

## LIBERIA

### Protected Areas

The different protected areas of Liberia are defined in the Forestry Law of 2006:

- national park
- strict nature reserve
- nature reserve
- national forest
- Game reserve

According to WDPA data, Liberia has only one national park (Sapo National Park), the other known protected areas being national forests, including the Liberian part of Mount Nimba. The other types of protected area do not feature in the database.

In Sections 8 and 9, the forestry law explicitly stipulates the activities that are allowed and those that are prohibited in the different protected areas. Mining activities, whether prospecting or exploitation, are clearly prohibited:

*“No Person shall:*

- (i) In a Strict Nature Reserve, pursue activities other than Conservation management and research.*
- (ii) In a National Park, Nature Reserve, or Game Reserve, prospect, mine, farm, hunt, fish, extract Timber or non-timber Forest Products, or take any other action except those for management or non-consumptive uses, such as tourism, recreation, and research.*
- (iii) In Communal Forests, prospect, mine, farm, or extract Timber for Commercial Use.*
- (iv) In Cultural Sites, prospect, mine, farm, hunt, or extract Timber or non-timber Forest Products.*
- (v) In a National Forest, prospect for minerals, undertake Class B or C mining, or farm.*
- (vi) In a Multiple Sustainable Use Reserve, farm or extract Timber for Commercial Use”.*

*“The Government shall not grant Class B or Class C Mineral Rights in Protected Areas or Proposed Protected Areas.*

*The Government shall not grant Class A Mineral Rights in National Forests or Proposed Protected Areas unless:*

- (i) The Authority has concurred with the grant;*
- (ii) The Authority has written appropriate guidelines for maximum protection of the Environment and sustainable management of the forest during exercise of the grant;*
- (iii) Compliance with the guidelines is a condition of the grant”.*

### Environmental Impact Assessments in the Extractive industries

Under the mining law, an EIA is compulsory for a licence to operate large and medium-sized mines (Class A and B). Oil contracts are also subject to an EIA and furthermore, it is stipulated that no work can be carried out in a protected area:

**Section 9.2 – Restricted Use of Land:** *Except in cases of special authorization, the holder of a petroleum contract may not occupy nor carry on construction or execute any petroleum operations on any of the following parcels of land:*

- Land located less than fifty meters from any building whether religious or not, Governmental building, or those in use by a public entity, walled enclosures, court and gardens, residence and groups or residences, villages, settlements, cultural reserves, burial grounds, wells, water*

*sources, reservoirs, roads, paths, railroads, water drains, pipelines, work declared to the of public interests and works of art.*

*- Land located less than one thousand (1,000) meters from a foreign border or any airport.*

*- **Land declared by the State as national parks, protected areas, or comparable Reserves.***

The Environmental Protection Agency (EPA) also specifies that no authority may grant authorisation for an activity subject to an impact assessment until the “Environmental Permit” has been conferred by the EPA.

## **Mining Activity**

Very little mining data could be obtained for Liberia. The country has gold, diamond and bauxite resources and it is a mineral and oil producer.

Mining revenues for 2009 were estimated at \$US10 million and oil revenues at \$US4.5 million.

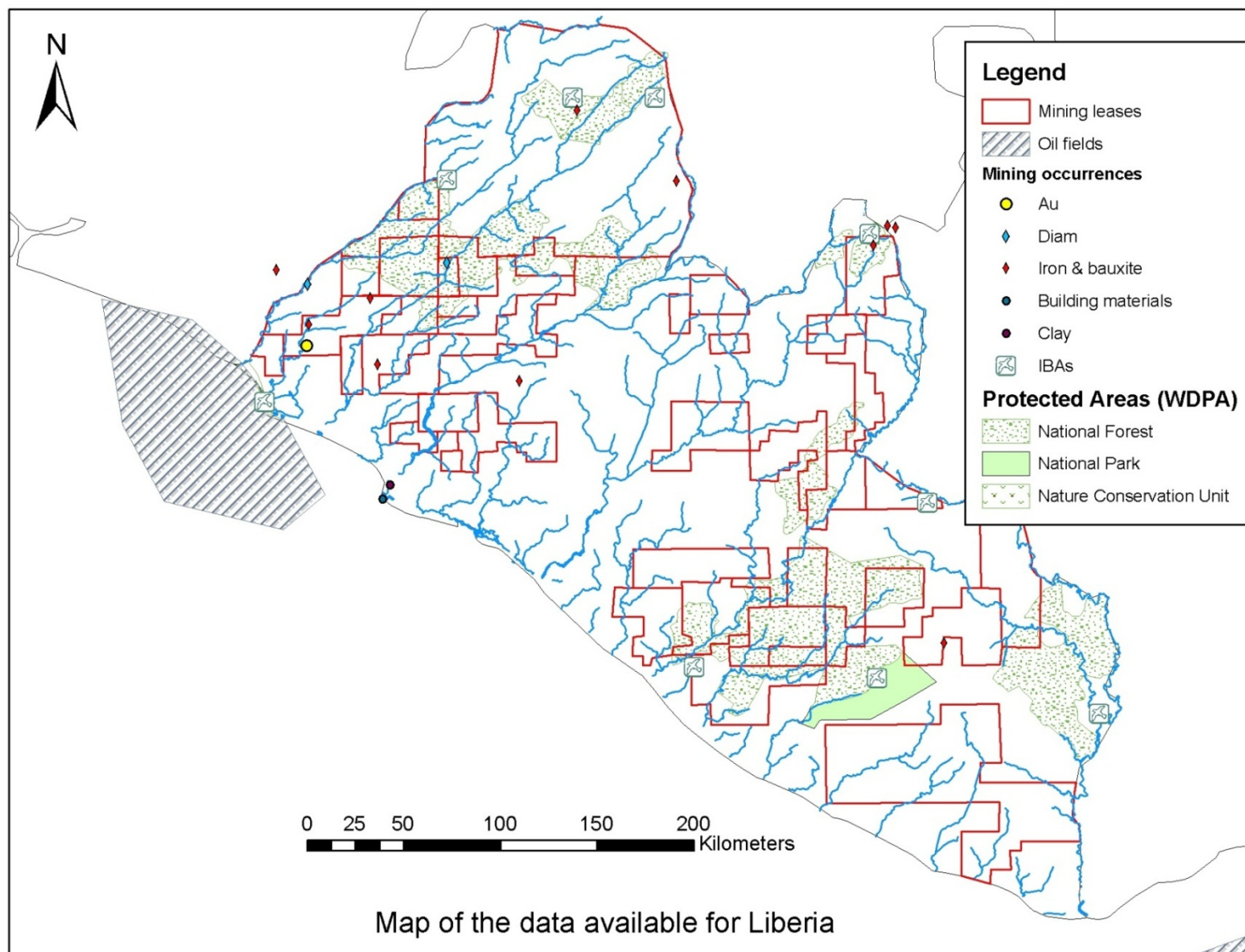
Only a recent map of mining licences could be obtained, which does not specify the minerals or the type of licence.

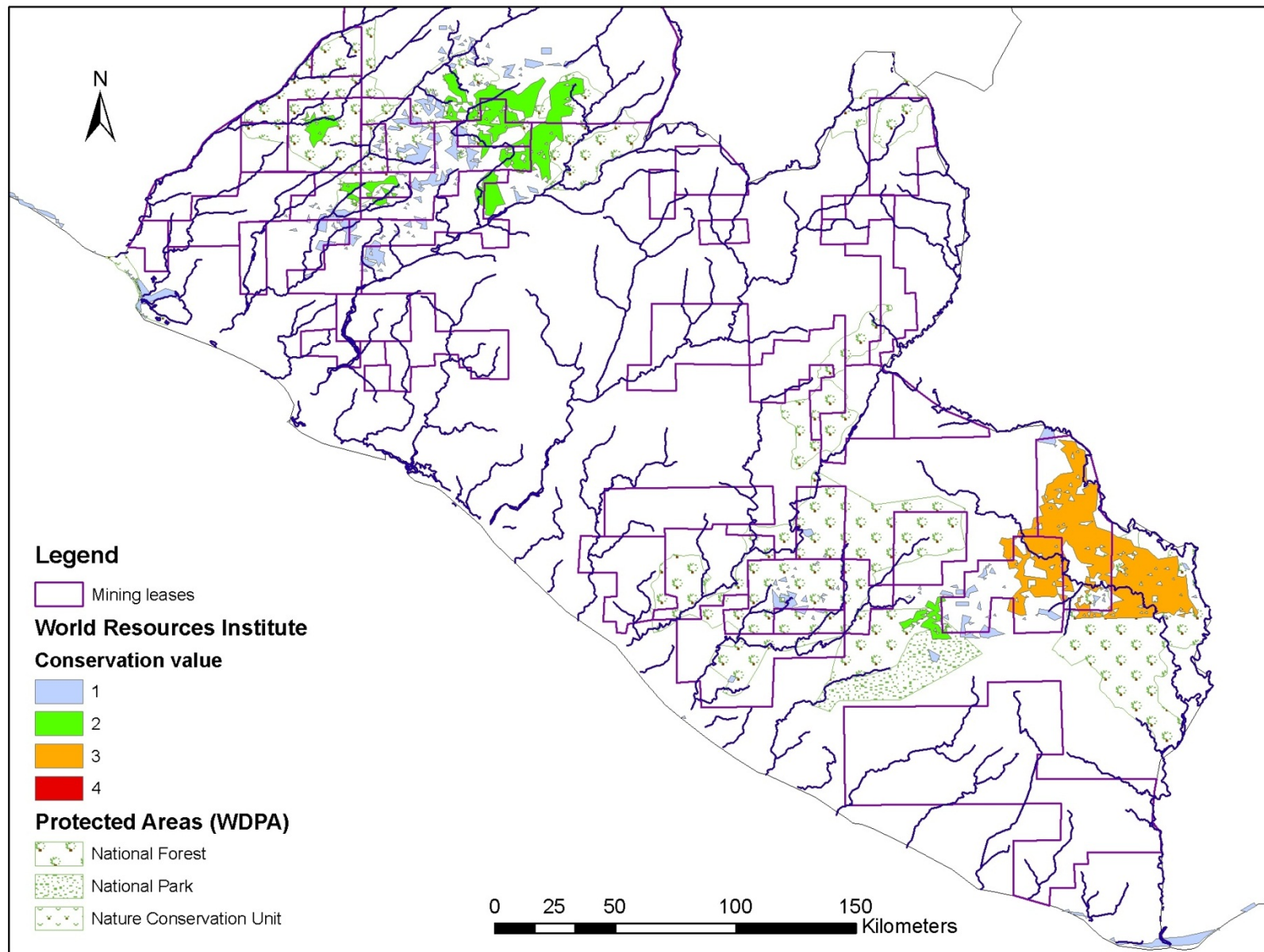
However, this map does show that 48% of the country is covered by mining licences and that all national forests to the north-west and centre of the country are covered by mining permits, which in theory is an infringement on the regulations mentioned above. Sapo national park however is preserved from mining activities.

