

National Forest Management Strategy



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Context

The Forestry Development Authority (FDA) has worked for the last three years toward substantial and sweeping reforms in the sector. The FDA has moved its management philosophy from a focus on commercial forest management to a management policy of integrating the three C's (Conservation, Community and Commercial uses). To complete this philosophical transformation the FDA has restructured its staff into technical fields consistent with the three C's, established a Research and Development Division and formed a Strategic Planning Unit to continue working toward the forward thinking strategies necessary to bring this changed philosophy to fruition in the nation.

The National Forest Management Strategy is a short document that summarizes the basic management philosophy of the FDA for the national forest endowment and tries in a first attempt to outline the major forest management objectives for the coming two years. The specific management actions outlined in the document are based on the current best available information and will require continued revision through public scrutiny and field evaluation.

The structure of the document lays out the general policy and legal foundation for the National Forest Management Strategy. The second section gives a general overview of the suitability analysis that actual forest management proposals are based on, and finally the National Forest Management Strategy first two year objectives are defined and discussed as well as next steps to refining the Strategy.

Policy

The aim of the forestry policy of Liberia is:

To conserve and sustainably manage all forest areas so that they will continue to produce a complete range of goods and services for the benefit of all Liberians and contribute to poverty alleviation in the nation.

Objectives:

In order to achieve this aim, the following specific objectives will be pursued:

1. To ensure that commercial forestry, community forestry and forest conservation activities are integrated and balanced to optimize the economic, social and environmental benefits from the forest resource.
2. To conserve a representative sample of forest ecosystems so that important environmental functions are maintained.

3. To contribute to the national development goals of poverty alleviation and increased food security by increasing the opportunities for forest-based income generating activities.
4. To grant more equitable access to forest resources so that the potential for future conflict is reduced and the benefits from forestry development are shared throughout Liberian society.
5. To ensure that all stakeholders participate in the formulation of forestry policies and in the conservation and management of the forest resource.
6. To maximize the contribution of the sector to income, employment and trade through the development of appropriate processing activities.
7. To ensure that forestry development contributes to national development goals and international commitments (including regional cooperation and trans-boundary issues) and is co-ordinated with other relevant branches of government.
8. To ensure that activities in the forestry sector (including forest management, plantation development, harvesting, conservation and industrial development) are based on sound scientific and technical principles.

Legal objectives of forest management

The Authority shall exercise its powers under this Law to assure sustainable management of the Republic's Forest Land, Conservation of the Republic's Forest Resources, protection of the Republic's Environment, and sustainable development of the Republic's economy, with the participation of and for the benefit of all Liberians, and to contribute to poverty alleviation in the Nation.

To protect the Environment, the Authority shall take a precautionary approach to the exercise of its powers under this Law. Where there are threats of serious or irreversible damage to the Environment, the Authority shall not rely on a lack of full scientific certainty as a reason for postponing cost-effective measures to prevent environmental degradation.

State of the forest

Liberia is situated within the tropical rainforest belt on the West Coast of Africa. The total land area is 9.58 million hectares, of which forests cover about 4.30 million hectares or 45 percent of the land area (see Table 1). In recent years, the forest area has decreased somewhat, largely due to uncontrolled logging and an expansion of land used for agriculture. The annual rate of deforestation is currently estimated to be about

12,000 hectares (0.3 percent), while the recorded planting of new forests to date has amounted to only about 11,000 hectares in total.

Table 1 Land and forest area statistics

| Land Type | Area (in million ha) | Proportion of total land area (in percent) |
|--------------------|---------------------------------|---|
| All land | 9.58 | 100 |
| Forest | 4.30 | 45 |
| Protected forest | 1.70 | 18 |
| Unprotected forest | 2.61 | 27 |

Despite Liberia's small size, it contains a significant amount of biodiversity, including: over 2,900 different vascular plants (including 225 tree species); 600 bird species; 150 mammal species; and 75 reptile species. In addition, Liberia accounts for the largest remaining remnant (42 percent) of the Upper Guinea forest of West Africa. Liberia's forests also produce a wide range of other environmental goods and services that benefit Liberia and the rest of the World.

About 60 tree species have been harvested and exported from Liberia in the past, but only a few of these species account for the majority of production. For example, in 1998, Niangon (*Heritiera utilis*) accounted for approximately 50 percent of industrial roundwood production.

Contribution of the forestry sector to the national economy

Historically, the forestry sector has been a strong contributor to the economy of Liberia, in the form of industrial output, national income, employment and export revenues. For example, the production of forest products accounted for around five percent of Gross Domestic Product in the 1980s, rising to 20 percent in the late 1990s. Forest products also accounted for 5-10 percent of export earnings in the 1980s, rising to over 50 percent in 2000.

For the most recent years, statistics about the production and trade of forest products are somewhat uncertain. However, in 2002, 36 forest companies were operating in Liberia and it is estimated that the value of timber exports amounted to over USD 100 million (or 60 percent of Liberia's total export revenues). It is also estimated that about 10,000 people were employed in the forestry sector at this time. Rubber plantations have also made a significant contribution to income, employment and exports in Liberia (with exports of rubber valued at around USD 60 million in 2002). Rubberwood is also a locally important source of woodfuel and may potentially be harvested for wood processing.

