the populations in the Park;
- The exercise of their cultural rights;
- Gathering of wood from fallen or dead trees; and gathering of wild fruits and other nutritious plants.

But this law has also put some restrictions on the Imraguen, like the use of out-board motorboats for their fishing inside Park areas; fishery control on certain species like sharks or rays; the establishment of a fishing schedule for certain species like grey mullets or croakers; and finally, the establishment of 110 boats as the maximum number of boats to be used inside the BANP.



Photo 6: Imraguen fisherman (Iñigo Azcona)

2.2 The Water

The lack of water and the scarcity of food resources, have contributed to maintain a limited growth among the population that lives in the BANP.

The lack of water is one of the most crucial environmental problems. Until 40 years ago, certain rains were noted during rainfall season, but then a big drought occurred and the climate changed radically. Now, the coastal communities are distributed water with water cistern trucks that come from Nouakchott and Nouadhibou.

Before, it was easier to get water, but for the last few years, ever since the freeway between Nouakchott and Nouadhibou was built 70 kilometers inland, the villages have become totally isolated. Many people are abandoning their villages and moving closer to the freeway area.



Photo 7: Sahara Desert in BANP (Iñigo Azcona)

2.3 The Administrative Structure

The inhabitants at the Park belong to the administrative community of Nouamghar, with an almost continuous coastline of 250 Km of beaches. This community was formed in 1989 and is described as a shepherding maritime area. Nouamghar has villages both inside and outside the Park. In 2002, the population was estimated at about 5,800 people.

The community has 15 villages, of which 9 are located inside the BANP: Mamghar, Awguey, R'Gueiba, Teichott, Tessot, Iwik, Ten-Alloul, Arkeiss and Añadir.

The biggest town is the capital city of Nouamghar, with 1,650 inhabitants, followed by Balewak with 950 inhabitants and M'Haijrat with 600. In addition, there are numerous seasonal fishing camps as well as nomad camps near the water wells of Chami, with a population of close to 1,500 people, depending on the shepherding seasons.

The main economic activities in the community of Nouamghar are: fishing - industrial fishing, artisanal fishing with *lanches* and traditional Imraguen fishing (almost extinct); tourist activities in BANP; the Nouadhibou-Nouakchott freeway (partly asphalted); two small landing runways for the aero clubs; and 15 women cooperatives who have a store in Nouakchott to sell their products.

As for infrastructure, the community has a health post in Nouamghar with a nurse and very small health posts in other villages (through European donations), with no medicines or nurses.

With respect to educational infrastructure, the community only has 3 schools in Nouamghar, M'Hajratt and Balewak, with one teacher each. The population is Muslim and they have a small mosque in Nouamghar.

The socio-economic indicators of Mauritania are still very lacking (including the community of Nouamghar and its 15 communities). Demographic growth in the coastal area of Mauritania has concentrated mainly in two urban sectors, Nouadhibou and the country's capital city, Nouakchott. The former was due to the mining (iron) boom, and the latter due to the industrial fishing boom.

3. FISHERIES IN MAURITANIA

The main impact of oil activities in the coasts of Mauritania will be undoubtedly over fishing activities, both artisanal and industrial, because the country has one of the most productive marine eco-regions in Western Africa.

In Mauritania, close to 50% of the commercial trade comes from fisheries, which is 43% of their total exports, 25% of their national budget, and more than 14% of the GDP. 40,000 of the country's jobs depend on fisheries.

During many centuries, the economy of Mauritania was based on the bartering system. Later a large portion of their income came from the mining of iron ore in the northwestern part of the country. For example, they have the longest train in the world (more than 2 Km long) to transport mineral from the deposits to the port of Nouadhibou, in the northern coast of the country. This port used to be the capital city and the most important town until the middle of the 20th Century.

The huge growth of the coastal population of Mauritania, especially in the two main cities of Nouadhibou and Nouakchott during the first part of the 1970s placed an enormous pressure on coastal resources. Industrial fishing experienced an exorbitant growth during said decade, to such a point that fishing resources in Mauritania began to be seriously threatened. We could say that if there was a fishing OPEC, Mauritania would be Saudi Arabia.

It was precisely this huge pressure over the coastal resources that forced the Government of Mauritania to declare the BANP a protected area.

There are three types of fisheries in Mauritania. Industrial fisheries are carried out in deep waters and the Government of Mauritania has to grant the permits. European countries are the main beneficiaries of these permits. Then we have artisanal fisheries that are carried out mainly in shallow coastal waters; the fleet is made up of out-board motorboats (pirogue-type) that come to the coasts to deliver their cargoes, or that approach the big industrial ships offshore; their fishermen are

mainly from Senegal or Guinea Bissau and Moorish Mauritanian businessmen are in charge. The third type of fisheries is artisanal on foot or the traditional Imraguen *lanches* style (previously described).

Although there is greater control over the industrial and artisanal and traditional fisheries, the pressure over coastal resources is still too elevated and the current fishing levels should be lowered. Today, fishing in Mauritania exceeds 600,000 tons per year, of which 80% is industrial fishing and the rest artisanal.

The most valued species are certain types of sharks, rays, croakers and grey mullets. The latter are especially valued for their eggs (caviar), particularly in Spain, France and Italy.

In Mauritania's maritime exclusive economic zone, we can detect close to 13,000 ship movements every year, having caused already adverse impacts on biodiversity. These are mainly oil tankers that leave Angola and Nigeria towards Europe through the waters of Mauritania.

Since the beginning of oil activities, the risk of Mauritania losing its marine diversity, and consequently affecting the country's main source of income, is imminent. In fact, of all the oil waste dumped from every ship that goes through the waters of Mauritania, it is estimated that more than 7% will come from the Chinguetti oil field.



Photo 8: Fish market at Nouakchott (Iñigo Azcona)

4. OTHER AGENTS LINKED TO THE PARK

The main foreign entity associated with the administration of the Park at an international level is the International Foundation for Banc D'Arguin (FIBA), formed in 1986. The initial objective of the FIBA was to support conservation activities inside the Park and the framework maintenance programs for the *lanches*, Canaries-style sailboats used by the fishermen inside the Park. FIBA is an international entity created by Swiss businessman Luc Hoffman, one of the owners of the world renown pharmaceutical Roche. The Administrative Council is made up by one delegate each from the Ramsar Convention, the IUCN, Wetlands International, WWF International, Muséum National d'Histoire Naturelle de France, Tour du Valat, among others.

Other agents include Spanish, French and German Cooperation Agencies, and the United Nations International Fund for Agricultural Development (IFAD). Since its inception, the French Cooperation Agency has been funding the work of an expatriate scientific-technical advisor. In 1997 two agreements were signed to provide support for the scientific research on marine resources, for a total of approximately 2 million dollars.



Photo 9: BANP Administrative Infrastructure (Iñigo Azcona)

The agents that work in conservation are diverse. There is one project directly related to the Imraguen and sustainable fishing, which is co-funded by WWF and the FIBA.

There have also been many projects that supported local development, like the one that started in 1994 with the aid of UNDP and IFAD (United Nations International Fund for Agricultural Development), with a budget of close to 2.5 million. The project's main goal was to provide training in the transformation of

fisheries and tourism products, developing numerous workshops on hygiene, management of cooperatives, tourist and ecological guide services, gastronomy and others. More than 100 workshops have taken place.

The State, through the Cooperation projects, has managed and directed subsidies and donations for the purchase of ice freezers and the preservation of fisheries products, and for infrastructure for the transformation into final products, like dry fish, fish oil, etc. The cooperatives have been granted credit loans to purchase 4x4 vehicles, freezers and other infrastructure, and for the implementation of fishing-related projects.

A very influential program in the region is the Regional Program for the Conservation of Marine and Coastal Zones (PRCM) created in 2003. This is a joint program between IUCN, FIBA, WWF and Wetlands International, in association with UNESCO's Sub-Regional Fisheries Commission (SRFC) and a conglomerate of 40 national institutions from 6 countries (Senegal, Mauritania, Guinea, Guinea Bissau, Gambia and Cape Verde). The PRCM proposes a regional strategy for protected marine areas in the region and the development of common policies.

The framework of the PRCM includes the "*Plan d'Aménagement du littoral mauritanien (PALM)*" which is a project between IUCN and the Commercial Navy that aims to bring together the concerns of all those parties interested in the coastline of Mauritania. These are the State, the financial organizations, the private investors, researchers and the local population. As their first initiative they have created the coastal Observatory in charge of monitoring the coastal environment and assessing long-term environmental changes and developing a sustainable development plan for the coastline of Mauritania.

Another agent that works in the park is IPADE (Instituto de Promoción y Apoyo al Desarrollo), from Spain, who manages funds for tourism programs that are associated with biodiversity conservation. This Spanish NGO, together with FIBA, has associated with Woodside in their development plans for the Chinguetti field.