Piso IBA is clearly threatened by the nearby oil field.

No data could be obtained on artisanal gold and diamond mining, but they are both very developed in Liberia and it is highly probable that they affect various protected areas.

As Liberia is the country with the highest “conservation value” according to the WRI, areas of high value are also on the second map. This demonstrates both that the protected areas are not aligned with areas of high biodiversity and that mining licences have been granted in areas that this organisation deems to be among the richest in West Africa.





## References

- Mining Act
- Forestry development authority Act
- Environmental Protection Agency Act
- Forestry Act

## Protected Areas

*“Guinea Conakry has a large number of protected areas. A project to build a Guinean protected area network encompasses 43 sites representing the country’s major ecosystem groups. However, often these sites are designated as protected areas but do not have the appropriate legal status and benefit from minimal protection. Legally designated protected areas include Badiar National Park, Upper Niger National Park, the strict nature reserve of the Ziama mountain range<sup>1</sup>, the strict nature reserve of Mount Nimba, Loos island wildlife sanctuary, Kankan-Folonigb wildlife reserve, Kounoukan nature reserve<sup>2</sup> and Pinséli nature reserve” (Cuq, 2008).*

The IUCN documents also refer to Kouya National Park which, according to WDPA data corresponds to the classified forest of Gban. The data are not clear as to whether or not it is integrated into the National Park of the Upper Niger (WDPA only considers Mafou forest as a national park). In light of this uncertainty and to better highlight the potential threats to this sector, the maps below consider both Mafou forest and that of Gban as national parks and the peripheral areas as wildlife and nature reserves, even if this does not strictly correspond to their official classification.

Regarding Ramsar Convention site, the same study (Cuq, 2008) states:

*“Ramsar Convention sites recognised as wetlands of international importance does not have a legal status at national level. Furthermore, Tristao and Alcatraz islands are not yet officially protected but a project is underway to classify them as a marine protected area.”*

One of the difficulties encountered in Guinea is the fact that certain protected areas are specified in the law on wildlife protection (as is the case in particular for national parks and strict nature reserves), others in the forestry law (classified forests).

The status of the national parks (wildlife protection act) prohibits in particular *“all forestry exploitation, agriculture, fishing, fish farming and mining, grazing of domestic animals, exploration or prospecting, surveys, landscaping or construction and in general any work that may modify the land or the vegetation”*. The same applies to strict nature reserves in which the following are strictly forbidden: *“all types of hunting or fishing, all forestry exploitation, agriculture, fishing, fish farming and mining, grazing of domestic animals, exploration or prospecting, surveys, landscaping or construction and in general any work that may modify the land or the vegetation, all pollution of waterways, the introduction of exotic animal or plant species and, in general, any act that may harm or disturb the flora and fauna”*.

Regarding classified forests, the forestry law stipulates in Article 80 that *“Prospecting or the operation of quarries or mines, the construction of roads and railways envisaged in forest areas require approval by the ministry for forests as well as, if necessary, a timber felling or clearance permit.”*

Mining activities are therefore explicitly mentioned for different types of protected area.

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1 According to WDPA data, Ziama is considered to be a classified forest, not a strict nature reserve.

2 The boundaries for these two reserves are not specified in the WDPA.



## The Law on the Environment

The main articles of the law on the environment concerning mining activities are the following:

*Article 19: The Ministry concerned and the ministerial authority responsible for the environment must give their prior approval for any attribution or development of land for agricultural, industrial, urban or other purposes, **as well as for prospecting or mining of underground resources** liable to affect the Guinean environment in the cases set forth in the associated by-laws. These by-laws set the conditions for granting the authorisation as well as the list of activities or uses which, due to the dangers they incur for the soil, subsoil or the resources contained within, must be forbidden or subject to specific constraints set by the administration.*

*Article 20: In application of Article 121 of “ordonnance” 076/PRG of 21 March 1986 on mining in the Republic of Guinea, **the quarry or mining licence holder must establish a plan to restore the land for agriculture or reforestation, subject to the prior joint approval of the Minister for Mines and the ministerial authority for the Environment.***

*When necessary to maintain an ecological balance, all areas of wood or forests, regardless of who owns them, can be classified as protected forests, thus prohibiting any change in attribution or occupation of the land that could compromise the quality of the timber and stipulating the conditions for using said forest.*

*Article 82: When developments, structures or installations, due to their size, the type of activities carried out there or their impact on the surrounding milieu, risk harming the environment, the applicant or project promoter will carry out and submit to the ministerial authority responsible for the environment an environmental impact assessment enabling the direct or indirect impact of the project on the Guinean ecological balance to be evaluated, as well as the context and quality of life for the local communities and the consequences on environmental protection in general.*

*Article 83: On the basis of the report drawn up by the National Environment Council:*

- *A by-law to this law sets the list of the different operational categories for which the ministerial authority for the environment may require an impact assessment to be carried out prior to the implementation of any activities.*
- *A by-law passed by the ministerial authority responsible for the environment may stipulate the content, the methodology and the procedure to be used for the impact assessment. The document submitted to the administration must contain the following:*
  - *An analysis of the baseline situation at the site and its environment,*
  - *An assessment of the foreseeable consequences of the implementation of the project on the site and its natural and human environment,*
  - *A list of the measures envisaged by the applicant to eliminate, reduce and if possible compensate for the damage caused by the project on the environment and an estimation of corresponding costs,*
  - *A presentation of other possible solutions and reasons why the project is being presented from an environmental protection viewpoint.*

## Forestry Law

The Forestry Law is fairly explicit as to the actions that are banned in the different protected areas:

**Article 80:** *Prospecting, **quarrying or mining**, road and railway construction planned in forest areas must be authorised by the Ministry in charge of forests and must include, if appropriate, a timber felling or clearance permit.*

*This authorisation determines the measures the beneficiary must take to protect and restore the environment in compliance with the provisions of the present Law.*

**Article 96:** *unless there are exceptional circumstances, specially protected areas such as a national park or nature reserve, and reforestation areas **are exempt from all usage rights.***

## Mining Law

The current mining law dates from 1995, although it appears that a new mining law is being prepared for 2011. No indication as to the modifications that will be made could be obtained.

Unlike the forestry law, the mining law remains vague about environmental conditions and protected areas. The “protected areas” mentioned in Article 64 could be nature conservation areas but it would appear that the article has never really been applied.

### *Article 16: Protection of the environment*

*Mining or quarrying activities must be carried out in such a way as to ensure the environment is protected in compliance with the law on the Environment. Companies must take the necessary measures to prevent pollution of the environment, to process waste, discharges and effluents, and to preserve the forest heritage and water resources.*

### *Article 6: Protected or prohibited areas*

*Areas of any given size within which reconnaissance, prospecting and exploitation of mineral substances or quarries can be subject to certain conditions or prohibited without the licence holder being able to claim any indemnities can be established to protect buildings and agglomerations, cultural sites or sites of worship, water sources, roads, works of art and public works, and all locations where it will be deemed necessary in the general public interest.*

## Geological and Mining Situation

Guinea is “the” mining country of West Africa, with the largest world reserves of iron ore and bauxite, but also gold and diamond deposits. As can be seen on the map (the data on the mining licences date from the beginning of 2010), more than 80% of the country is covered by mining licences (only the permits for iron ore, bauxite and gold were taken into account, the remaining data was not available at the time of the study): bauxite takes up the whole western half of the country, while the other half is divided into two: in the north are the gold permits, in the south those for iron ore.