In addition to the contribution of the formal forestry sector to the national economy, informal activities in the sector are also vital to the well-being of many Liberian citizens. Fuelwood and charcoal production employs numerous people and these products remain by far the most important sources of energy in the country. Similarly, the harvesting and sale of bushmeat makes a significant contribution to local income and employment, as well as providing a major share of protein in the average Liberian's diet.

The rapid expansion of production and exports in recent years has not, however, been without problems. Forest degradation has occurred, due to over-harvesting and the selective harvesting of only a few species. Similarly, biodiversity has suffered from widespread wildlife poaching. Government supervision of forest companies has also been inadequate, leading to many violations of forest regulations and the misappropriation and non-payment of the majority of forest charges.

In this post-conflict period, there is an urgent need to improve the livelihood of all Liberians. This urgency has increased the demands placed on the sector at the same time that the existing forestry institutions and infrastructure is least capable of responding. In view of this, this policy sets out a number of aims and objectives that meet both the immediate need for rehabilitation in the sector and the outlook for the medium term (next 10 years). The proposed strategies also reflect the current situation in the sector and the prospects for improvements in capacity and resources over the next decade.

Optimization Planning

The National Forest Management Strategy is developed based on the best currently available data and is required by the Forestry Reform Law of 2006 as a pre-requisite for determining initial proposals for land use in Liberia. Several requirements are: 1) the FDA must establish a Strategic Forest Management Plan, 2) allocate contracts through competitive bidding based on the Plan and 3) ensure increased consultation, access and user rights for communities as a whole. These policies have forced the FDA to scrutinize more thoroughly their knowledge of forest resources and land planning and management systems.

Objectives and Methodology

The objective of the suitability analysis is to evaluate all forest areas for their relative suitability among various land uses, most importantly commercial, community and conservation usage.

With assistance from the US Forest Service and Conservation International, the FDA developed an over all natural resources database. With input from national stakeholders, the FDA developed the first GIS land suitability maps of the forest endowment. The overall objective was to establish a first draft of possible land management options that could be ground truthed and vetted in community areas before forest management decisions are taken. As part of this overall process, the FDA was able to define a protected area network that will ensure conservation of representative ecosystems in the Upper Guinea forest area.

The team followed the IUCN process for planning parks; *i.e.*, reviewed the literature, surveyed experts, consulted Liberian stakeholders, and used GIS to map opportunities and threats, thus leading to the prioritization of sites for protection. Further, the team identified both complementary and competing desired forest land uses and assigned *values* to different forest areas suitable for conservation, commercial logging, and community use. Through a ‘weighted-overlay’ model, the team proposed several options that optimized the relative suitability of all forest areas into three basic classes (Commercial, Preservation or Community) thus providing concrete solutions to best resolve conflict over forest use and maximize opportunities for all stakeholders.

Assumptions

To complete the suitability and optimization exercise the FDA assumed the following:

Community use:

Stakeholders assumed that suitability for community use is mainly based on four, equally important variables: i) proximity to settlements; and ii) roads, in both cases closer being more suitable; iii) land cover, where mixed agriculture is of greatest value, followed by

densely forested areas, and finally other cover types; and iv) population density, where areas with moderate human density is greatest value, followed by areas of low and finally high density. Existing PAs (Sapo and Nimba) were excluded as potential community forests. Suitability was robust to changes in weightings, in that if the model made one of the four above variables more important, the suitability analysis did not change greatly.

Map 1 depicts the suitability of forests in Liberia to community uses. Green areas are most suitable and red areas are least suitable.

Commercial use:

Based on an iterative process of stakeholder consultation, the model was parameterized based on the assumption that suitability for logging varied mostly due to land cover, with dense forest of greatest value, followed by open forest then degraded forest mixed with agriculture, and finally other cover types having lowest suitability. In addition, it was assumed that suitability decreased with increasing human population density, but increased with proximity to roads (closer being preferable due to reduced transport costs). Further, existing PAs and areas with slopes >30% were deemed as unsuitable for logging. In the model the first three factors were weighted: land cover = 60%, population density = 20%, and roads = 20%. These weightings provided the most conservative estimate of suitability. The area available as suitable could have increased with the inclusion of non-forested areas close to roads and in areas of high population density, but these areas were generally considered of low value to logging.

Map 2 depicts the suitability of forests in Liberia to commercial uses.

Conservation use:

The model was able to use measured patterns of biodiversity to determine suitability for conservation. FFI conducted 75 transects across Liberia that measured the occurrence of 31 indicator species of animals, and based on their observations, suitability for conservation was associated most strongly with distance in from the edge of the forest. The farther into the forest, the more animals were observed on the transects. Although less strongly, suitability was also tied to proximity to the ocean, perhaps because people living close to the ocean are more likely to eat fish as an alternative to bushmeat, and therefore hunting pressure is lower than up-country. Finally, more species were seen farther from roads. In the model, these three factors were weighted differently: distance from forest edge explained 78% of the relationship with suitability, and distance from ocean and roads contributed 14% and 8%, respectively. The model was robust to different weightings of the three variables, and to the inclusion of other variables that may have been assumed to be important, such as proximity to a) human settlements; b) deforestation; and c) rivers.