In the last few months, new actors have arrived to help in the conservation of the BANP and to enhance the living conditions of the local populations. Among these organizations we should mention Mer Bleue that works in communication, education and awareness programs for people who depend on marine and coastal resources for survival.



Photo 10 : Tourist infrastructure at BANP (Iñigo Azcona)

5. OTHER PROTECTED AREAS IN MAURITANIA



Figure 4: Protected Areas of Mauritania (Source: PRCM)

THE DIAWLING NATIONAL PARK:

This coastal protected area was created in 1991. It is located in Mauritania's boundary with Senegal. The area was much deteriorated; however, the conservation programs have managed to recover a large portion of the original animals and plants. This park is the habitat for many species of birds, like the spoonbills, flamingos, herons, pelicans, among others. It is also an area with an enormous marine and fisheries biodiversity. This protected area is fundamental for the restoration of the ecosystems of the Senegal River Delta, because it is where most of the grey mullets' hatching takes place.

CHAT-T'BOUL NATURE RESERVE

This is an old outlet of the Senegal River, and the refuge for many marine birds. It was declared a RAMSAR site in 2000. In the western shoreline of Senegal, south of Mauritania, there are other protected areas that also face the risk of oil activities. These are: Djouj Bird National Park, Lengua de Barbarie National Park, Magdalene Islands National Park, and Saloum Delta National Park.

All these parks are going to be affected by oil activities, from the Chinguetti field and from all the other blocks that have been granted in concession in the coasts of Mauritania and Senegal.

It was at the end of 2003 that Energy Africa was awarded the permit to work in the St. Louis block with Petrosen, the state-owned Senegalese company. The permit covers a large offshore section of the coasts of this country. Tullow is associated with Dana in this area, and with Petrosen in other interests. The block granted to them is next to Block I of Mauritania, where they are also stakeholders.



Figure 5: Map of oil blocks in Senegal (Source: Tullow Oil)

6. OIL IN MAURITANIA AND ITS IMPACTS

The Australian company Hardman Resources Ltd. publicly announced in 2002 the successful joint activities with Woodside, another Australian company. The contract that began activities the previous year included the initial drilling of four wells. The exploration activities carried out included an extensive 3-D seismic survey and the drilling of four offshore (deep water) oil wells (two were firm and two were contingent).

During that year, they carried out the following exploration activities:

- Appraisal of the Chinguetti Oil Field (Block 4, PSC – Production Sharing Contracts – Area B)
- Wildcat Well of PSC Block 6 (Area C): they drilled a safe well to proof the Lead 4 structure in Block 6, to the north of Area B. The main objective at Lead 4 involves a system of sandy channels of Cretaceous age interpreted by the 3-D seismic survey. The prospecting flank was partially proven by Shell during the 1970s with little amounts of oil recovered through the test lines.
- Wildcat Well PSC Area B (next to Chinguetti): the intention was to drill one of the identified exploration targets, which is located within the 25 Km. span of the Chinguetti oil discovery.
- Application of a 3-D seismic survey in three areas:
 - PSC Area A: 900 Km²
 - PSC Area B: 515 Km²
 - PSC Area C (Block 2): 1,000 Km²

Later, under an agreement with Energy Africa in 2002, the 3-D seismic survey performed in Block 2 would be funded by Energy Africa to earn a 20% interest in said area, while Hardman would keep a 28.8% interest in the Block.

That same year, Woodside advised that the reserves from the Recovery Margin, based on the results of the Chinguetti-I well, were 65 million barrels (recoverable). Meanwhile, the studies on the Chinguetti Field performed by Hardman indicated that the technical recoverable volume with highest probability would exceed 100 million barrels. In addition, Mauritania has natural gas reserves of approximately 1,000,000 to 3,000,000 cubic feet of recoverable reserves. This amount is equivalent to Australia's annual production. Mauritania's reserves would be enough to develop a natural gas plant to supply the United States and Europe.

During the initial exploration phase these companies have discovered enough hydrocarbons reserves to be commercialized. These findings have opened new interest in Mauritania. The interest for oil in this country began in the 1970s. Some companies like Shell, acquired seismic data and even drilled a few wildcat wells. But the technology available at that time made it uneconomic to develop an oil

project in Mauritania. For example, Shell found uneconomic amounts of good quality oil.

Since then, new technologies have been discovered to help develop these discoveries, even offshore. These two small Australian companies (Brimax became Hardman Resources) bought all the rights to perform offshore explorations in Mauritania through 7 exploration contracts, and once the agreements were secured they began offering their blocks to bigger companies, because they did not have the capacity for such a large endeavor. So they acted as intermediaries, although they never lost all their shareholdings in the operations.

This is how Woodside earned the exploration rights for 35,000 Km². This was their first investment outside Australia. Initially they partnered with British Borneo (later AGIP) and then with BG.

The first productive well was Chinguetti-1, drilled in 2001. This discovery led to an aggressive exploration program in the area during 2002, with a combination of seismic surveys and the drilling of two additional wildcat wells: Banda and Thon (Woodside had already drilling another well that had proven uneconomic: Courbine-1).

The first tests to appraise the reserves of the Chinguetti-1 well started in September 2002 and they reported a probable crude extraction rate of 11,500 barrels per day, with a high of 15,680 b/d.

In 2003, they further drilled wells Tiof-1, and 8 Km to the west, well Tiof-West. That same year, Woodside acted as contractor for the drilling of well Pelican-1 in Block 7, where they found a series of gas accumulations of about 300 meters.

They have also carried out tri-dimensional seismic surveys in Blocks 4 and 5, which included the drilling of 4 additional wildcat wells, plus 7 additional wildcat wells in the Banda field.

By 2005, Woodside had expanded its exploration activities through additional tri-dimensional seismic surveys, and increasing the wildcat wells drilling. This will allow Woodside to reach economic crude extraction by 2006, starting with well Chinguetti-1.

The combined production of these two deposits will reach 165,000 barrels per day by 2009.

Chinguetti will be the first offshore oil project in the northwestern coasts of Africa, with an estimated extraction rate of 75,000 b/d. Although Woodside has been very successful expanding its operations in Mauritania, the company complains that the fiscal terms are not favorable for their investments, and they state that the government should review the terms of the contracts in order to attract more

foreign investment, especially in offshore fields. Regardless of these complaints, many oil companies have already set up offices in Mauritania.

Besides Hardman and Woodside, already mentioned, the following companies have set up offices in Mauritania: BG (the third largest energy company in Great Britain), Premier Oil, ROC Oil, and Sterling Energy (all British). All these companies view this African country as a new world oil frontier, especially because new world discoveries are so difficult to come upon.

Even before the first drop of crude has started flowing, the State of Mauritania is already receiving oil-dollars from British Sterling Energy because since the signing of the agreement the government is collecting a 12% interest for the portion withheld by the consortium responsible for operating the Chinguetti deposit. As a compensation for this advantage, Sterling has brought into Mauritania a bonus of 15.5 million dollars and has provided a 130-million funding to help the State pay their contribution to the exploitation expenses of the oil deposit.

Oil activities are also expected at an onshore level. At the end of 2004, the Government of Mauritania authorized the signing of two contracts with Repsol-YPF for the exploration and potential exploitation in the central part of the country, in the area of Taudenit. The permits cover a surface of 65,000 Km² and have a validity of 3 years, extendable to 25 years.

Another significant fact is the presence of North America's Halliburton in the country who has signed an agreement to provide goods and services as well as drilling services and monitoring. Halliburton's initial contract is for 58 million dollars. It is estimated that in the next couple of years, Halliburton will be deploying 4,500 people to live temporarily in the capital city of Nouakchott.

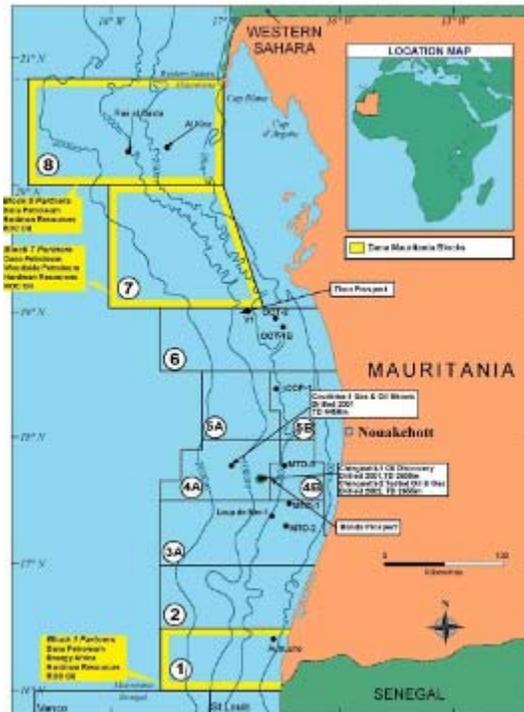


Figure 6: Dana's Blocks in Mauritania (Source: Dana web page)

Annex 1 (Table 4) shows the oil activities carried out in Mauritania.