## Mining pressure on the environment

Given the extent of the mining licences, pressure on the environment is unavoidable. The following points can be noted:

1. The classified forests are all, with one or two exceptions, covered by gold, iron-ore or bauxite mining licences. Even if the forestry law does not prohibit exploration (it only bans mining), any discovery of a deposit would cause considerable damage to these classified forests.
2. In the strict definition of national parks, i.e. the boundaries of what was Mafou classified forest and the strict boundary of Badiar park, mining is prohibited. However, the extended boundaries of the Upper Niger and Mafou parks are partly covered by iron ore and/or bauxite permits.



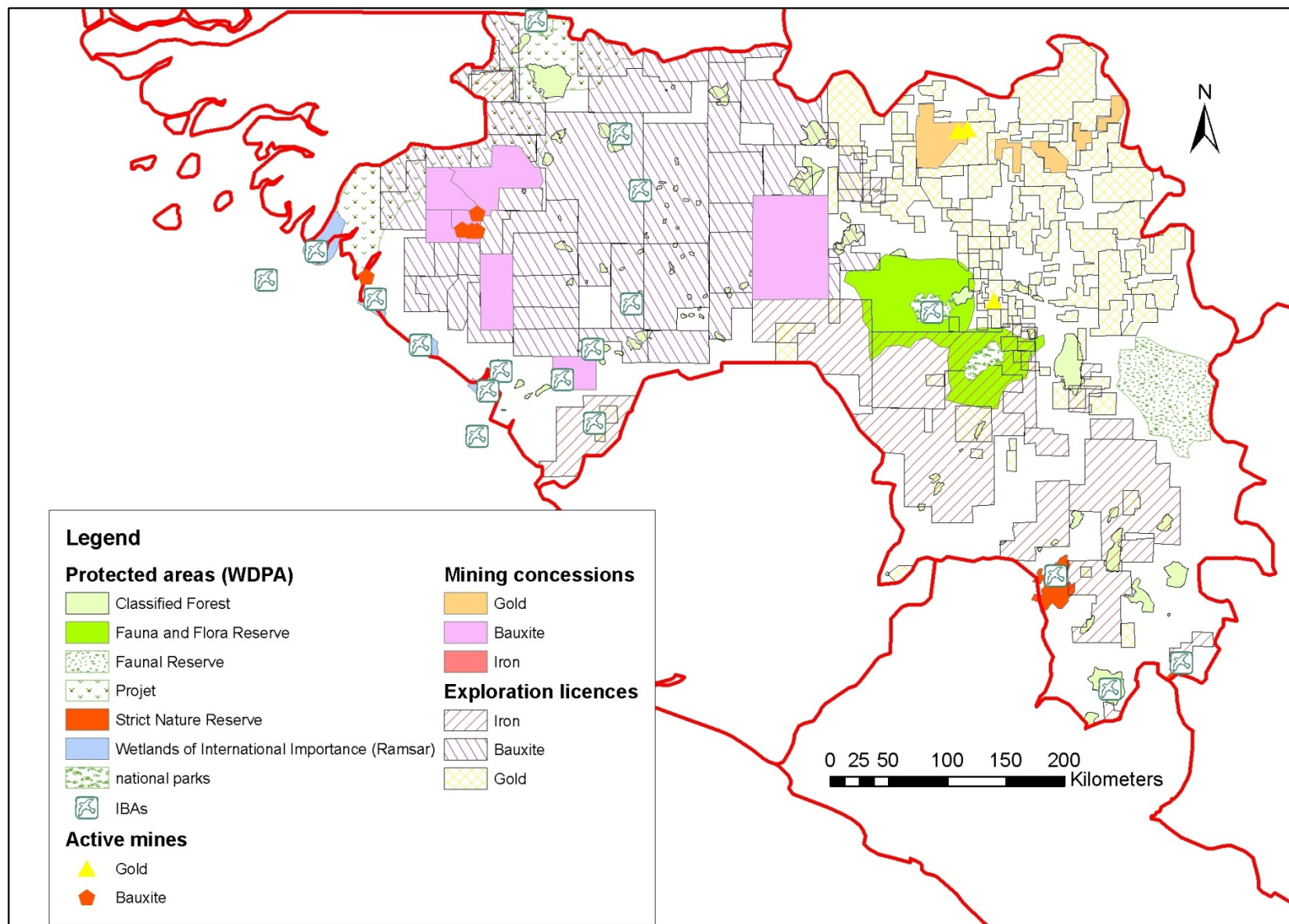
3. Kankan – Folonigbé wildlife reserve is surrounded by permits but is entirely protected, as are the strict wildlife reserves of Ziama and Mount Nimba,
4. The planned boundaries for the large protected area projects of Rio Kogon and Bafing Falémé encompass many mining exploration licences and even exploitation licences that are currently valid,
5. The case of Mount Nimba is particular: the whole of the Mount Nimba range spans the borders between Guinea, Ivory Coast and Liberia. Mount Nimba constitutes an exceptional wildlife reserve, with endemic species such as the Western Nimba toad (*Nimbaphrynoides occidentalis*), and the the Nimba otter shrew (*Micropotamogale lamottei*). This mountain range due to their altitude, have a recognised impact on the weather. This border zone is also politically sensitive because many Liberians took refuge here. Finally, the mountains offer great mineral wealth with an iron ore deposit of than one billion tonnes at a concentration of 65%. Located on the other side of the country from the port of Conakry, 100km of railway line will need to be built to extract this ore and the current mineral port will need to be completely redesigned. In total, the project would create 5 000 direct jobs and more than 100 000 indirect jobs. The other alternative would be to extract the ore via Liberia where a railway already exists (used for iron ore on the Liberia side). Planned since 1970, this project is an example of the political power plays between politicians, mining companies and environmental protectionists. The first stone of the Trans-Guinean railway should be laid in March 2011.

## References

- Law on environmental protection and promotion: *ordonnances* 045/PRG/87 and 022/PRG/89
- Forestry Law: L/99/013/AN
- Law on the protection of wildlife and regulation of hunting: L/99/038/AN
- Mining Law: L/95/036/CTRN

## Other bibliographical references

- M. Cuq (2008) - *Analyse comparée des cadres juridiques relatifs aux Aires Protégées des zones côtières et marines des pays du PRCM – Rapport Final RAMPAO*.
- *Plan d'action national pour la conservation des Chimpanzés en Guinée – 2005* – Direction Nationale des Eaux et Forêts, GRASP project.



## GUINEA-BISSAU

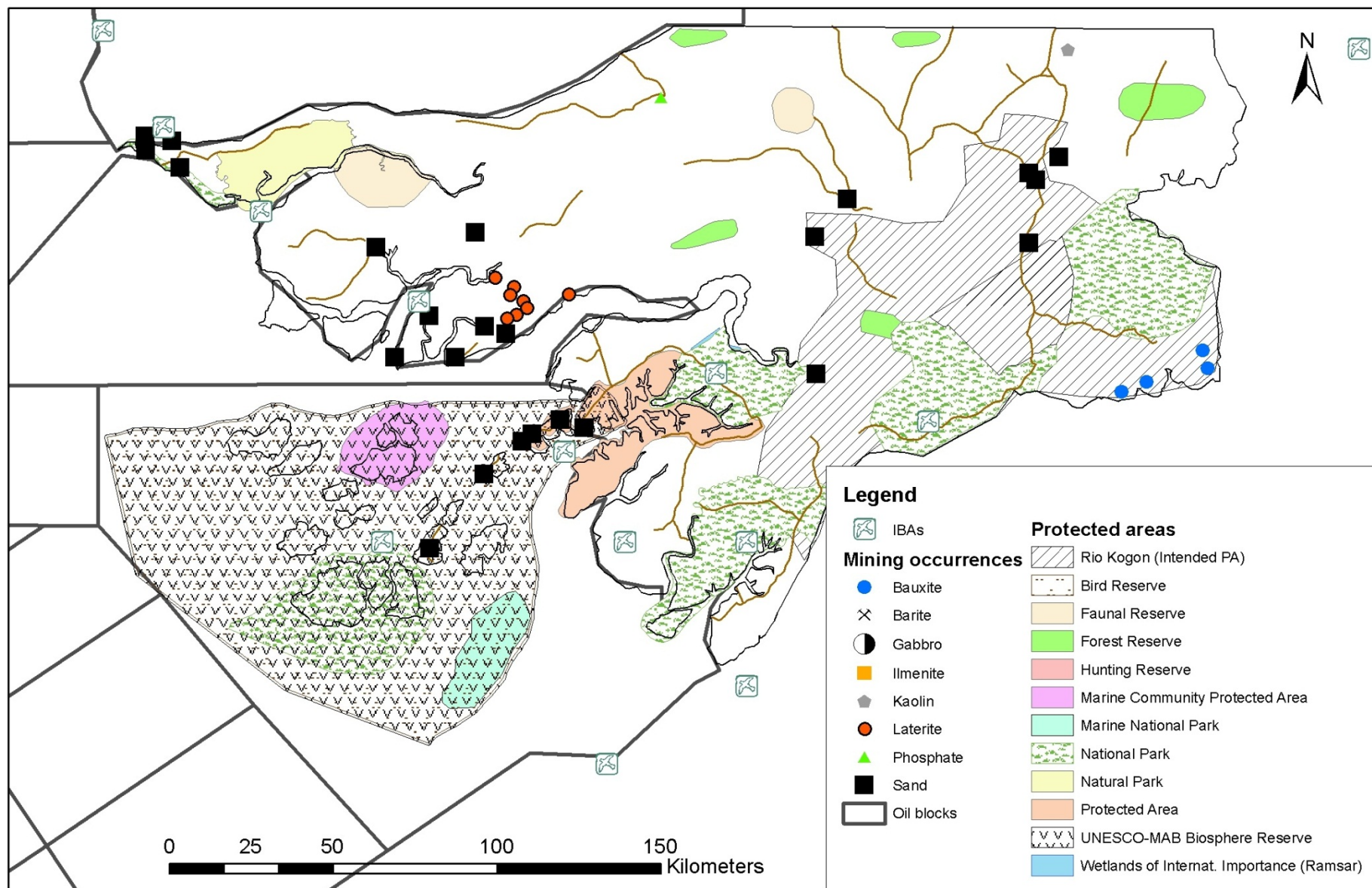
Guinea-Bissau is not a mining country and virtually no mining licences have been granted.