Map 3 depicts the suitability of forests in Liberia to conservation.

General Results

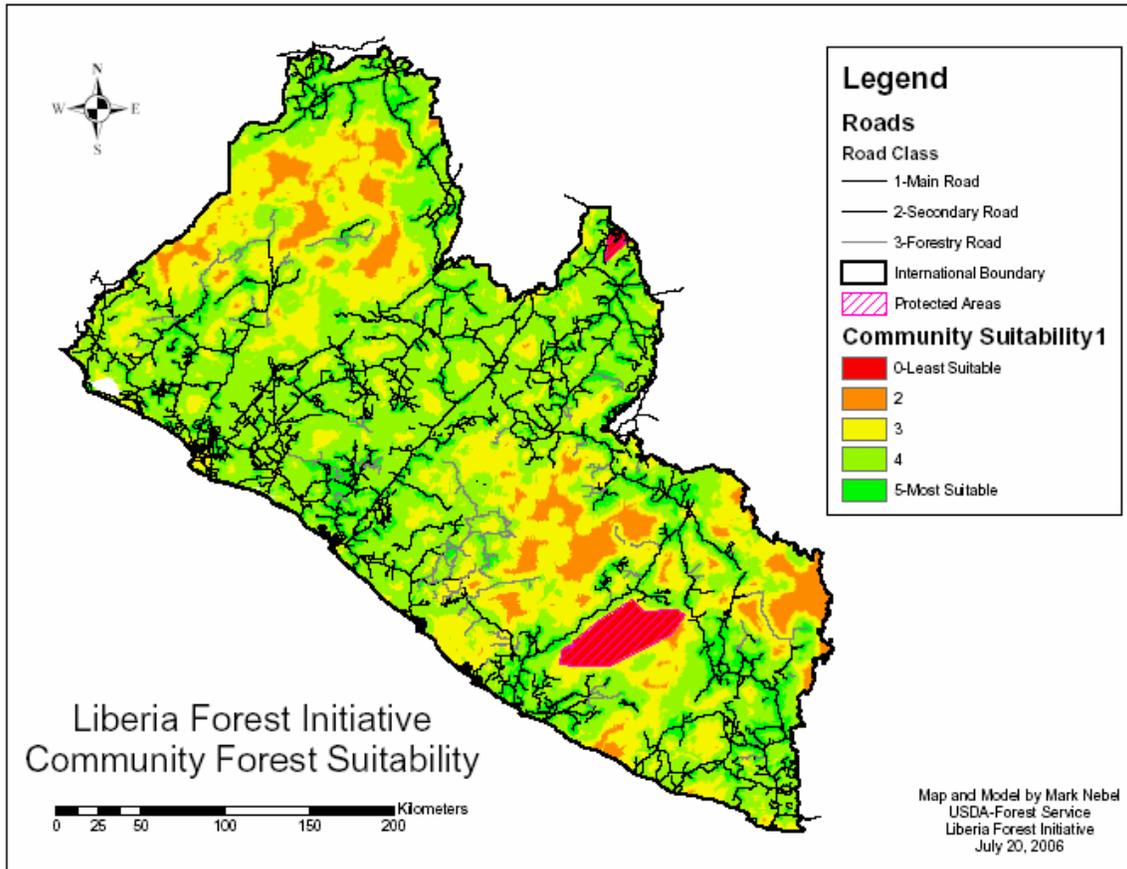
The suitability map for each of the three uses was overlaid on top of each other to determine the optimal land-use for the entire forest area.

Because of the different emphases of the community model (i.e., communities preferentially use forests close to settlements with an agricultural component), community suitability is largely complementary to the other uses. Therefore, the largest potential conflict appears between commercial logging and conservation.