6.1 The Chinguetti Oil Field

For the time being, the Chinguetti Field is the most important deposit in Mauritania, where Woodside is the operator. The deposit has a depth of 800 meters and is located 80 Km. away from the coast of Mauritania. The Banc D'Arguin National Park is approximately 180 Km. north of the exploration area of the Chinguetti Field.

The crude from this deposit will be supplied to the countries in the Northern Hemisphere, and no measure will be able to guarantee that it is used to cover the country's needs for energy.

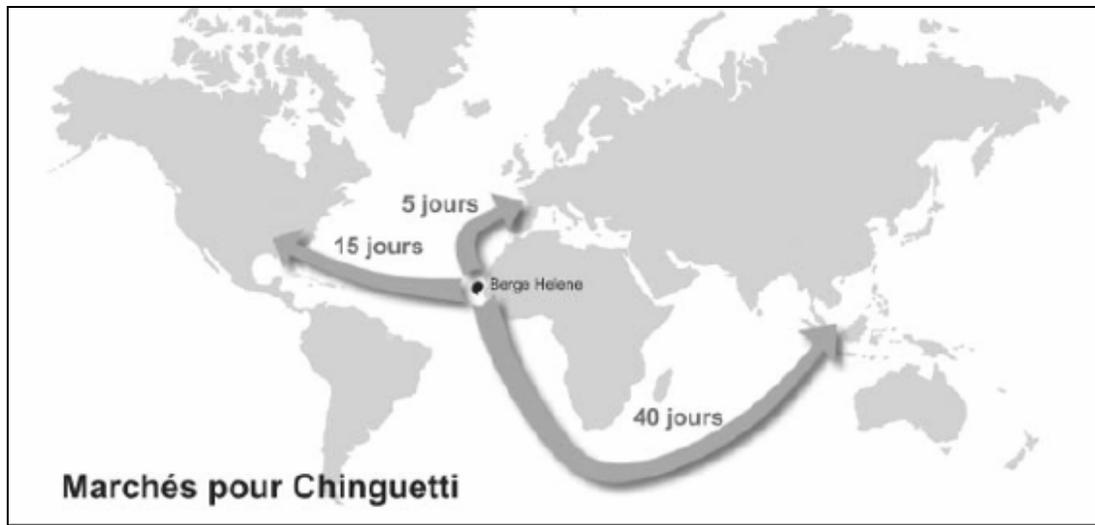


Figure 7: Markets for Chinguetti’s hydrocarbons (Source: Woodside)

Woodside is an Australian company with oil activities in United States, the Middle East, Asia and Oceania, and several operations in Africa. Their best known offshore deposit – Enfield – is located in the northwestern part of Australia.



Figure 8: Woodside in Africa (Source: www.woodside.com.au)

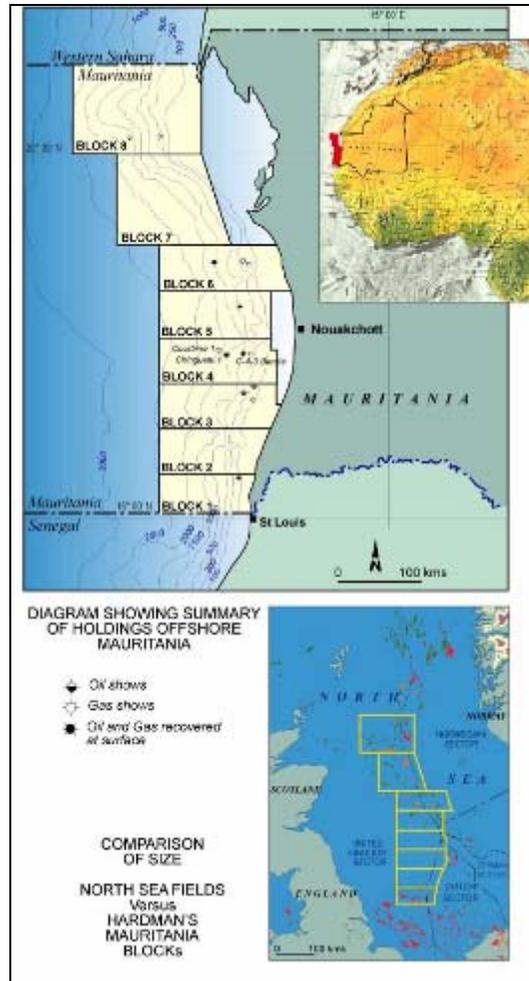


Figure 9: Woodside in Mauritania (Source: www.woodside.com.au)

The Chinguetti Field, the most important and more advanced deposit in Mauritania, was discovered in 2001, and its operation is registered under the Production Sharing Contract with the Government of Mauritania. Operations are expected to begin in 2006, with a peak production of 75,000 barrels of oil per day.

The project has the following phases:

- 6 Production wells from three drilling centers and its collectors.
- 4 Vertical wells for water injection.
- 1 well for gas re-cycling, located 15 Km outside the exploitation area.
- 1 floating production, storage and off take facility (FPSO) that will collect crude from the production wells and will pump gas to the re-cycling wells.



Figure 10: Example of a FPSO (Source: Woodside)

According to the proven reserves, it is estimated that the deposit will have a life span of 8 years. Even though the figures are diverse, at least 100 million barrels would be the probable reserves at the Chinguetti Field.

According to the company, the FPSO will be an oil tanker with a simple hull transformed into a FPSO. It will have a production capacity of 75,000 b/d and a maximum storage capacity of 1.6 million barrels. From the FPSO, the crude will be sent off to the oil tankers, with an average of 28 send offs per year.

After operations, the FPSO will be disconnected from the pipelines and will simply ship away. The company plans to abandon the submarine equipment where it is. Any equipment that could represent a risk for fisheries will be located through a map of the marine bottom. In the Environmental Impact Assessment (EIA), the company literally states that the techniques to be used in the abandonment plan will be “pragmatic, simple and within a reasonable cost”³.

The waste material, like rocky materials and drilling muds will be discharged into the sea, as will be the formation waters produced during FPSO routine operations.

The project is located within the marine eco-region of Western Africa, which covers 2,500 Km of the coastlines of Mauritania, Senegal, Gambia, Cape Verde, Guinea Bissau and Guinea.

Woodside hired third party contractors to perform the Environmental Impact Assessments, all of which foresee only five key environmental damages:

1. Accidental spills during drilling, installation, production, off take and transportation of crude oil. Also spills due to ship collisions, damage to the equipment, etc.

³ WOODSIDE. “Etude d’impact sur l’environnement”. Executive Summary. January 2005.

2. Routine wastes from the extraction of formation waters.
3. Routine stone and drilling mud wastes from drilling activities.
4. Impact caused by the waste from ships in the exploitation zone, collisions, anchorage and hitching of submarine equipment, etc.
5. Greenhouse gas emissions by FPSO equipment and installations.

The EIAs were done by Environmental Resources Management Australia (ERM). The national counterpart is the Ministry of Mines and Industry.

Table 1 : IMPACTS OF OIL ACTIVITIES ACCORDING TO WOODSIDE'S EIA

ENVIRONMENTAL DAMAGES	CATEGORY	PROBABILITY	CONSEQUENCES	LEVEL OF RISK
Oil pollution	1,000 to 10,000 barrels	Possible to improbable	Minor to light	Medium to weak
	10,000 to 100,000 barrels	Improbable to remote	Moderate to minor	Medium to weak
	100,000 barrels	Improbable (in case of well eruption). Highly improbable to remote (other risks)	High to moderate	Elevated to medium. Medium to weak.
Discharge of extracted formation waters		Probable	Minor	Medium
Discharges associated to drilling		Probable	Minor	Medium

ENVIRONMENTAL DAMAGES	CATEGORY	PROBABILITY	CONSEQUENCES	LEVEL OF RISK
Interactions with ships	Damage to submarine infrastructure	Possible to improbable	Minor to light	Medium to weak
	Ship collisions	Improbable to remote	Moderate	Medium to weak
Greenhouse gas emissions		Probable	Minor	Medium

On the other hand, national organizations have indicated that oil operations, both in the Chinguetti Field and in other blocks located in the coasts of the park could affect the following biological factors:

- Commercially important deep sea and pelagic fish.
- At least 32 species of cetaceans.
- Numerous species of marine turtles and their breeding sites.
- Diverse populations of migratory or sedentary marine birds.
- Deep marine areas and the biological communities associated with these depths would be affected by the carbonate mud dumps.
- Population of Mediterranean monk seals found in the satellite reserve of Cape Blanc Peninsula.
- Marine vegetation of the Gulf of Arguin and the Star Bay (Baie de l'étoile).
- Wetlands of the coastal and marine zones as well as the habitats of the birds inside these zones and in the legally protected reserves (three in Mauritania).
- Important habitats for birds, wetlands and lakes that are not legally protected, like Aftout-es-Saheli in Mauritania and the Saint Louis Lakes in Senegal.