The laws on mining and the oil industry were reviewed in 2009 (UNDP project), but they would not yet appear to have been officially adopted. The main modifications brought by the new texts concern the protection of the environment, strengthening of EIAs and the obligation to have an “environmental permit”.

Although there is not a mining tradition in Guinea-Bissau, two extractive activities could pose a threat to the environment and protected areas:

1. The extraction of sand and shell sand either not far from Bissau to provide sand for construction, or in the Bijagos archipelago (shells used for improving soil fertility or as an ingredient in cement). These are small-scale operations but they directly affect coastal areas and wetlands. Locally, some quarries are seen to help keep waterways clear in certain coastal rivers that tend to silt up.
2. The existence of a phosphate district in the east of the country, along the border with Guinea. These phosphates have been known about for a long time and several projects to mine them have been examined. Overall, a mining port would have to be built at Buba (upstream of the estuary of the Rio Grande de Buba), and connected to the deposits either by road or railway. For Guinea-Bissau, this is the most viable solution for exporting the ore. They cannot yet export via Guinea (unless Guinea builds a railway to the equivalent deposits on its side of the border) and the Senegalese mining port is too far away. However the problem is two-fold:
  - a) The deposits are located within the boundaries of the transboundary protected area project of Rio Kogon
  - b) The planned port would be located in the Rio Grande de Buba protected area, not far from Cufada National Park.

This situation is far from simple: on the one hand Guinea-Bissau is one of the “good students” in terms of the extent of their protected areas and does not plan to sacrifice any for mining projects. On the other hand, the primary resource that could bring the country out of its deep economic stagnation is phosphate. In light of the still relatively intact area of Guinea-Bissau, those who defend the mining project propose to modify in particular the boundaries of the Rio Kogon transboundary protected area project. Another alternative could be cooperation with Guinea which also has mining development projects planned on its side of the border. An overall EIA of both options is needed to be able to really estimate the comparative advantages and disadvantages.



## MAURITANIA

Mauritania is a special case in terms of mining: iron ore was the only mineral resource in the country for a long time, controlled by the National Mining Industry Company (French acronym SNIM). It was not until 2005 that oil replaced iron ore in export revenues and since 2007 the gold sector has been making considerable headway with the Tasiast mine.

### Forestry Law (1997)

The forestry law only mentions classified forests. The only explicit bans are on growing crops and grazing animals, “*unless stipulated otherwise in a development plan*”. No development plans could be obtained to find out if other activities were mentioned.

Article 17 of this code allows for declassification in the following cases:

*A classified forest can be declassified according to the terms and conditions stipulated in a by-law and if the following conditions are fulfilled:*

- *Declassification must be necessary to build a structure or carry out a project of public interest, which could not be properly carried out outside the forest,*
- *An impact analysis must analyse the effect of the structure or project on the ecosystem and propose solutions liable to remedy the negative effects of declassification.*
- *The opinions of the local authorities and representatives of local communities must be sought*
- *Compensation in reforested land must be proposed by the applicant.*

### Law on Hunting and Environmental Protection<sup>3</sup>

Protected areas other than classified forests are governed by the law on hunting.

**Article 5:** *In order to preserve wildlife and bird habitat areas, all wetlands important to wildlife and all areas usually occupied by wild animal species will be developed and organised in ways stipulated in the associated by-law, in order to meet the requirements for the sustainable conservation of these resources.*

Following this are the conservation objectives for national parks, nature reserves and hunting areas. There is no mention of which activities are permitted within these areas.

### Law on the Environment (2000)

The Mauritanian law on the environment is not very strict and is generally limited to compliance with “good practices”:

**Article 26:** *industrial, urban, farming, mining, tourist or other activities liable to harm the flora and fauna or destroy their natural habitats are either forbidden or subject to prior approval by the Minister for the Environment, according to the conditions set forth in the law in force and the provisions taken to apply these laws.*

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<sup>3</sup> As in other countries, a distinction is made between the forestry law and the law on hunting and environmental protection, as if forests were not part of the environment. This is not anecdotal, but a firmly entrenched fact throughout the sub-region: wildlife is protected while hunting opportunities are developed and forests are exploited while trying to preserve their productive potential.



**Article 42:** *To guarantee protection of the soil, subsoil and the natural resources contained within it, the rational and sustainable use of land and compliance with land protection measures is necessary. In particular, prospecting and mining shall be carried out in compliance with this requirement.*

**Article 44:** *Quarrying, mining and prospecting activities must be designed and carried out such that:*

- *The environment is not damaged around the sites and erosion is not caused or aggravated*
- *The worksites can be returned to their initial state*

In terms of protected areas, no classified forest is shown either in the WDPA or on any maps available at the time of the study, and only five protected areas are mentioned:

- Arguin National Park, classified as a world heritage site,
- Diawling National Park at the border with Senegal, classified as a Ramsar Convention site,
- Guelb El Richât, theoretically in the planning stages
- Two small protected areas on the Nouadhiboudou peninsula, Cap Blanc and the Baie de L'étoile (which is also an IBA),

Furthermore, 25 IBAs have been identified in Mauritania, both on the coast and inland.

## **Mining Law and associated by-laws**

The mining law is not explicit and nothing in it clearly prohibits prospecting or mining in protected areas. As in Guinea, the notion of “reserve” is defined in the mining law: *“The Government can declare any area of Mauritania that has not been declared a promotional zone under this law or within which no mining licences have been granted to be a reserve and thus not eligible for mining operations.”* Therefore these are not protected areas in the sense of nature conservation. Furthermore, no by-law or other legislation creating reserves was found.

**Article 15:** *Any person can undertake reconnaissance activities as defined in Article 1 above anywhere in the country, outside promotional zones or reserves, and excluding existing mining areas.*

The mining law does not impose the carrying out of an EIA either, even for a mining licence but refers to the laws on the environment:

**Article 33:** *To obtain a mining permit the applicant must have the technical and financial capacities necessary to carry out the mining activities, to comply with the provisions of Articles 53 and 54 above and to meet the environmental requirements laid down by national and international law applicable in Mauritania as well as to comply with the appropriate general principles of international law.*

The associated by-law setting the terms and conditions for attributing mining licences and the operation of the mining cadaster makes no reference to protected areas:

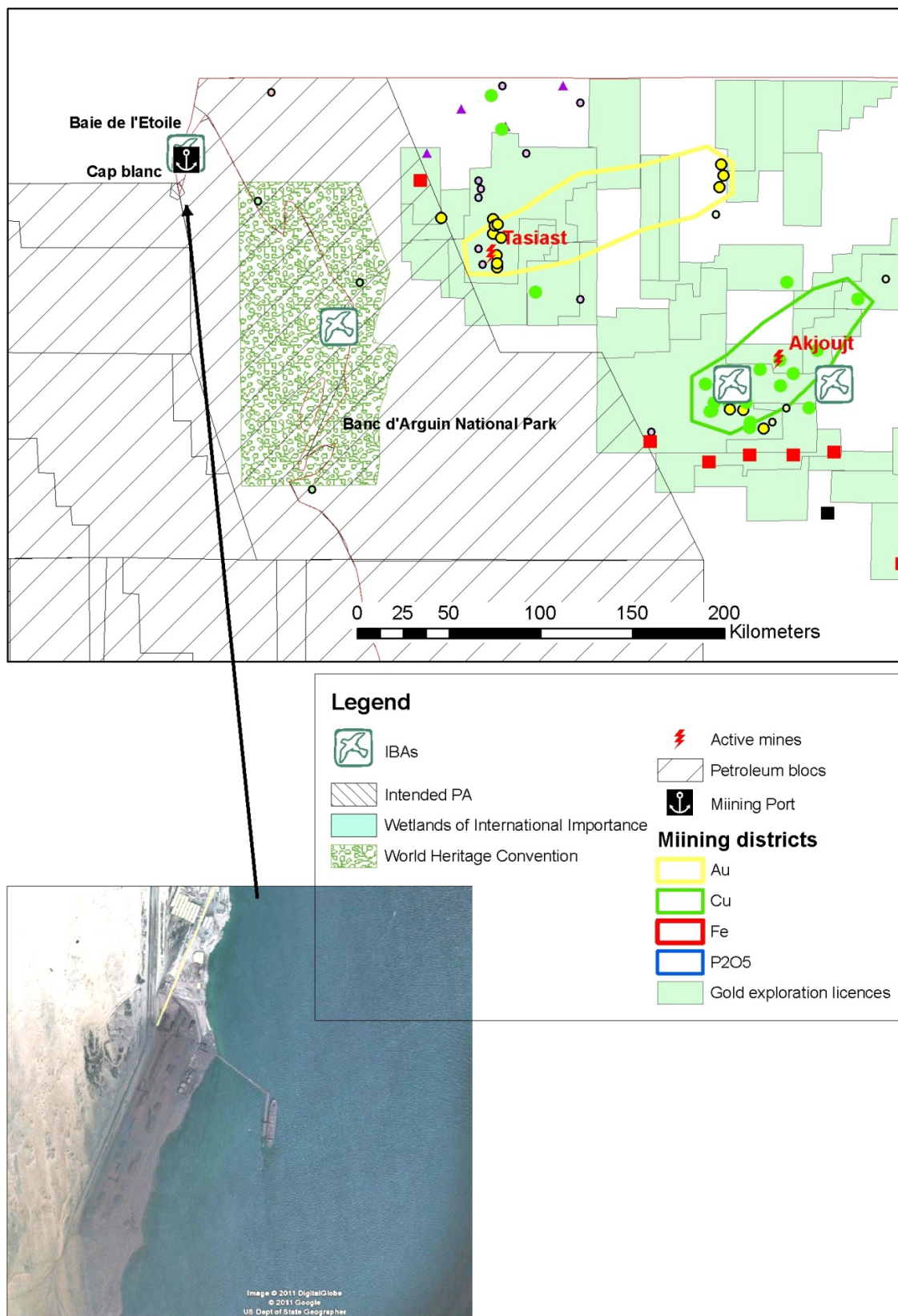
**Article 9:** *The Mining Cadaster Unit processes licences and reconnaissance permit applications, ensuring they comply with the provisions of the mining law and this by-law, particularly in regard to the required payment, the location and availability of the area in question. If the application does not comply with the mining law and associated by-law, the Mining Cadaster Unit will submit to the Minister responsible for Mines a letter explaining the rejection of the application for signature. Once signed, the letter is sent back to the Mining Cadaster Unit for transferral to the applicant.*



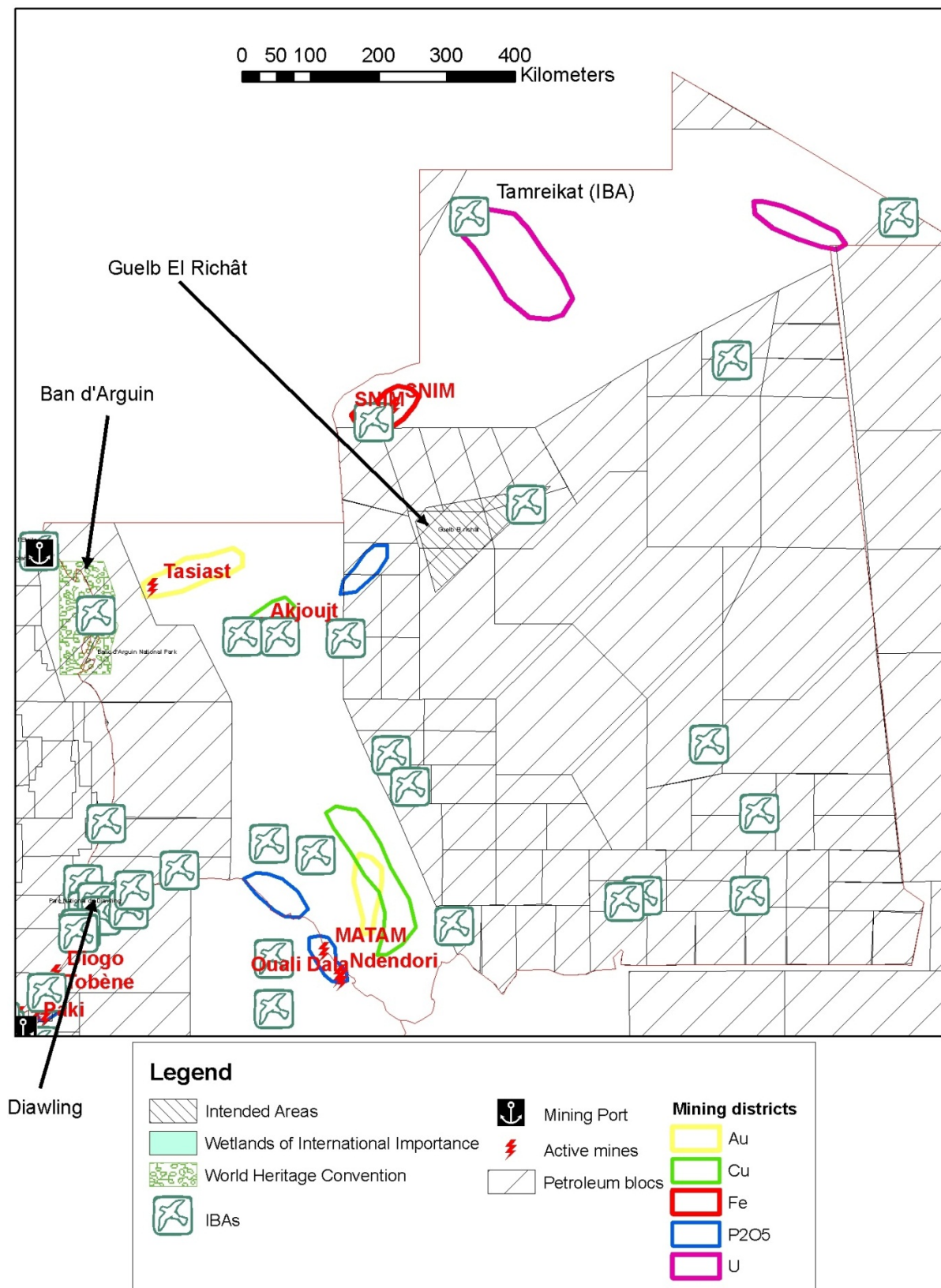
## Mining activities and protected areas

As there are no data on any classified forests, only the five protected areas can be considered.

1. Banc d'Arguin: this is the largest protected area in Mauritania. It is located on the coast, less than 30km to the south of Nouadhibou. While gold licences have been granted 15km inland and the Tasiast gold mine is around 50km from the park's boundaries, the iron-ore mines are actually a greater threat. They are located more than 450km away but all the ore is shipped through the port of Nouadhibou. 12 million tonnes per year currently pass through the port and this figure is set to double in the next two years. The Banc d'Arguin is also entirely set within an oil block.
2. The two protected areas of the Nouadhibou peninsula (Cap Blanc and Baie de l'Etoile) are also threatened as they are located either side of the mineral port. They are also located within an oil block.
3. Diawling National Park and the two adjacent IBAs (Diawling and Chott Boul) are far from any mining activity but are, like the others, located within an oil block.
4. Guelb el Richat protected area (in theory planned) and the IBA within it, are located outside mining areas (the closest mineralisation is the phosphate occurrences, located more than 50km downstream) but are again covered by an oil block.
5. As for IBAs, that of Kediet el Jill is located at the heart of the iron-ore basin mined by the SNIM. Two IBAs are located in the copper district of Akjoujt, actively mined and explored. Finally, note that the Tamreikat IBA, located to the far north of Mauritania is located in a uranium district. This mining zone is currently on stand-by due to the political troubles at the country's borders but should be developed relatively soon.



Situation of protected areas in the Nouadhibou region with a satellite picture of the mineral port.



## TOGO

Togo is not a significant mining country. Iron ore has been mined there, some deposits of ornamental stones (quartzite) have been informally mined, but the main mining activities concern phosphate; the main mine is located around 20km from the coast. Phosphate mining represents 21% of the GNP and 40% of export income. It is 50% owned by the Togolese Government (the share distribution of the phosphate company has been modified many times).

### Mining Law

The mining law is fairly succinct as regards environmental protection measures in general and mentions nothing of protected areas:

*Article 34: the holder of a mining licence must avoid as much as possible any negative impact on the environment, particularly pollution of the soil, air and water and damage or destruction of wildlife, in compliance with the provisions of this law, the law on the environment and their associated by-laws.*

Environmental Impact Assessments are not mentioned.

### Framework Law on the Environment

This framework law is barely more explicit than the mining law and refers to “good practice”.

*Article 59: Mines and quarries must be operated such that natural resources are used in a rational and sustainable manner and the environment is protected. Companies must use approved mining industry techniques and take the necessary measures to prevent environmental pollution, to treat waste and to preserve forest, wildlife and aquatic heritage and water resources.*

The associated by-laws could not be obtained.