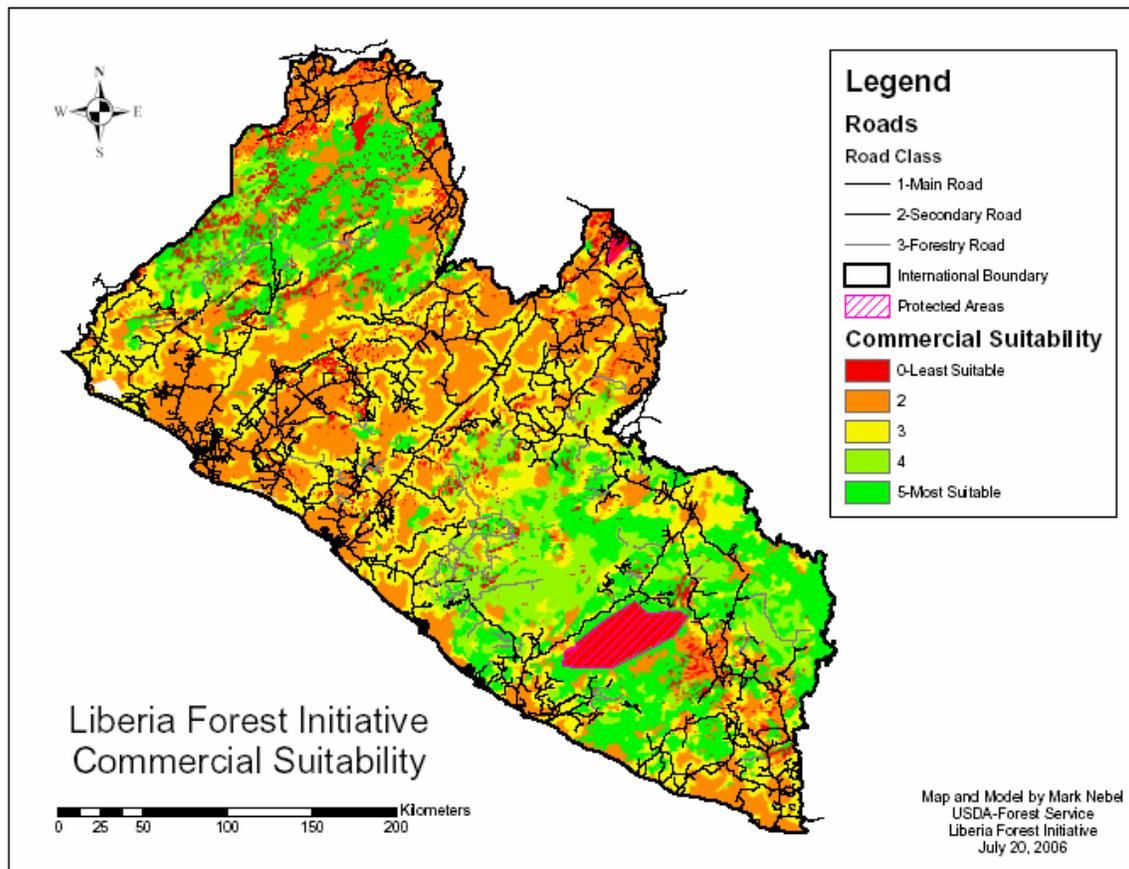
The model resolved conflict between the two uses by assigning primary use to the one that had the highest relative suitability, that is if the area was in the top 20% of suitability for logging but in the bottom 60% for other uses, then the area was designated chiefly for logging. If an area was of low priority for both conservation and logging, it was automatically assigned to community use. (These were mainly agricultural areas.)

If an area was highly suitable for both logging and conservation, then the surrounding area was used to classify its relative suitability. Where both conservation and commercial forestry remain equally suitable, the area was allotted to commercial use, recognizing the economic and enforcement realities in Liberia.

It is important to note that just because an area was most suitable for one use, it does not mean it has no value for the other uses. Thus, given that there are few clear laws, regulations and tested systems for community forest management, it seems appropriate that most of the area outside of the priority preservation areas should be identified as multiple use areas rather than specific designation as community or commercial, since these two activities could be one in the same depending on the management strategy proposed for the area.