6.2 Impacts of Offshore Activities

There is no doubt that oil activities produce the impacts mentioned above as well as other environmental and social impacts that we will briefly describe below.

Several studies undertaken show that offshore oil activities are extremely contaminating and no level of prevention will be able to avoid enormous damages. Once the oil activities are initiated, the damages to the marine ecosystems are unavoidable; thus, oil activities become incompatible with fisheries and/or tourism.

This is why in many parts of the world measures have been taken to mitigate the threat of offshore oil activities. Many countries have declared a ban to these types of activities in certain specific areas or they have even imposed a moratorium to oil activities. For example, in the United States, no hydrocarbon activities are permitted in the coasts of Florida; or in Costa Rica, where the country has chosen tourism and fisheries over the extraction of fossil hydrocarbons.

Other studies describe the impacts on the economy and fisheries when companies were allowed to extract gas or oil from the sea. For example data from the Mineral Policy Institute (2004) explains how British fishermen established that the losses to fisheries in the North Sea were between 580,000 and 3,000,000 pounds sterling due to sea pollution caused by hydrocarbon activities. According to this same study, oil activities have not only affected fisheries; they have also caused accidents, damages to the fishing boats, and physical interference with this activity.

If there is an oil accident at sea, public health would be put at risk through the consumption of contaminated fish, or by breathing volatile compounds associated with oil. Besides the impacts to fisheries, there are records of psychological impacts among fishermen populations, like an increase in depression and post-traumatic stress symptoms.

After a spill, when cleaning teams are formed, the cleaning tasks are performed without any protection, and the salaries are miserable. This is quite frequent in areas like the Ecuadorian Amazon. These people are at risk of suffering respiratory and skin diseases. When the Exxon Valdez spill occurred in Alaska in 1989, the people that manually cleaned the beach and the rocks had an exposure to oil 400 times higher than in those places where hot water spurts were used to wash the beaches.

Fish, shellfish or birds that are exposed to oil pollution may show high levels of aromatic polycyclic hydrocarbons, which are cancerigenic. In a lot of countries, when there is an oil spill, partial or total prohibitions are imposed. For example, during the Exxon Valdez incident, more than 10 million gallons of oil were spilled and the authorities were forced to impose emergency regulations to prevent human beings from consuming any marine product.

In Galicia, Spain, in 2002, the Prestige oil tanker sunk, releasing 77,000 metric tons of crude into the most important fishing zone of the region, causing an economic impact on Galicia, impact they have not been able to recover from yet, despite the aid received from the federal government. Both the Prestige, and the Erika (spill of more than 30,000 tons of oil in 1999, affecting the coasts of four departments of France⁴) accidents were not caused by collisions but rather by faults in the structures of the ships.

⁴ For more information, see <http://www.le-cedre.fr/fr/publication/bull/bull13.pdf>



Photo 11: Prestige spill – Laxe Beach – Galicia (<http://galeon.hispavista.com>)



Photo 12: Consequences of the Prestige spill (<http://galeon.hispavista.com>)

Seismic Surveys

As any other seismic activity, it is based on the generation of seismic waves and the registration of its reaction with the surface and sub-surface of the sea. The number of impulses generated by the seismic activities is never lower than 5-8 million in an area of 100 Km². When these impulses are generated, they create a pressure of 150 atmospheres (MPI. 2004).

Apparently Woodside wrongly misunderstands that seismic exploration can cause negatives impacts since their environmental impact assessment does not include the risks and impacts of these activities in the operations fields.

According to different studies, seismic surveys may affect the sense of direction in the cetaceans. This could be one reason why 28 dolphins and 4 green turtles (IUCN data) were found stranded and dead on the beach. Other testimonies from park inhabitants indicate that whales have also been found stranded on the beach. Even though the reasons cannot be clearly determined, this phenomenon had never been reported prior to the beginning of oil activities in Mauritania.

This phenomenon is definitely extinguishing the Imraguen traditional fishing method with dolphins, because the cetaceans are disappearing from the coasts of the park. If the expansion of the oil frontier continues in Mauritania, the impact on the local economies will be catastrophic as artisanal fishing would be deeply affected.



Photo 13: Stranded dolphin in the beaches of BANP (<http://www.iucn.org>)

The impact on marine animals is mainly felt during hatching, growth and migration periods, bringing about a probable reduction of the fish population of about 70%.

According to Oilwatch, studies have been undertaken to assess the impact of seismic surveys over fish schools, and they have found that for some commercial species the impact may be huge because it was registered in a radius of 10 Km. The number of fishes has decreased both in the pelagic zone and in the bottom of the water column.

The organization Mer Bleue elaborated a table with some of these impacts, which they presented during an empowerment workshop given in Nouakchott:

Table 2: EFFECTS OF SEISMIC SURVEYS OVER MARINE FAUNA

Effects
<p>Dolphins and whales are very sensitive to seismic activities.</p> <p>At short distances:</p> <ul style="list-style-type: none"> – Mortality, brain hemorrhage, damage to hearing system. <p>At long distances:</p> <ul style="list-style-type: none"> – Behavioral changes, vocalization closure, accelerated breathing, etc. (up to 300 Km.)
<p>Fish are particularly sensitive during migration and hatching periods.</p> <p>At short distances:</p> <ul style="list-style-type: none"> – Brain hemorrhage in adult fish, damage to hearing system, mortality of fish larvae. <p>At long distances:</p> <ul style="list-style-type: none"> – Behavioral changes (up to 100 Km.) – Reduction of fish schools in shallow waters (- 70%) – Reduction of fish schools in deep waters (- 40%)
<p>Coastal wetlands (first stage in the cycle of life) are very sensitive.</p> <p>These ecosystems shelter many fish larvae that cannot escape the noise caused by the seismic surveys, thus affecting them and even leading to their death.</p>

All offshore exploration activities imply a big movement of ships. This means that the marine ecosystem will also be affected by the impacts caused by the constant discharge of fuel wastes, and possible collisions and/or sinking.

Exploratory Drilling

Drilling begins during geological and seismic exploration. Exploratory drilling helps determine the potential of the deposit, whether it is economic or uneconomic, and the reserves. It is during exploratory drilling that the drilling muds are continuously formed. If the deposit is economic, these wildcat wells are sealed with concrete and their structure is set. This is known as the cementation of the well that will go into production, and to do so they use chemicals, some of which are toxic, producing pollution and sediments that generate turbidity in the water altering the composition and luminosity of the area where the cementation is done⁵.

⁵ Lime and clays are used with the addition of: additives like sodium chloride, sodium silicate and sodium carbonate, lignin, calcium lignosulfate and cellulose derivatives; agents that prevent fluid loss (cellulose derivatives); dispersants (synthetic organic products); density controllers (bentonite, diatom-rich soil—to reduce it; barite, sand – to increase it); anti-foaming products (phosphate esters, fatty acids and polyoxylated alcohols), among others (OILWATCH. Bravo. 2001).

Many of the oil operations in developed countries of the North, where most of the companies that operate in the South originate from, normally pump their muds into geological formations found in the bottom of the sea, or they pack the muds to transfer them to land and deposit them in safer places, reducing somehow the environmental damages. In addition, they normally reduce the toxicity of the muds and the drill core from the exploratory drilling with electrothermal treatments. But these practices are not common in tropical countries.

According to Oilwatch (Bravo, 2001) when the drill core from the wildcat wells is dumped into the sea, they bring about a physical effect because they are burying the benthos fauna thus affecting all the ecosystem, due to the important role played by the benthos in the marine trophic chain.

Data from the British oil industry shows that 1.5 million tons of contaminated muds have been deposited in the bottom of the North Sea, of which at least 166,000 tones contain hydrocarbons, forming individual piles of up to 30 meters high. These drilling muds also contain other contaminants like barium sulfate and heavy metals and it has been established that the areas that surround these piles, for at 500 meters have become biological deserts. At longer distances, there have been changes in the composition of the marine communities, favoring opportunistic species that can tolerate contamination.

Hydrocarbon-based muds may affect fauna in a radius of 500-800 meters or even more, depending on the currents from the point of discharge. The effects are accumulative and can last for many years. Hydrocarbon-based muds contain mineral oil, with variable amounts of aromatic hydrocarbons, lime to increase the pH and to control corrosion, chemicals based on lignin to control the loss of fluids, emulsifiers and detergents, which may include fatty acids, amines, amides, sulphonic acid and alcohols as secondary emulsifiers; bentonite; calcium chloride used as emulsifier to increase the viscosity of the muds.

As for muds soluble in water, these have as main components barite and calcium carbonate, and inorganic compounds such as bentonite and other clays that increase viscosity are added. These muds include several toxic heavy metals, inorganic salts, detergents, organic polymers, corrosion inhibitors and biocides. Even if these muds are soluble in water, in many cases they can contain significant amounts of hydrocarbons, 100-7000 ppm.