### Forestry Law and Hunting Law

The forestry law defines the different categories of protected area which are:

- Strict nature or scientific reserves
- National parks
- Natural monuments
- Habitat or species management reserves
- Protected landscapes
- Wildlife areas
- Natural resource management protected zones
- Biosphere reserves
- World heritage sites

But nothing clearly indicates which activities are permitted in these different protected areas. At most, Article 58 stipulates: “Areas where water, forests, land and other sites are protected can be exempt from the rights of use. After information, public access may be prohibited”.

It would appear on reading these laws that the “forest development plans” or “wildlife management plans” should indicate specific protection measures for each area. These plans were not able to be obtained as Togo was not visited for the study.

Title IV of the forestry law entitled “Wildlife Regime” repeats several points from the 1968 law on hunting, without specifying whether the forestry law overrules the hunting law which clearly stipulates in Article 6 that “*strict nature reserves and national parks are exempt from all rights of use and constitute part of classified forest areas*”.

## Mining activities and protected areas

### 1. National Parks

- a. The Fosse au Lion National Park in the north of the country is far from all mining activity.
- b. Kéran National park is bordered to the east by a mining licence (it is not specified for which substances the licence has been granted, but it includes a chromite occurrence). There would not appear to be major mining risks in this sector.
- c. Fazao-Malfakassa National Park, the largest of the three national parks, is slightly within the boundaries of two exploration permits, one in the north-eastern tip (iron-ore zone) and the other to the south (iron-ore and phosphate occurrences). Furthermore, several large phosphate occurrences lie to the north of the park. These phosphate occurrences and the iron-ore occurrences are located at the head of the catchments that cross the park. Mining these areas could have a significant impact on the park’s biodiversity.

### 2. Wildlife Reserves

- a. The Galangashie reserve in the north is completely outside any mining zone
  - b. Djamdè reserve is completely encompassed by a mining licence. It contains occurrences (classified as “deposits”, as they are relatively large) of iron-ore and uranium in particular. The known iron-ore occurrence is located within the reserve itself if the maps can be relied upon.
  - c. The Abdoulay wildlife reserve in the centre of the country, not far from Fazao Park is bounded by a mining permit located on the opposite bank of the main river that borders the reserve.
  - d. The Togodo wildlife zone and wetlands is located well upstream from the main phosphate zone and is not threatened by any mining expansion.
3. Classified forests: around ten classified forests lie within mining licence areas (Monda, Koularo, Kindja, Kémini, Aou-Mono, Assoukoko, Haito, Eto, Ouatchidome, Haho-Baloe). The most endangered is without a doubt the classified forest of Haho-Baloe, crossed by the phosphate deposit currently being mined.

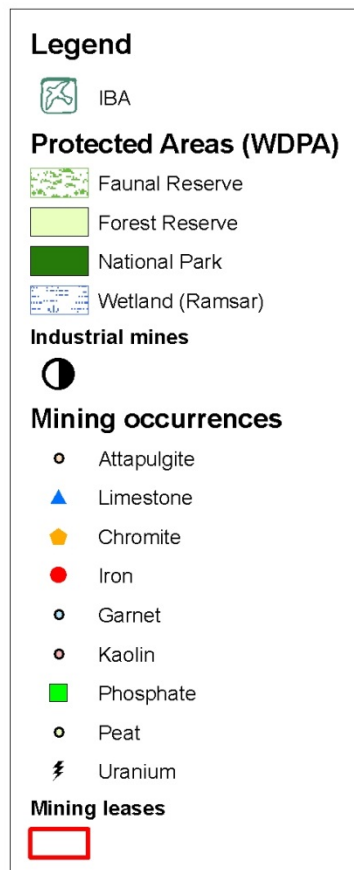
Togo only has four IBAs, all far from mining areas with the possible exception of the Fazao IBA for which the risk is minimal.

Probably the most negative point for Togo is the area where the phosphate processing effluents are discharged into the sea. Several contradictory studies have been carried out on contamination of the food chain by metals along the coast, but it is clear that the effluents, particularly of cadmium and probably uranium, elements present in the ore, are discharged into the sea, and can be seen in the plume of turbidity visible in the satellite photos (see main report).

## References

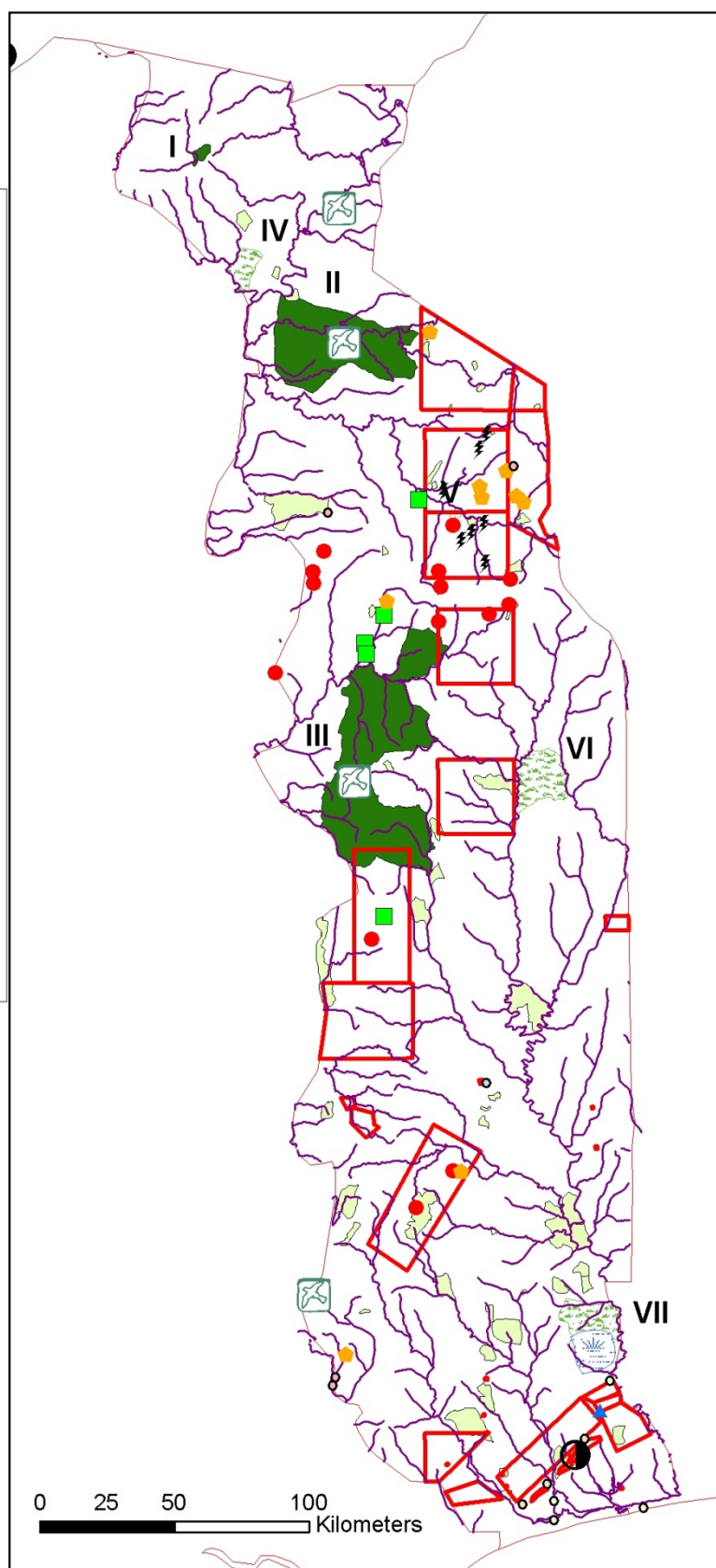
- Law 2008-05 – framework law on the environment
- Law 2008-09 – Forestry law
- *Ordonnance* n°4 of 16 January 1968 regulating wildlife protection and hunting in Togo.
- Law 2003-12 – mining law of the Togolese republic





### Parks and Reserves

- I : Fosse aux lions  
 II : Kéran  
 III : Fazao  
 IV : Galangashie  
 V : Djamdè  
 VI : Abdoulaye  
 VII : Togodo





## TCHAD

Chad has relatively recent environmental legislation (the law governing forests and wildlife dates from 2008), apart from that governing protected species, which dates from 1963. The mining law is relatively old, dating from 1995.

### Laws on the Environment

The framework law of 1998 sets forth the general principles for environmental protection. It establishes the general framework for protection of the soil and subsoil in Articles 20 and 21.

*Article 20: the soil and subsoil, and the wealth contained within it in terms of limited or non-renewable resources, are protected against all forms of degradation and are managed in a rational manner.*

*Article 21: Prior authorisation must be obtained to dedicate and develop land for industrial, mining, tourism, commercial and urban development purposes as well as for research with a view to exploring or mining for surface or underground resources, liable to affect the environment in the cases stipulated in the by-laws associated with this law. This legislation specifies the conditions for granting authorisation and the list of activities or uses which are forbidden because of the damage they may cause to the soil, subsoil or the resources contained within it.*

This same law specifies the different protected areas, i.e. National Park, strict nature reserve, special reserve or wildlife reserve. They are “*protected and preserved from all intervention or activity liable to modify or degrade them*”.