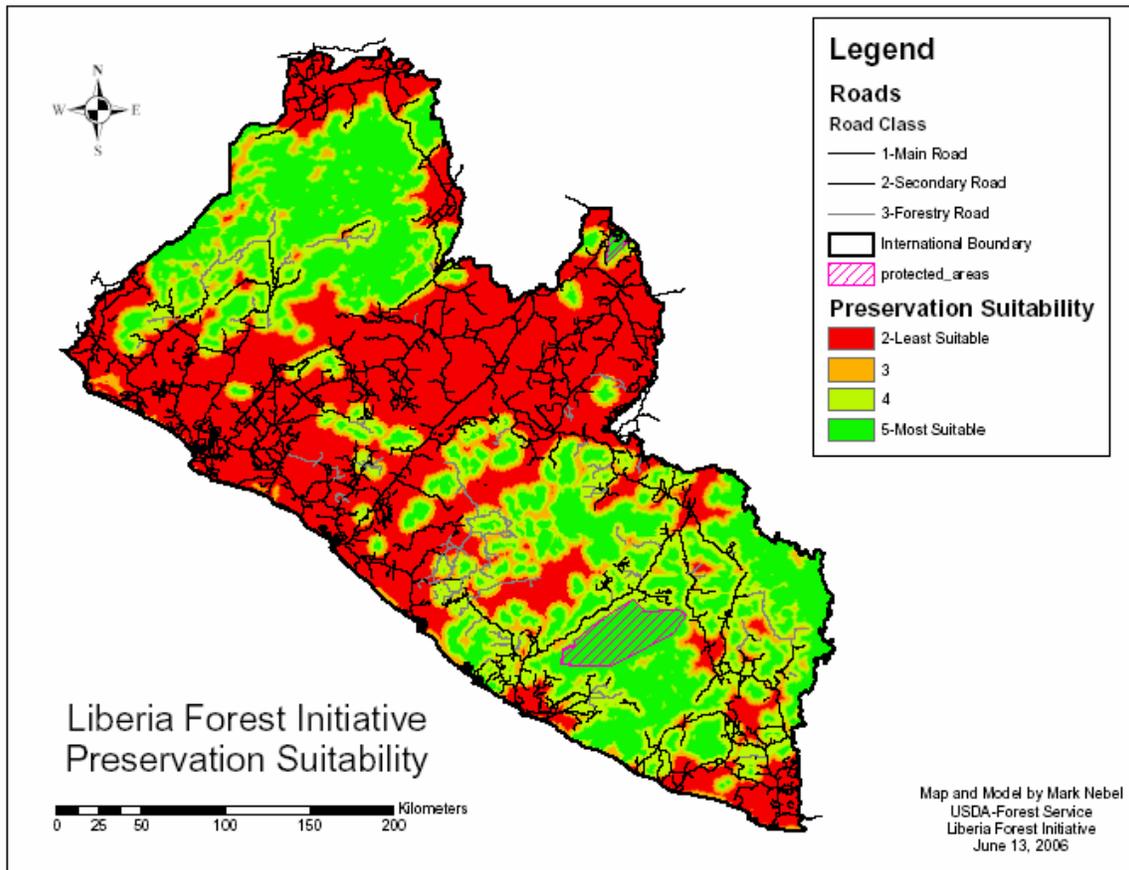


Map 1: Community Suitability

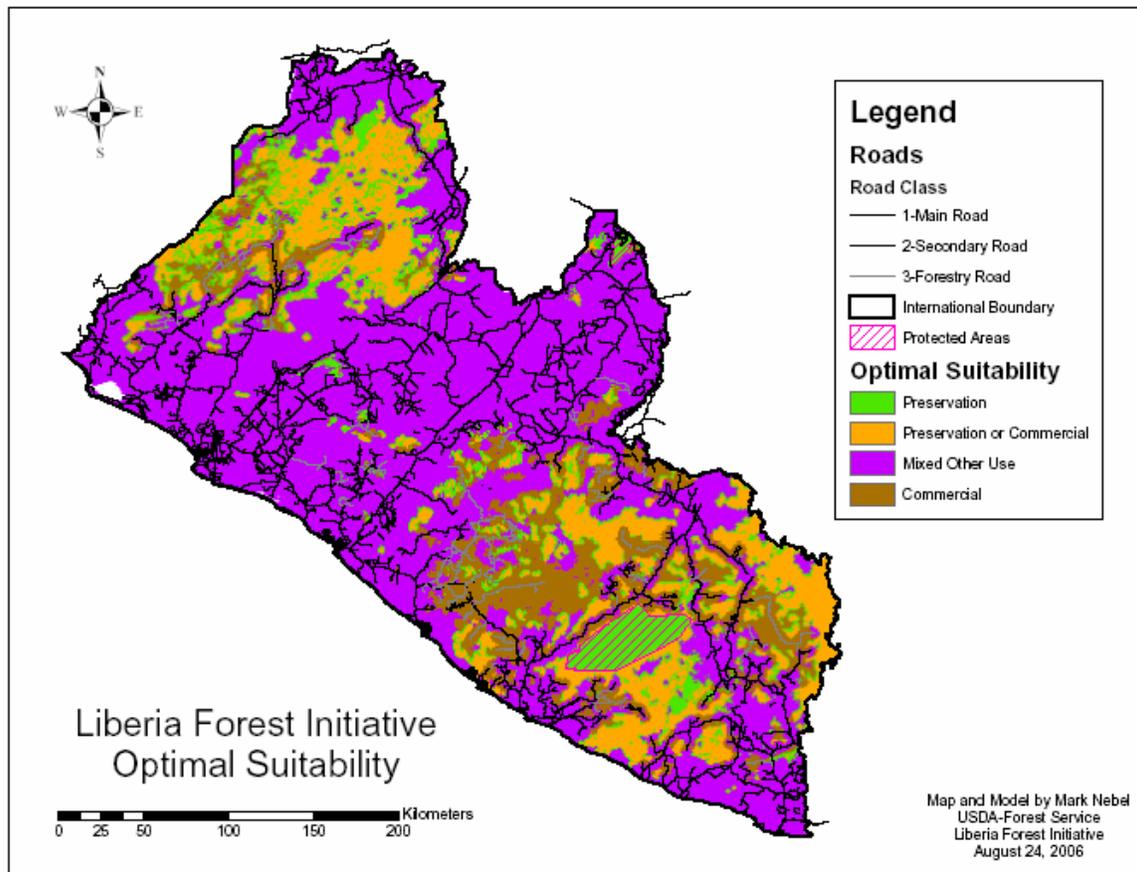


Map 2. Commercial Suitability

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Map 3: Preservation Suitability