In the areas that surround the drilling platforms, elevated contents of aromatic polycyclic hydrocarbons have been registered in the tissues of the fish, which may cause liver diseases in human communities who depend on these fish for their feeding.

In the case of Woodside, these muds will be dumped into the sea practically untreated thus causing severe impacts, as described before.

Offshore Extraction of Hydrocarbons

In a normal oil operation, hydrocarbons are extracted from a well in the form of a compound of crude, gas and formation waters. These are separated in the platform or production tanker.

In certain operations, gas is separated and transferred to a gas pipeline or recycled into the reservoir, to keep or increase the pressure of the well. As for the gas that remains part of the series of products that come with the crude, and that is not recycled, it is normally flared or used as an energy source at the installations. The main atmospheric emissions produced by the flaring of gas are CO₂, methane, aromatic volatile hydrocarbons, nitrogen oxide, sulfur dioxide, carbon monoxide, halons and CFCs.

The amount of water formation is higher when the well starts to decline; so in the last stages of production, the amount of water can be several times higher than the oil extracted. Some oil practices recycle the formation waters or they discharge them into the environment. The concentrations of salt in the formation waters may be several times higher than sea water, which have a negative effect on the native fauna and flora. It has been known, in a few cases, that this water is desalinated until it reaches a content of 40 mg/l.

In tropical countries, it has been a common practice among these companies to simply dump the formation waters extracted into rivers or pools, like Texaco did during their operations in the Ecuadorian Amazon; or like Occidental did in the northeastern part of Peru; or like most of the oil companies do in Nigeria's Niger Delta.

The formation waters contain, besides crude, heavy metals, alcaphenols, aromatic hydrocarbons and even radioactive materials. The formation waters dumped at sea may cause severe impacts to aquatic life. Some studies (MIP, 2004) have demonstrated that hakes exposed to phenols had hormonal alterations affecting the size of their gonads, where the male species acquired female characteristics, or hatching was postponed for several weeks.

Another source of significant impacts is the high temperatures reached by these waters. Besides the issues of offshore oil extraction, another problem is the presence of sulfate-reducing bacteria. In order to produce sulfur hydroxide, which is highly corrosive, they use biocides to control it. In addition, they use nitrogen organic compounds to protect the walls of the pipes against corrosion. In order to prevent the crystallization of mineral salts they use phosphates and phosphate esters. Other chemicals used during production are anti-emulsifiers, anti-foaming, chemicals to control the formation of paraffin, solvents, and many more.

In the specific case of Chinguetti, Woodside has expressed that the gas will be recycled; however the formation waters will be treated following international

standards to reduce the presence of hydrocarbons, but still they will be dumped into the sea. This means that the phenols, the heavy metals, the aromatic hydrocarbons and the possible radioactive substances will affect the surrounding ecosystem.

The Platforms

In the case of Woodside, they will not have a fixed platform but rather a 25-year old oil tanker, called Berge Helene that will be transformed into a floating platform, the FPSO. During the last years of production, the tanker will have reached more than 40 years functioning, thus increasing the risks of accidents.

When these types of tankers are used, international norms recommend that the ships be in optimum conditions, overhauled if possible so that they will be better than new, and they should have a double hull. Yet, Woodside's FPSO will be a second hand ship with one single hull. In addition, it will exceed the recommended storage capacity (150,000 m³) reaching a capacity of 315,000 m³.

The presence of this type of tankers generally produces an important physical impact because it can alter the behavior of wild life, especially when the infrastructure is installed in a site for breeding, hatching, feeding and migratory routes of certain species.

Another source of alteration is the noise and the light generated. Both can alter behaviors and interfere with the migratory routes of mammals, fish, and especially birds. The warmth produced overheats the sea water, producing negative impacts, especially over those species that have a very demanding ecological niche, like the species that make up the coral reefs.

According to Chinguetti's EIA, Woodside will have the support of contracting companies that are already operating in Western Africa. More than a guarantee, this is a major threat to the marine ecosystems due to the well known malpractice of oil activities in this region of the continent.

Particular Impacts over the Mangrove Ecosystems

As mentioned before, there are only 3,000 hectares of mangroves left in Mauritania. These are forest remains of ancient geological periods when the area was a big delta that collected the waters of several rivers that run the Sahara Desert. Mangroves usually have a social, economic and ecologic importance because they function as habitats for many species of fish and shellfish and in many occasions are the sources of raw materials for many community productive activities.

According to Oilwatch (Bravo, 2001) oil activities in mangrove forests interrupt the flow of fresh and sea water towards the mangroves and within them, altering the

drainage patterns as well as the patterns of the vegetation and the soil, thus producing general instability in the area.

In addition, mega-projects produce industrialization and urbanization which bring about dramatic changes to the landscape and seascape.

Furthermore, important environmental impacts are produced by the installation of oil infrastructure, both offshore and onshore: air, water and soil pollution, noise pollution, all of which affect the lifestyles of the coastal communities. Following are a few examples.

Bravo, in her document on the impacts of offshore oil activities, states that the following impacts have been registered even in temperate seas:

- Inhibition in the growth and reproductive development of certain species of mollusks.
- Reduction in the reproductive activity of bivalves.
- Reduction in the establishment of benthonic organisms.
- Changes in the immunologic responses of fish.
- Reduction in the colonization and destruction of the habitat of *polichaetas* and *amphipods*.
- Production of fish contamination in coral reefs.

Social Impacts

Even though the environmental impacts of offshore activities have been well documented, it is the associated social impacts that cause greatest concern among local populations.

The most significant social impact is the destruction of the local economies, together with inflation, generation of insecure situations, violence, and deep cultural changes.

Woodside has developed an Environmental Impact Assessment disregarding the populations that will be most affected. For example, the groups of traditional and artisanal fishermen complain that they should have been contacted to hear their opinion on the impacts to the fishing schedules when the seismic surveys were done.

Woodside has also elaborated a Social Impact Assessment (SIA) but it simply addresses the problems as a purely informational issue, whereby the populations will access information to identify the presumed opportunities against the risks of oil activities and to find ways to minimize or solve the social impacts and to analyze the distribution of the agents' responsibilities. According to the company their social practices will be based on recommendations by the World Bank and the IFC

(International Financial Corporation). The latter is financially involved in the project.

The people of Mauritania are already feeling, even at this stage of the operations, the impact of the oil activities. Activities have even altered their religious holidays. Mauritania is a Muslim country whose rest days are Thursday and Friday, working on Saturday and Sunday. In April 2005, due to the incompatibility between Mauritania's holidays and the work days in the oil companies' head offices, weekly rest days were changed to Saturday and Sunday, violating the cultural rights of the people of Mauritania.

Testimonies from people in Nouakchott indicate that since the announcement of the oil activities, the cost of living has duplicated.

The presence of people from neighboring countries who seek employment has created shanty towns within the city, increasing delinquency, violence, alcohol consumption and the appearance of businesses that go against the moral beliefs of the people of Mauritania. The Mauritians have always been pacific people who have lived in perfect harmony. In the case of a potential spill, the city of Nouakchott would see the devastation of its fisheries. Many Japanese and European capitals have invested in a vast infrastructure for the commercialization of fish, which would be directly threatened by the damages caused by a potential oil disaster.



Photo 14: Fish trade in a Nouakchott market (Iñigo Azcona)

The company, through the direct relationship it has established with the government since the inception of operations, has managed to keep its activities secret, at least from the majority of people of Mauritania.

Few know the real impacts of the oil activities and everyone lives under the false illusions offered by these companies. With respect to the park, it has been noticed that many young people do not wish to continue fishing but rather move to the capital city and try to get a job from the oil companies.

Meanwhile, the company has designed a consultation process for all the parties involved including formal and informal dialogues, workshops or face-to-face conversations. This is a normal procedure among the oil companies to try and fulfill their formal commitment to create an insignificant system of local participation. The company also funded a visit to Nigeria, organized by conservationist groups, to observe oil activities. This visit did not have a democratic decision taking process regarding participants, matters to be discussed, places to visit, etc., and they tried to exclude all those organizations that have a critical standpoint regarding oil activities.

It has come to our attention that the company has held private meetings with certain European and Mauritanian NGOs, with the diplomatic corps and the government, excluding those sectors that should be informed about oil activities because they are the main affected groups, like small and medium fishery businesses.

Regarding the inhabitants of the Park, they have been practically ignored throughout the process, because since they live in a protected area, they are considered to be a fief of the conservationist organizations. We were able to talk with some park dwellers and they indicated that Woodside was visiting the park together with FIBA officials, contacting traditional leaders or influential people from the community trying to convince them on the advantages of the oil industry and minimizing the detrimental damages.

In their EIA they have included certain perceptions from the people of Mauritania and Senegal. They include their actual concerns and fears that oil activities will continue affecting fisheries, since they are aware that an accident could be catastrophic for their occupation, affecting also tourism, and they foresee corruption as well as negative economic and social impacts.