It also establishes the principle that an EIA must be carried out prior to any project or structure that might harm the environment (it would appear that the specific by-laws pertaining to these EIAs have not yet been passed).

In application of this framework law, the forestry and wildlife legislation was reviewed in 2008 (Law 14/PR/2008). Contrary to the situation in other countries, the notion of classified forest includes wildlife and plant life protection areas:

**Article 16:** *The following are considered as classified forests:*

- *Wildlife protection areas such as national parks, wildlife reserves, strict nature reserves,*
- *Forest reserves such as forests for protection or recreational purposes, reforestation and restoration areas, botanical gardens*

Authorised activities within a protected area must be specified in the development plan. However, the law generally provides that:

**Article 107:** *Grazing, land clearance, hunting, agriculture, forestry, mining, fishing, gathering, waste disposal, polluting activities, uncontrolled fires and in general any activity incompatible with the conservation and protection of the environment are prohibited within national parks.*

**Article 111:** *Strict nature reserves are government classified areas. They are established to protect a biotope or an ecosystem and to permit it to evolve naturally. They have absolute protection. Activities which may disturb the flora or fauna are forbidden. As is the introduction of plant species or indigenous, exotic, wild or domesticated animal species. They are exempt from all rights of usage and all activities are forbidden.*

**Article 113:** *Wildlife reserves are established to protect all wildlife species; hunting is prohibited in these areas.*

**Article 116:** *Wildlife reserves are subject to a development plan and internal regulations which stipulate the rights of usage in particular.*

The protection of waterways is also covered by this law and directly targets mining activities:

**Article 221:** *Before undertaking exploration in water, operating quarries or mines, building roads or railways or constructing buildings, all people and companies must:*

- *Have prior authorisation to do so from the competent authorities, on the basis of an environmental impact assessment,*
- *Take all environmental protection measures required by law.*

**Article 225:** *In order to protect habitats and fisheries, certain areas of the country may be classified and set aside for protected areas, which include aquaculture reserves and grazing areas.*

## Mining Law

The mining law clearly specifies that mining is forbidden in certain areas:

### **Article 51 – Bans**

*No surface prospecting, exploration or mining may be carried out without prior authorisation by the competent authorities within a fifty metre radius:*

- *Around walled enclosures, villages, groups of dwellings, **national parks**, wells, religious buildings, places of worship, and sites considered to be sacred, without the consent of the owner, and*
- *Either side of roads, railways, water pipelines and generally speaking around public works and works of art.*

### **Article 52 - Protected zones**

*Protected zones of any size within which prospecting, exploration or mining may be restricted or subject to certain conditions may be established to protect buildings, agglomerations, cultural sites, places of worship, tourist sites, water sources, roads, railways, works of art, public works, **national parks, wildlife reserves, classified forests** and anywhere it may be deemed necessary to preserve the environment and public interest.*

The notion of EIA is not explicitly mentioned for mining permits. Article 29 provides for a “public survey to evaluate the consequences of proposed mining activities on the environment”.

Furthermore, the request for a mining permit must be accompanied by “a programme to protect and manage the environment”. This programme and all substantial modifications to it must be approved by the Director of Mines (Article 30).

## Protected areas and mining activities

The protected areas identified in Chad are:

- 3 national parks: Zakouma, Manda and Sena Oura
- 7 wildlife reserves: Ouadi Rimé, Fada Archei, Abou Telfane, Mandelia, Binder-Léré, Siniaka Minia and Bahr salamat
- 1 wetland zone (Ramsar Convention): Lac Fitri
- Hunting zones (concessions, blocks, domains): Aouk and Melfi
- 1 protected area of unknown status: Douguia (probably a hunting zone).

The ecosystems of Lake Chad, Fitri Lake and the oasis and land of the Koros are given priority (monitoring report on combating desertification).

In Chad, the Lamantin, a protected species, only lives in the Léré and Tréné lakes.

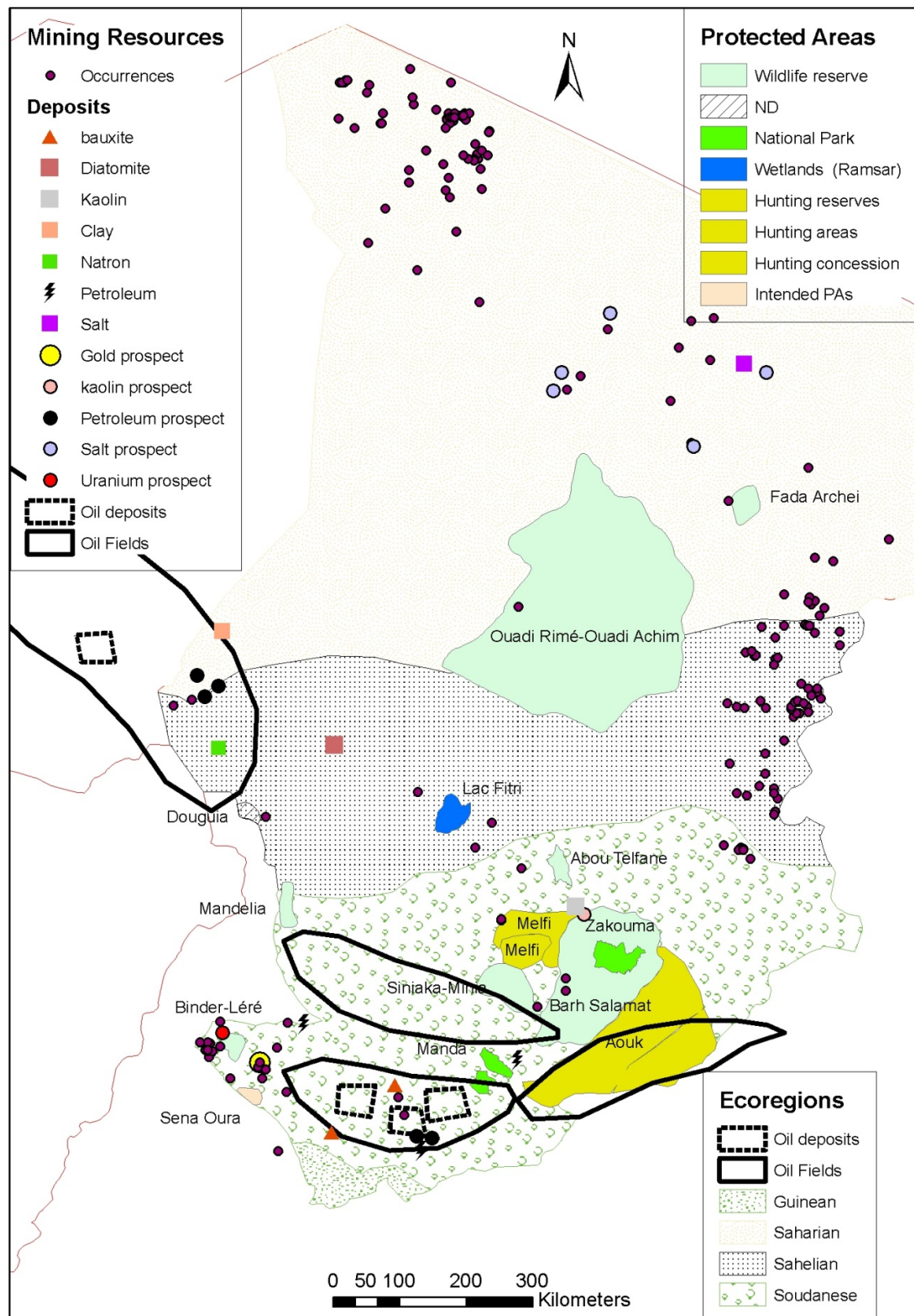
The map of mining licences could not be obtained for this study. Therefore it only refers to known prospects and mineral deposits to describe the potential risk of mining on protected areas.

The main risk identified concerns Manda National Park (IUCN Category II) with a known oil deposit 20km from the park.

The other threats concern:

- Binder-Léré wildlife reserve (IUCN category IV) which contains an iron-ore occurrence but most importantly a gold occurrence 7km away (artisanal gold mining is practiced here) and a uranium prospect along its boundary.
- The Bahr Salamat wildlife reserve which contains a Kaolin deposit (the substance itself is not dangerous, but mining it could affect ecosystems)

The protected areas of Fada-Archei, Ouadi Rimé and Siniaka-Minia contain or are nearby mining occurrences of low economic value according to the information available (a uranium occurrence 5km from Fada Archei, an iron-ore occurrence on the boundary of Siniaka Minia, and a gypsum occurrence in Ouadi Rimé).



## Environmental Context

The entire southern half of Côte d'Ivoire is covered by the Guinean tropical forest, a biodiversity hotspot.

According to WDPA data, there are 64 725km<sup>2</sup> of protected areas, in other words 20% of the country. The largest is the Comoé National Park which covers 11 746km<sup>2</sup>, also classified as a UNESCO world heritage site. The other national parks are Taï (4390 km<sup>2</sup>), Mont Sangbé (903 km<sup>2</sup>), Marahoué (1189 km<sup>2</sup>) and Azagny (238 km<sup>2</sup>). The first two and Azagny are also classified as IBAs. The remaining 46 500km<sup>2</sup> are mainly classified forests.