Map 4: Optimal Suitability

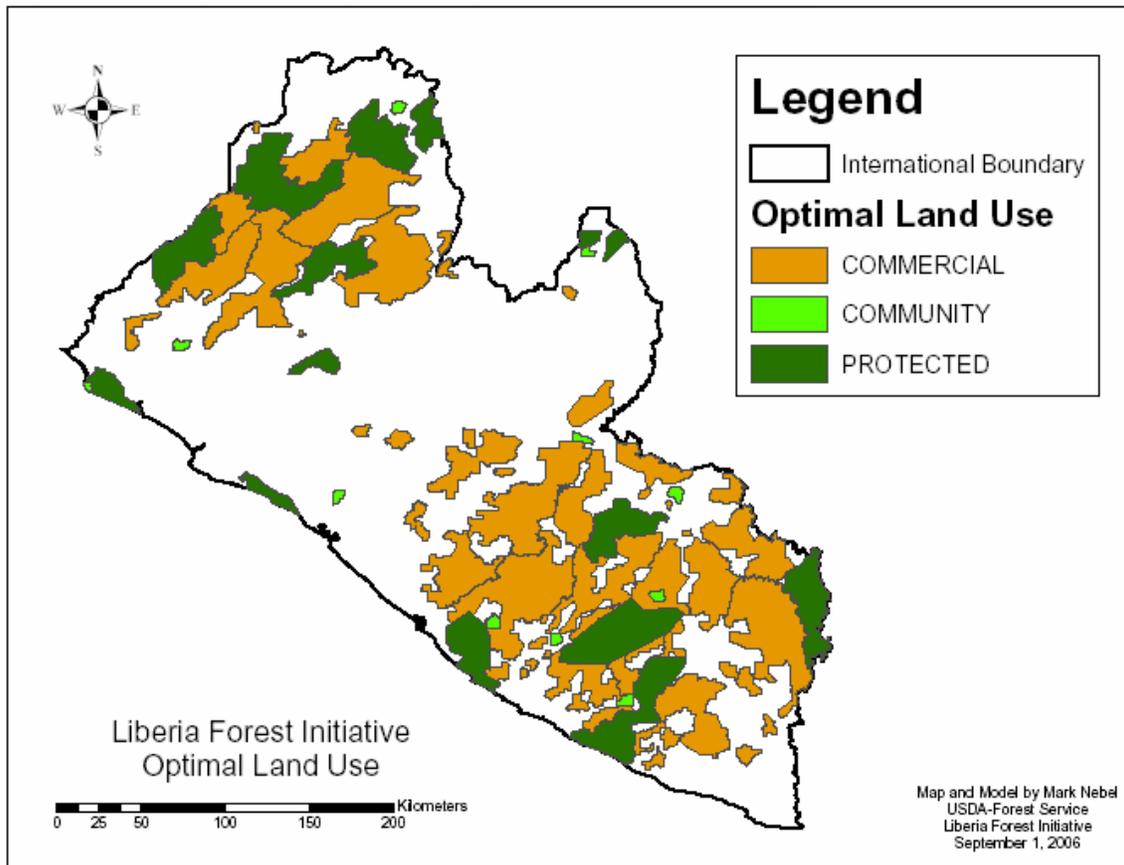
The green on the map depict areas clearly best suited for preservation relative to all other activities. The brown areas are clearly best suited for commercial activities. While the orange areas are equally suited for preservation and multiple uses. Finally, the purple areas are partially forested mosaic and are suited for mixed uses of agriculture, forestry (including plantation, etc) or other development activities.

National Forest Management Strategy

Map 5: Optimal Land Use depicts the FDA final results for the optimal forest land use which forms the basis of the National Forest Management Strategy.

Therefore, Map 5 depicts the proposed overall forest management strategy for Liberia. The green represents the basic outline for the future protected areas network. The tan areas represent proposed Multiple Sustainable Use areas.

(replace this map with an updated map from Nebel)



Map 5: Optimal Land Use Strategy

Multiple sustainable use management

For the purpose of the scale at which the FDA is working on the National Forest Management Plan and based on the level of field data available, the FDA has determined that the terms for commercial and community forestry can be joined into one category of Multiple Sustainable Use.

Commercial Contracts

The FDA will work to both tender Timber Sale and Forest Management Contracts during the next three years that are approximately equal to 2.3 million hectare. In year one (corresponding to FY 08 – July 1, 2007 to June 30, 2008) the FDA will research and tender 10 timber sale contracts and three Forest Management Contracts. In year two, the FDA will work to establish 5 timber sale contracts and 5 Forest Management Contracts. An evaluation of this process will take place before establishing objectives for year three. However, it will be consistent with the overall management strategy.

The FDA has developed the Forest Policy, New Forestry Reform Law of 2006 and accompanying regulations and guide manuals that will serve as the regulatory process for achieving these goals. Only areas that fall into the Multiple Sustainable Use Management areas will be subject to evaluation for commercial activities. All areas will be field vetted and justification of actions will be completed through the writing of justification documents that will be available to the public.

Rationale: The following activities will aim to establish a transparent and efficient forest concession system that will result in sustainable forest management in forest concessions.