The oil warning is in alert among the fishermen of both countries, reaching even the people of Cape Verde, because any accident occurring at the Chinguetti Field would also affect the latter's territorial sea.

7. HUMAN RIGHTS AND MILITARIZATION

With oil prices exceeding US\$ 50 a barrel, the lack of capacity to save energy in the world, and the increase in demand from China and the United States, the

incentives to discover new deposits have never been this high. Right now, even a small player like Mauritania, becomes interesting for the companies that need to replace their reserves in order to stall oil price increases. But as is happening in Nigeria, Angola, Equatorial Guinea and other oil-rich African countries, in Mauritania human rights defenders are very concerned because they believe that this resource is not a blessing.

The commercial interest in Mauritania sharply decreased in 1991 when the government supported Iraq's invasion of Kuwait, and also due to frontier disputes with Senegal. In August of 1991, a group of soldiers was arrested under the charges of trying to overthrow president Maaouya Si'd Ahmed Ould Taya, a colonel trained by the French Army and who has been in power for over two decades.

However, regardless of past actions, the current interest in Mauritania's gas and oil reserves has increased.

Mauritania has natural gas reserves preliminarily estimated at 1-3 billion cubic feet of gas. However, some analysts feel that the competition from Libya, Angola, Nigeria and Egypt may be guiding the attention first to oil rather than gas. And Mauritania has an advantage over the other countries; the transportation of the gas could be done through a shorter route than the one used to transport Nigerian gas to the United States. All this makes the future of oil in Mauritania very uncertain.

The country has an income per capita of US\$ 441 per year, and the government believes that the income generated by oil would boost their terribly indebted economy, with an increase of 14% of the GDP and US\$ 40 million per year (Mauritania receives foreign aid for a total of US\$ 10 million per year). However, the government should carry out a long-term study of the real economic impacts brought about by oil activities compared to the benefits of fisheries that are a sustainable activity. Oil activities in Mauritania will last at the most 15 years – leaving behind a legacy of environmental and social impacts of gigantic proportions – while fisheries could last centuries.

Many in Mauritania believe that oil will only benefit the usual groups of power; however they have expectations that there will be an improvement in infrastructure, highways, and more access to electricity and running water. Human Rights Watch believes that the money from oil will only help strengthen the current government, with no efforts made to democratize the country or to make social investments. If this is true, we will be witnessing serious internal conflicts like those in Angola or in Equatorial Guinea; there will be no transparency or accountability, and there will be a total lack of respect for human rights.

In 2003 there was a coup d'etat in Mauritania. The rebels demanded a more democratic State; especially because the government in force at the time, led by retired Army Colonel Maayouya Ould Sid Ahmed Taya had been in power for over 20 years. However, others believe that the coup d'etat was really caused by a more pro-Western view and the close relationships that are growing between

Mauritania and the United States, as well as the beginning of struggles among the clans that are closer to the President for the distribution of profits, favors, power quotas, and possible payoffs from the new oil money chest.

At the beginning of June of 2005, a Mauritanian military post suffered an attack that left 15 soldiers dead. Apparently the attack was carried out by the “Salafist Group for Predication and Combat” of Algerian origin. As a result of this attack, the United States has deployed 1,000 soldiers to Mauritania under the assumption that the fundamentalist groups are getting closed to Al Qaeda. It is a coincidence that precisely when Mauritania becomes a member of oil producing countries, with a strong presence of Halliburton, with more than 4,500 people temporarily transferred to Nouakchott, violence starts escalating in the country.

This also explains why since the beginning of 2005, Mauritanian war ship, the “*Abu Bekr Ben Amer*” entered a Spanish shipyard in Las Palmas de Gran Canaria (Canary Islands) for repairs. It is possible that it will be used primarily for the protection of the FSPO tanker anchored outside the coasts of Mauritania and for the security of the hundreds of workers currently present in the country, working for Halliburton and other oil companies.

Mauritania could find itself involved in a war for resources, as are many countries in Africa.

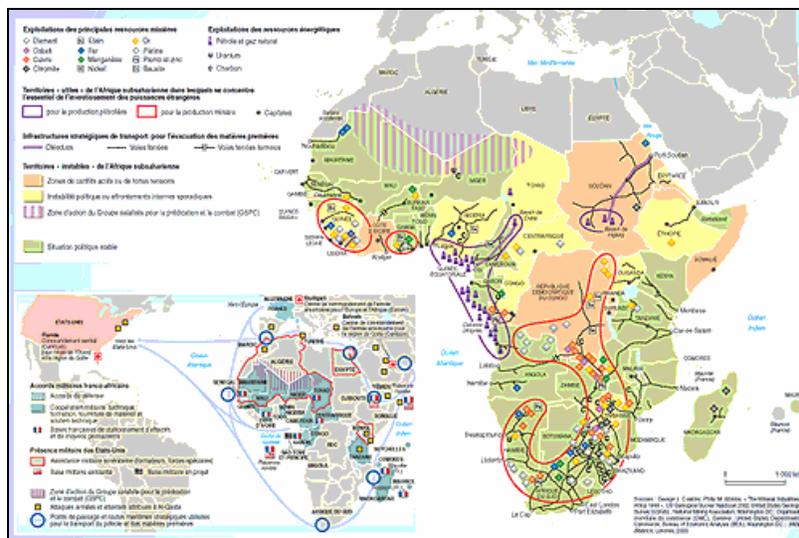


Figure 11: Map of conflicts in Africa (Source: Le Monde Diplomatique)

8. DEBT AND OIL IN MAURITANIA

According to the Paris Club, Mauritania has been a disciplined country complying with the programs for structural adjustments and economic reforms, which made them eligible to be included in the list of HIPC (Debt Initiative for Heavily Indebted Poor Countries) whereby part of their foreign debt with these creditor countries is forgiven.

The statement by the Paris Club announces that the African State has made a commitment to rigorously implement an economic program that will guarantee the sustainable growth of its economy, and to apply measures to reduce poverty with the money that will not be used to pay their foreign debt. The World Bank and the International Monetary Fund (IMF) believe that Mauritania is a country that has followed devotedly and with dedication all their recommendations. The debt with the Paris Club has been reduced from US\$ 320 million to US\$ 16 million.

The African Development Bank (ADB) has also announced that Mauritania will reduce its annual debt service by 80%, with no real reduction of the capital debt. The figure is around US\$ 90 million.

The financial aid from the ADB to reduce poverty in the country was directed mainly to the sectors of “human resources, natural resources and infrastructure and macro-economic reforms”.

During the last meetings of the G8, these countries decided to reduce even further the debt from several African countries and some Latin American countries. In addition, they have agreed to duplicate the Official Aid for Development (OAD) from 25,000 million to 50,000 million. But parallel to this resolution they have also decided to strengthen the control over these economies in detriment of the citizens of these countries. The aid programs will also guarantee that the structural adjustment programs continue ensuring privatizations and the flow of natural resources to the countries in the North, or in other words, the pillaging of North American and European multinational corporations.

This means the implementation of strict free market reforms like budgetary cuts, financial and trade liberalization, privatizations and other reforms that will ensure “the elimination of impediments to private investment, both domestic and foreign”, as declared in a statement from G8. These economic measures will have social and environmental impacts that definitely amount to much more than the debt condoned by the G8. According to Jubilee South, these new agreements to cancel part of the debt will not only be in exchange for the exploitation of our natural resources, but they will also make sure the profits are repatriated through open trade and unequal exchange.

In the case of Mauritania, the recent discovery of oil in its coasts, that will start being extracted as of 2006, denotes a big risk for the implementation of financial

and tax incentives and the reactivation of the foreign debt process, probably with the same countries that have agreed to forgive the existing debt. In other words, Mauritania's oil will be the reason for the unavoidable new cycle of indebtedness.

The alternative for Mauritania would be the unconditional cancellation of its debts, as a matter of justice and equity, and to reject these measures that more than charity are the bait to perpetuate domination.

The social and environmental impacts of oil extraction in Mauritania will be the beginning of an ecologic and social debt where the countries of the North and its oil companies will become creditors of the people of Mauritania. Taking into account only the carbon debt, if the 100 million barrels of oil are extracted from the Chinguetti Field, and traded in the Northern countries, they would be responsible for the emission of at least 44 million tons of CO₂ into the atmosphere.

Regardless of the impacts associated with the oil activities that have already started, new projects are under discussion. Woodside, Premier Oil and Roc Oil have already announced new wildcat wells in the PSC-Area A to be drilled in July 2005.

Mauritania and its people need to reclaim their sovereign rights to decide on its own priorities, the destiny of their natural resources and their own development path.

9. PROPOSAL FOR A MORATORIUM ON OIL ACTIVITIES IN MAURITANIA

The moratorium is a legal instrument commonly used in national and international law. It provides a prudent period of time during which the State and non-governmental, local or international bodies agree to analyze, evaluate or assess the social, economic or environmental advantages and disadvantages of past, current and future productive endeavors.