Given the current political situation in Côte d'Ivoire, no information on the status of these different protected areas could be obtained.

Regulations on forestry and wildlife in Côte d'Ivoire are based on two main laws:

1. Law 65-255 of 4 August 1965, relating to wildlife protection and hunting.
2. Law 65-425 of 20 December 1965, the forestry law, which defines the forests, protected areas, reforestation areas and the rights that exist in such forests. The forestry law covers the setting up of reserves and classified forests, the exercise of customary rights and the granting of forestry concessions in the Government forests.

The law on the environment was passed in 1996.

The following can be noted:

1. Classified forests are "exempt from all rights of use applicable to forest lands". Therefore, in theory this does not protect them from mining activities, governed by rights that override land rights.
2. National parks and strict nature reserves are "exempt from all rights of use".
3. Impact assessments are compulsory for all projects that could disturb the environment and they are managed by the National Environmental Agency, an independently-managed public body.

## Mining Context

Côte d'Ivoire is relatively rich in mineral resources, which are still relatively untouched. There are many gold and diamond occurrences, but also manganese, Colombite-tantalite (coltan) and some occurrences are being or have been mined:

- Tongon (Nielle): Gold (currently mined)
- Ity: Gold (currently mined)
- Bonikro: Gold (currently mined)
- Angovia: Gold (mined, then closed, then re-opened)
- Agbaou (Divo): Gold (unknown status, but deposit at least at feasibility stage)
- Bobi: Diamond (mine closed)
- Tortiya: Diamond (mine closed but useable reserves remain)
- Lauzoua (Grand Lahou): Manganese (semi-industrial mining)
- Issia: Coltan (currently mined)

Gold is the country's leading substance, although with industrial production in 2009 of 6.54t it is well behind Mali or Ghana. But several deposits have been identified, and with the return of political stability there should be a significant increase in production.

There are also several industrial quarries for construction materials at San Pedro, Adzopé, Yamoussoukro, Singrobo, etc. In 2008, declared production of crushed granite and by-products were slightly more than one million tonnes.

Côte d'Ivoire is also an oil producing country with three operational oil fields (or at least at an advanced exploration stage): Panthère, Espoir and Baobab.

The mining law mentions zones that are closed to mining exploration, but these are boundaries defined by mining regulations and not areas for nature protection. In other words, the mining law itself does not impose any bans on protected areas.

The mining law is also "self-sufficient" regarding environmental protection:

*Article 76: "activities regulated by the mining law must be carried out in such a way as to protect the quality of the environment, rehabilitate sites and conserve forest heritage in accordance with the terms and conditions set forth in the **mining regulations**".*

The mining law provides in general for impact assessments (Article 77):

*Any holder of a mining licence or beneficiary of authorisation to operate a quarry must, before undertaking any work whatsoever in the field, prepare and submit for approval by the mining administration and the environment administration, and all other departments as stipulated under the mining regulations, a complete environmental impact assessment and an environmental management programme including a site rehabilitation plan and associated budget.*

## Mining pressure on protected areas

As there is no map of mining licences, we refer only to known deposits and districts to assess the risks to protected areas.

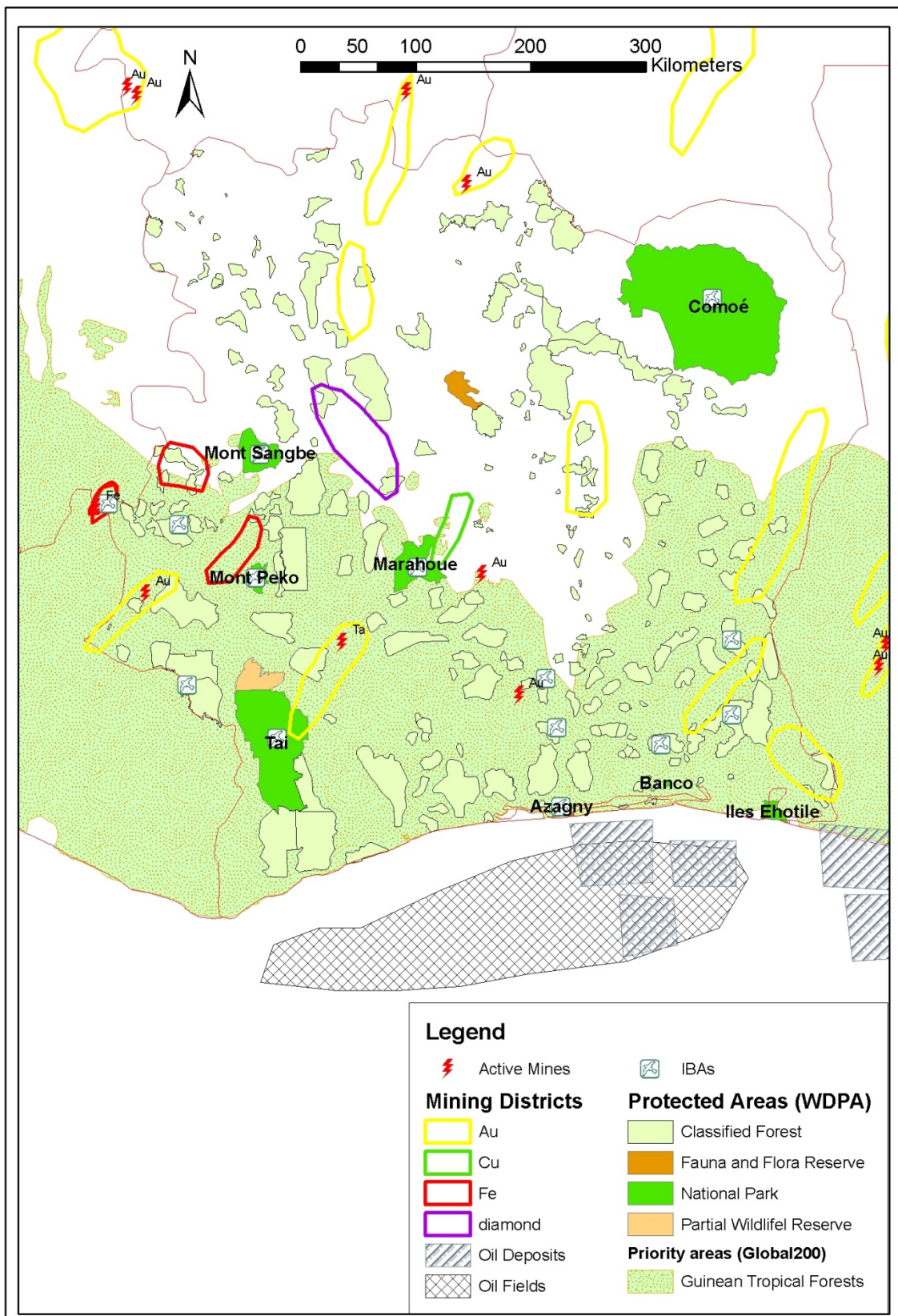
1. Taï National Park: contains many gold occurrences and is partially covered by the Issia gold district (gold and rare earths, the Issia mine is for tantalum 50km north of the park. This mine is adjacent to Issia classified forest). There is also a manganese occurrence in the park, but apparently of no economic interest.
2. Comoé National Park encompasses many gold occurrences and two diamond occurrences. These occurrences are not part of the country's main mining districts but may be locally mined (artisanal mining).
3. The mine of Ity is located less than 10km from the classified forests of Krozalie and Scio. There is much artisanal mining activity in this zone.
4. Lauzoua manganese mine is located less than 5km from the classified forest of Dogoudou.

The development of mining activities in Côte d'Ivoire could affect a considerable number of classified forests which overlap with the different gold districts (mainly towards the border with Ghana) and iron-ore districts (towards the border with Guinea).

Artisanal and small-scale mining is highly developed throughout the country, with higher concentrations of activity along the borders with Guinea and Ghana and at the intersection between Côte d'Ivoire, Mali and Burkina Faso.

Off-shore oil operations are located between 10 and 130km from the coast and represent a definite threat for Azagny park (national park and IBA) and the Ehotile Islands park.





## SIERRA LEONE

We have very little data on Sierra Leone, apart from a national inventory of mineral resources and a map of licences that does not specify the substances concerned. The map of protected areas and mining permits does however give rise to some comments:

1. The mining licences appear (if the licences are correctly referenced, which is not entirely guaranteed) not to consider the existence of protected areas because several of them overlap with classified forests, hunting reserves and even Outamba national park.
2. The bauxite mines in the south of the country are far from any protected areas
3. Two IBAs are particularly endangered by mining activities: that on the western peninsula (on which there is apparently a platinum occurrence) and that of Kangari Hills, located in the middle of a gold zone.

Regarding the regulatory aspects, the mining law of 2009 does not mention protected areas but imposes an EIA for small and large-scale mines, in compliance with the Environmental Protection Act (2000).

The Forestry Act of 1988 establishes the principle of protected areas but does not specify their type or restrictions on how they may be used.

Finally, note that within the World Resources Institute (WRI), only very small coastal areas are identified in Sierra Leone, with the lowest conservation value. However some small zones are found on the western peninsula.