Activities: The strategy for forest concession management will include the following activities (in approximate order of priority):

1. Implement a set of rules and procedures for forest management in contracts, including a logging code and a new forest contract that sets out requirements for the following: forest management plans; environmental impact assessment; legal and financial qualifications; and local participation in the sector.
2. Demarcate forest contract boundaries and implement a transparent and competitive bidding system.
3. Implement an effective production monitoring system.
4. Develop and implement a mechanism to share the benefits from forest concession activities between the government, private sector and local communities.
5. Develop and implement procedures for awarding contracts or licences to local communities, small-scale enterprises and industrial enterprises.

Responsibilities: The Forestry Development Authority will be responsible for most of the above activities, in consultation with the private sector and local communities. Their role will be to facilitate the developments described above and monitor and control (enforce) the established rules and procedures. In addition, forest certification will be encouraged, to strengthen the monitoring of operations.

Modernization of the wood processing industry

Background: The wood processing industry can be a source of investment and employment in the Liberian economy and should contribute to value added in the sector. However, historically log production has been export-orientated and focused upon a few very high-valued species. This dependence on a limited range of species (and harvesting above the sustainable yield in recent years) has probably affected the sustainability of forest management.

Even in the period prior to the recent civil conflict there were few large-scale processing plants and not all forest concessionaires installed sawmills. Sawmills produced lumber primarily for export with residual production for domestic markets. Only three plywood/veneer plants were constructed and these operated for a short period before being destroyed or looted along with much of the rest of the installed wood processing capacity.

Rationale: The wood industry will need to be rebuilt and it is expected that the majority of new investment will be as a result of the allocation of forest concessions. The following activities are aimed at promoting value added in the wood industry, increasing the utilization of lesser-used and lesser-known timber species and ensuring improvements in efficiency in the industry. This will contribute to objectives 6, 7 and 8 of the forestry policy.

Activities: The strategy for the modernization of the wood industry will include the following activities (in approximate order of priority):

1. Create an adequate legal and regulatory framework for the wood industry.
2. Ensure access to export markets.
3. Provide market intelligence and other information to the wood industry.
4. Promote training programs in the wood industry.

Responsibilities: The private sector will be responsible for investing in new wood processing plant and equipment. The government will be responsible for encouraging investment and ensuring compliance with all relevant laws (e.g. through the revision of concession contracts and monitoring procedures). It will also help to increase international market access for logs and wood products through inter-governmental negotiations with trading partners. However, the government must ensure that processing capacity does not exceed the sustainable yield from the forest resource and that a balance is achieved between domestic and export demand for forest products. The government and private sector will provide funding for technical assistance and training both to the formal wood industry and to the informal sector (e.g. local carpenters).

Community Forestry – Community forestry is a developing field in Liberia and is identified as an integral part of the Sustainable Forest Use Management of Liberian forests. The FDA will establish a Community Rights and Access law to put before the national legislature on the timeframe identified in the New Forestry Reform Law of 2006. The FDA will also engage in this timeframe to:

1. Develop local understanding and definitions of community forestry
2. Develop and implement standards on community tenure rights and access
3. Develop and test models for community empowerment and forest management
4. Production of bushmeat, wood energy and other non-wood forest products

Background: For the large number of people who live in rural areas, forests and trees have always been an integral part of their livelihoods. With appropriate management, they can be used both as a sustainable source of forest products and as areas that are protected for important social and cultural uses. The Liberia Code of Law (1956) permitted the creation of government reserves, native authority reserves, communal forests and national parks, but few native authority reserves and communal forests materialized. Consequently, the government managed the entire forest estate and the issues of community forest management were never properly addressed.

Rationale: The following activities will encourage local communities to sustainably manage their forests by creating rights, transferring control and building capacity for forest management within local communities.

Activities: The strategy for community forest management will include the following activities (in approximate order of priority):

1. Establish the rights and responsibilities of local communities (with respect to forests) and a framework for community forest management that allows communities to maximize their benefits from all potential uses.
2. Empower local communities to identify opportunities, set objectives and local management rules and liaise with government and other interested stakeholders.
3. Provide extension and technical assistance in community forest management.
4. Locate and practice community forestry on communal land.

Responsibilities: Local communities will be responsible for community forest management. The role of government will be to create an enabling environment for community forest management and to co-ordinate activities. In collaboration with non-governmental and community-based organizations, government will also facilitate

community forest management by providing technical advice and extension services and enforcing the agreed rights and responsibilities of local communities.

Conservation management

Forest conservation includes the management of specific sites of high conservation value and the integration of conservation objectives into all aspects of forest management. The strategy for forest conservation will focus on wildlife and protected area management, management of wetlands and mangroves and the development of eco-tourism and nature tourism.

Wildlife and protected area management

Liberia contains two of West Africa's three largest remaining rainforest blocks. These blocks contain many plants and animal species that are endemic and whose survival is severely threatened outside Liberia. They have also been identified by international agencies as a "biodiversity hot spot" and, therefore, a priority for global conservation efforts.