The analysis should ensure the protection of the environment; guarantee the exercise of human rights; or the adequate and fair redistribution of richness. Should the findings of the analysis be negative, it should strive to help find options to solve the problems, i.e., find other forms of development.

The people of Mauritania could make an analysis of what means a new development based on hydrocarbon activities. Experiences in other countries have demonstrated that this type of development only leads to more poverty, environmental destruction and violation of human rights, among other social, economic and environmental impacts.

For these reasons, other States have decided to impose a moratorium on oil activities in their coastlines. For example Costa Rica; they depend on tourism and its fishermen believe that oil activities are going to destroy their ways of life and their means of survival. The people of Mauritania could do the same, both at a governmental level and at local community level, applying the precautionary principle as well as the innumerable international conventions of which their country is a State Party.

9.1 Moratorium and Debt

Many times the countries of the South have been forced to adopt a primarily exporting model to service their foreign debt, to sustain a dependent economic policy model and to satisfy the growing demand for resources from the countries in the North.

With the implementation of this model, more resources are exported but the consequences are the loss of the natural wealth and environmental destruction, and the abandonment of sustainable activities like tourism, agriculture or fisheries. Furthermore, the income generated by the exported goods is less.

The extraction and consumption of natural resources and its impacts, the production styles, and an unequal exchange, among other factors, create an ecologic debt where the North becomes creditor of the South.

A moratorium on the extraction of resources for exportation, like fossil fuels, will guarantee global and local non-pollution, and on the other hand will force local, regional (or national) governments to empower sustainable activities, favoring conservation and local development.

A moratorium on new hydrocarbon projects will contribute to strengthen the criticism on the ineffective and unfair economic model, to stop the destruction of our forests, agricultural lands, seas, and other fragile ecosystems. This proposal will also contribute to stop the pillaging and cheap sale of our natural resources, and to stop pollution and the diseases associated with it.

With the imposition of a moratorium to new gas and oil extraction projects, we will stop the impunity of the companies and the corruption within the subdued governments. Finally, it is a contribution that will help break the vicious circle of the foreign debt and will put an end to the total disrespect of the rights of the peoples. In order for the moratorium to be feasible, the people must demand greater citizen participation in the use and management of the natural resources.

The moratorium proposal allows countries to:

- Seek new development options where national production and internal consumption are promoted.

- Respect the rights of the land and the sea owners, who have declared that they do not want their lands to be sacrificed.
- Prevent pollution and the destruction of the forests.
- Prevent an increase of the foreign debt, because it is normal to see that the countries that become fossil fuel exporters acquire a larger foreign debt. For example, when Ecuador became an oil-exporter country it multiplied its foreign debt twenty-fold. Indebtedness is also caused by the acquisition of credits for infrastructure, many times linked to oil activities.

The moratorium opens the road to demand the payment of the ecologic debt incurred by developed countries, which are indebted due to the pillaging of our resources, an unequal exchange, and the damages caused.

Paired with the above, the organized countries of the South who are facing oil activities and a growing foreign debt should demand audits on the foreign debt and investigations on the relationship between the indebtedness and the extraction of gas or oil. This will help us determine which companies have benefited, directly or indirectly, from the indebtedness spiral.

9.2 Moratorium and Biodiversity Conservation

The imposition of a moratorium to new extraction projects along the coastline of Mauritania is feasible, not only through the application of the precautionary principle but also based on the features of the protected areas of Mauritania and its ecological importance from a global point of view, and its economic and social importance from a national point of view.

The people of Mauritania could request the analysis of the economic opportunities provided by tourism and scientific research to the Banc D'Arguin National Park.

On the other hand, the inhabitants of the BANP depend directly on the fisheries and the tourism in their coasts; therefore any accident could mean the destruction of the environment and the small fishing economies of the country.

The organizations that work for the conservation and tourism in Mauritania should consider the possibility of supporting the proposed moratorium in the coasts of Mauritania, and specifically on the activities that directly affect the BANP as well as other protected areas in the country.

The incompatibility of conservation, tourism and fisheries with oil activities is quite evident. There can never be sustainable development in Mauritania if oil activities continue in the coastline.

This reality should be perceived in the long term. In about 10 years, the oil beneath the coasts of Mauritania will be depleted, and with it the short-term

economic benefits that it could generate. However, the impacts left behind will last forever.

If measures are taken to preserve biodiversity in the coasts of Mauritania, in the future the BANP will be one of the few places in the world where scientists and eco-tourists will be able to observe hundreds of bird species and other unique animal species in the world. In addition, if the species and habitats of the BANP are adequately protected, the park would be a long-term economic source for the Imraguen and all the fishermen that depend on Mauritania's marine wealth.

9.3 An Eco-Logical Petition For The Banc D'Arguin National Park

We could make a proposal that goes beyond the imposition of a moratorium that would unite the objectives to preserve biodiversity in protected areas with those related to mitigating climate change and defending the rights of the indigenous populations.

This proposal aims to leave the carbon from fossil fuels sequestered in the sub-surface of Mauritania's coasts, applying the provisions of the Framework Convention on Climate Change and other international conventions, like the Convention on Biological Diversity, through the declaration of a moratorium.

The proposal would try to make those countries who have accepted not to release any more CO₂ emissions pay those countries that have decided not to place their oil resources in the market, with donations and the cancellation of foreign debts.

The proposal would have local, national and global benefits. It would coherently articulate the global objectives for the conservation and the protection of economic, social, cultural, environmental and collective rights; it would relieve the foreign debt and would help mitigate climate change. The proposal would prevent new CO₂ emissions from reaching the atmosphere, which is beneficial for all humanity; and at the same time it would guarantee the conservation of the Imraguen culture and the biodiversity of a world heritage site like BANP.

An indirect effect would be the reduction of the pressures caused by the foreign debt service, freeing funds in the national budget to cover social expenditures and the governments would have fresh resources for their current accounts. This proposal disagrees with the proposal made by the G8 to forgive foreign debt (analyzed previously in this document).

This proposal does not imply the commercialization of life, nor a charge for environmental services, and it would not generate any type of right of property or use on the project's area. It is totally different from those proposals that have been questioned by the communities because they denote the loss of sovereign rights.

There is also the international initiative, submitted by several foundations and political sectors, to assign funds that will support this type of initiative because this is an effective way to reduce greenhouse gas emissions, especially CO₂.

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- Afrol News. <http://www.afrol.com/countries/mauritania>
- WWF. http://www.panda.org/about_wwf/where_we_work/africa/where/western_africa/mauritania/index.cfm
- IUCN. www.iucn.org
- www.lemondediplomatique.org

- FIBA
- Web pages for the following companies:
 - Woodside Group (Australia)
 - Hardman Group (Australia) ex-Brimax
 - BG Exploration and Production (member of Great Britain's British Gas Group)
 - Premier Group (Great Britain)
 - Sterling Energy (Great Britain) ex-Fusion Oil
 - Roc Oil Group (Australia)
 - Dana Petroleum (Great Britain)
 - Energy Africa (Great Britain) – subsidiary of Tullow Oil
 - Petronas Carigali (Malaysia)

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12. ANNEXES

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Annex 3.	Conventions and Agreements signed and ratified by Mauritania

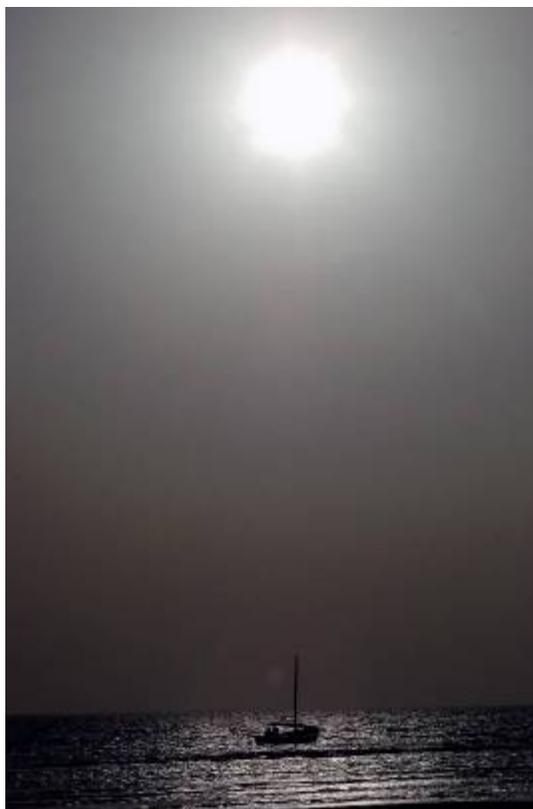


Photo 15: Banc D'Arguin National Park (Iñigo Azcona)