There are currently two strictly protected areas in Liberia: Sapo National Park (established in 1983); and East Nimba Nature Reserve (established in 2003). In addition to these, six other protected areas have been proposed and the government has committed to establishing a biologically representative network of protected areas covering at least 30 percent of the existing forest area (Protected Forest Act, 2003). Currently, the main threats to Liberia's protected areas are agricultural encroachment and uncontrolled hunting, fishing, logging and mining.

Rationale: The following activities are intended to ensure effective conservation and management of wildlife resources.

Activities: The strategy for the wildlife and protected area management will include the following activities (in approximate order of priority):

1. Collect and analyze biological and socio-economic information to determine the status of existing and proposed protected areas and finalize the establishment of an appropriate protected areas network.
2. Increase community participation in wildlife management in all forest areas and, in particular, through collaborative management of protected areas.
3. Increase public awareness of forest conservation issues.
4. Strengthen and improve alternative livelihood opportunities to reduce rural dependence on forests and wildlife.

5. Improve co-operation with neighboring countries to address trans-boundary conservation issues.

Responsibilities: The government and non-governmental organizations will be responsible for supporting and implementing the scientific and technical aspects of wildlife and protected area management. Along with community-based organizations, they will support and facilitate community participation in wildlife management and raised public awareness.

Bushmeat and hunting

Background: Liberians have always been very dependent on bushmeat as a source of protein and, in recent years, it is believed that hunting for bushmeat has accelerated rapidly. This increase can be attributed to greater demand from urban areas and neighboring countries and the high level of income that can be quickly achieved from hunting.

In addition, the civil unrest has weakened the government's ability to control these activities. For example, it is now estimated that prohibited or fully protected wildlife species account for about 35 percent of bushmeat sales and partially protected species account for a further 40-50 percent.

Rationale: The following activities aim to re-establish control over bushmeat hunting, to bring the level of hunting down a sustainable level and stop the hunting of protected species. This will contribute to objectives 1, 2, 5, 7 and 8 of the forestry policy.

Activities: The strategy for bushmeat and hunting will include the following activities (in approximate order of priority):

1. Enforce the ban on hunting of all protected wildlife species in Liberia.
2. Design and implement programs to support income generating activities in rural communities as an alternative to commercial hunting.
3. Design and launch a national awareness campaign about bushmeat and hunting issues.

Responsibilities: Government, in collaboration with non-governmental and community-based organizations, will be responsible for implementing these activities. The role of government will be to facilitate and co-ordinate activities (e.g. through revising and enforcing legislation in this area). Non-governmental and community-based organizations will play a significant role in implementing programs and liaising between government and rural people.

Additional issues to address

There are three main issues that will need addressing during the next two years; forest land use decision making process, conflict resolution and mitigating expectations of most forest sector stakeholders.

Forest land use decision making process

The FDA has adopted a decision making process aimed at maximizing the utility of forest management and contribution to social and economic development in the forested regions. Pre-2005 commercial contracts and protected areas were designed and implemented, however, the government was not required by law to complete full analysis of the opportunity costs of any given land decision. Further, more advanced policies in forest management point to greater efficiency and benefits to the population by managing forests as an overall landscape and increasing democratic opportunities for decision making.

To complete the process the FDA is committed through the New Forestry Reform Law of 2006 and supporting regulations to initiate forest land use and suitability analysis before any commercial, community or conservation forest land use activities are proposed. Based on the initial suitability the FDA staff will completed field verification analysis and report the findings of the field inspections in a justification document. All field analysis must include a comprehensive social and economic studies and physical forestry and biodiversity inventories. If the justification document is approved the FDA will follow the legal process for committing the forest land to the defined use. For example, commercial contract areas must be tendered through the Public Procurement and Concessions Act process and Protected Areas will follow requirement defined in law.

Conflict resolution

The FDA is dedicated to resolving current and future land use conflicts in the forest sector. There are two ways in which the FDA can actively contribute to conflict resolution:

1. By implementing the forest land use decision making process and including communities in consultations before land use decisions are completed.
2. Were conflict exist in forest usage, the FDA should seek to mediate by serving as a third party facilitator.

Mitigation of expectations

Based on the reform process in Liberia and the eager anticipation of the start up of the commercial logging activities and the desire for devolution and increased democracy in forest resources management there are a variety of expectations on the future of the new sector. The FDA will be responsible for providing clear information on policies, law, regulations and the strategies being implemented in the forest sector....

Future Work for Revisions

Currently, the FDA is dedicated to support a future positive management of forests based on appropriate tenure rights and legal security for investments, access and ownership rights. To complete these objectives the FDA will continue to work with the newly created Land Tenure Steering Group within the GRC and any subsequent authority defined to manage tenure issues.

The FDA recognizes and is determined to participate in the Steering Group efforts and will incorporate future land tenure commission policies and decisions into the National Forest Management Plan.

Some of the sub-tasks that must be addressed are:

- validate and geographically verify metes and bounds of all tribal and deeded lands
- complete and integrate agricultural suitability and mixed forest agricultural management strategies into the National Forest Management Strategy.

The FDA will continue to work with all appropriate line Ministries, Industry and Civil Society to develop strategies to integrate agricultural development and devolution of forest resources management.