ANNEX 1

Table 3: OIL ACTIVITIES IN MAURITANIA

COMPANIES	PSC* - A			PSC – B		PSC – C				
	Block 5 Superficial waters	Block 4 Superficial waters (Chinguetti-Banda Field, Well MTO 3)	Block 3 (Wells MTO 1 and 2 and Lobo de Mar)	Block 4 Deep waters (Chinguetti, Tiof and Tevet Fields and Wells Capitaine 1, Merou 1, Courbine 1)	Block 5 Deep waters	Block 1 (Well Autruche 1)	Block 2 Well Dorade 1	Block 6 (Wells Thon, OCT 2 and OCT 1B)	Block 7 Pelican 1	Block 8
Woodside Group (Australia) Bought AGIP Mauritania (now WEL)	Stakeholder	Operator	Stakeholder	Operator	Stakeholder		Operator	Operator	Stakeholder	
Hardman Group (Australia) ex-Brimax	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder
BG Exploration and production (member of Britain's British Gas Group)	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder					
Premier Group (Great Britain)				Stakeholder	Stakeholder					
Sterling Energy (ex-Fusion Oil) (Great Britain)	Stakeholder		Stakeholder							
Roc Oil Group (Australia)	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder	Stakeholder
Dana Petroleum (Great Britain)						Operator			Stakeholder	Stakeholder
Energy Africa (subsidiary of Tullow Oil – Great Britain)						Stakeholder	Stakeholder			
Petronas Carigali								Stakeholder		

ANNEX 2

Table 4: SOCIAL INDICATORS IN MAURITANIA

Total population (in thousands)	2,830	
Population density (p/Km ²)	2.6	
IDH (of 177)	152	
Life expectancy at birth (years)	52	
Literacy level among adults (% of ≥ 15 years)	Total	41
	Women	31
	Men	52
Registration rate in schools and universities (%)	44	
% of population that lives with less than US\$ 2.00	68.7%	
Gini coefficient (from 0 to 100 as the most unequal)	37	
Expenditure in health	2.6% of GDP	
Expenditure in education	3.6% of GDP	
NATURAL ECOSYSTEMS AND BIODIVERSITY⁶		
Coastline (Km)	1,268	
% of population in 100 Km of coastline	44	
Total number of shoreline protected areas	5	
Wetlands of international importance (Km ²) (# 2)	12,156	
Number of species of mammals registered	61	
Number of species of mammals threatened	10	
Number of species of birds registered	172	
Number of species of reptiles registered		
Number of mangrove species	3	
Number of species of sea grass beds	1	
Number of species of superior plants	1,100	
Number of species of known fish	117	
FISHERIES INDICATORS		
Average fisheries catch per year (metric tons)	Fish	33,076
	Mollusks and Crustaceans	24,055
Consumption of sea products per capita (Kg/per)	9	
Fisheries products exported per year (in thousands of US\$)	73,736	
Fisheries products imported per year (in thousands of US\$)	661	
Direct fisheries jobs (year 2000)	7,944	

⁶ www.earthtrends.wri.org

ENERGY AND CO2 EMISSIONS	
Total emissions in 1999 (thousands of metric tons of CO2)	2,916
CO2 emissions per capita (thousands of metric tons of CO2)	1.1
PUBLIC FINANCES	
GDP per capita (in US\$)	2,220
GDP in 2002 (in millions of US\$)	6,282
2000 Foreign debt (in millions of US\$)	2,462
Foreign debt service with respect to exports	22%
Foreign debt service with respect to GDP	6.6%

ANNEX 3

AGREEMENTS AND CONVENTIONS SIGNED AND RATIFIED BY MAURITANIA

List of International Agreements and Conventions of which Mauritania is a State Party:

1. Agreement establishing the African Development Bank (Khartoum, 1963).
2. Agreement for the Establishment for Arab Centre for the Studies of Dry and Barren Land (Strasbourg, 1968).
3. Agreement for the Establishment of a Commission for Controlling the Desert Locust in North-West Africa (Rome, 1970).
4. Agreement of the International Bank for Reconstruction and Development (Bretton Woods, 1944).
5. Agreement of the International Monetary Fund (Bretton Woods, 1944).
6. Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (New York, 1994).
7. Articles of Agreement of the International Development Association (Washington, 1960).
8. Articles of Association of the establishment of an Economic Community of West Africa (Accra, 1967).
9. Charter of the Organization of African Unity (Addis Ababa, 1963).
10. Charter of the United Nations (San Francisco, 1945).
11. Constitution of the Food and Agriculture Organization of the United Nations (Quebec, 1945).
12. Constitution of the International Labour Organisation (Versailles, 1919).
13. Constitution of the United Nations Educational Scientific and Cultural Organization (London, 1945).
14. Constitution of the United Nations Industrial Development Organization (Vienna, 1979).
15. Constitution of the World Health Organization (New York, 1946).
16. Convention for the Protection of the World Cultural and Natural Heritage (Paris, 1972).
17. Convention establishing a Permanent Inter-State Drought Control Committee for the Sahel (Ouagadougou, 1973).
18. Convention for the Protection of the Ozone Layer (Vienna, 1985).
19. Convention of the World Meteorological Organization (Washington, 1947).
20. Convention on Biological Diversity (Rio de Janeiro, 1992).
21. Convention on International Civil Aviation Annex 16 – Aircraft Noise (Chicago, 1944).
22. Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973).
23. Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971).

24. Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979).
25. Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel, 1989).
26. Convention on the International Maritime Organization (Geneva, 1948).
27. Convention on the International Regulations for Preventing Collisions at Sea (London, 1972).
28. Convention on the Prohibition of the Development Prod. and their Destruction (Paris, 1993).
29. General Agreement on Tariffs and Trade (Geneva, 1947).
30. International Agreement for the Creation of an International Office for dealing with Contagious Diseases of Animals at Paris (Paris, 1924).
31. International Convention for the Prevention of Pollution from Ships (MARPOL) – Annex IV (Optional): Sewage (London, 1978).
32. International Convention for the Prevention of Pollution from Ships (MARPOL) – Annex V (Optional): Garbage (London, 1973).
33. International Convention for the Prevention of Pollution from Ships Hazardous substances carried in packaged form (London, 1978).
34. International Convention for the Safety of Life at Sea (London, 1960).
35. International Convention for the Safety of Life at Sea (SOLAS) (London, 1974).
36. International Convention on Certain Rules concerning Civil Jurisdiction in Matters of Collision (Brussels, 1952).
37. International Convention on Civil Liability for Oil Pollution Damage (Brussels, 1969).
38. International Convention on Standards of Training Certification and Watchkeeping for Seafarers (London, 1978).
39. International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (Brussels, 1969).
40. International Convention to Combat Desertification in those Countries Experiencing Serious Drought and or Desertification (Paris, 1994).
41. Protocol Additional to the Geneva Conventions of 12 August 1949 and relating to the Protection of Victims of International Armed Conflicts (Protocol I) (Bern, 1977).
42. Protocol Additional to the Geneva Conventions relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II) (Bern, 1977).
43. Protocol on Substances that Deplete the Ozone Layer (Montreal, 1987).
44. Protocol relating to Intervention on the High Seas in Cases of Pollution Substances other than Oil (London, 1973).
45. Protocol relating to the International Convention for the Safety of Life at Sea (SOLAS Protection) (London, 1978).
46. Protocol to amend the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Paris, 1982).
47. Protocol to the International Convention on Civil Liability for Oil Pollution Damage (London, 1976).
48. The African Nuclear-Weapon-Free Zone Treaty (Cairo, 1996).

49. Treaty Banning Nuclear Weapon Tests in the Atmosphere Outer Space and under Water (Washington, 1963).
50. Treaty on the Non-Proliferation of Nuclear Weapons (Washington, 1968).
51. United Nations Convention on the Law of the Sea (Montego Bay, 1982).
52. United Nations Framework Convention on Climate Change (New York, 1992).

List of Agreements and Conventions where Mauritania is a Signatory:

1. African Convention on the Conservation of Nature and Natural Resources (Algiers, 1968).
2. Agreement for the Establishment of the Near East Plant Protection Organization (Rabat, 1993).
3. Agreement for the Implementation of the provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York, 1995).
4. Comprehensive Nuclear Test-Ban Treaty (New York, 1996).
5. Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan, 1981).
6. Convention on fisheries cooperation among African States bordering the Atlantic Ocean (Dakar, 1991).
7. Convention on the Prohibition of the Use Production and Transfer of Anti-Personnel Mines and on their Destruction (Oslo, 1997).
8. Fourth ACP-EEC Convention (Lome, 1989).
9. Protocol concerning Co-operation in combating Pollution in cases of Emergency (Abidjan, 1981).
10. Statutes of the International Centre for Genetic Engineering and Biotechnology (Madrid, 1983).
11. Third ACP-EEC Convention (Lome, 1984).
12. Treaty Establishing the African Economic Community (Abuja, Nigeria, 1991).

NOTE: Mauritania has not signed ILO's Convention 169 or the Kyoto Protocol.