EVALUATION OF THE NATURAL FOREST MANAGEMENT AND THE CHAIN OF CUSTODY FROM THE FOREST TO THE OUTPUT OF ORSA FLORESTAL S.A. PRODUCTS IN THE ALMEIRIM REGION, STATE OF PARÁ, BRAZIL

PERFORMED ACCORDING TO THE PRECEPTS OF FSC AND THE SCS FOREST CONSERVATION PROGRAM

Certification Program Accredited by FSC

Certificate registered under number:
SCS-FM/COC-00075N

SUBMITTED TO
ORSA FLORESTAL S.A.
Vila Munguba – S/N^{o}
68240-000 - Monte Dourado – Estado do Pará
BRASIL

Coordinated by Vanilda Rosângela de Souza
Field assessment date: November 02 to 07, 2008

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Organization of the report

This report is the result of the field evaluation performed by the auditor team and is divided into two sections. The Public Summary is presented at section A and the basic information required by FSC (Forest Stewardship Council). This section will be available to the general public and is meant to provide a general view of the evaluation process, the administrative and management programs, the action plan in regard to the forests, and the evaluation results. Section A will be available at the SCS website (www.scscertified.com) no later than 30 days after recertification. The section B contains more detailed information for the use of the company.

Partial certification process

Recertification process of the native forests belonging to JARI CELULOSE S.A., known as Gleba Jari I and managed by ORSA FLORESTAL S.A., with an area of 545,024.00 hectares where more than 30 native species are harvested. The most important species are: Angelim-vermelho, Angelim-pedra, Cupiuba, Itaúba-amarela, Fava-bolota, Mandioqueira-escamosa, Jatobá, Maçaranduba, and Piquiá. The maximum annual harvesting area allowed for Orsa is 15,000 ha. In 2007/2008 period, 11,080 ha were harvested. The maximum volume allowed to be harvested is 253,000 m^3, restricted to 30 m^3/ha.

FOREWORD

SCS (Scientific Certification Systems) is a certification body accredited by FSC (Forest Stewardship Council) that was commissioned by **ORSA FLORESTAL S.A.** to lead the natural forest recertification process for Gleba Jari I, located in the Jari Valley in the municipality of Almeirim, State of Pará. According to the FSC/SCS system, forest operations complying with the international standards for forest management can be certified as "well managed" and, therefore, are eligible to use the FSC logo to sell their products.

In November, 2008, an interdisciplinary team of specialists in natural resources was commissioned by SCS to perform the evaluation. The team collected and analyzed documented material, performed public consultation through e-mail and regular mail, performed interview, and field and office audits for five days at the client's properties for the recertification assessment. Following the data collection phase, the team concluded that the company complied with all FSC criteria and, therefore, recommended its recertification.

This report has the purpose of supporting the recommendation for recertification by FSC of the Forest Management Unit named Gleba Jari I of ORSA FLORESTAL S.A. in the region of Almeirim, State of Pará, as a followup to the already existing certificate (SCS-FM/COC-00075N). Some Major Corrective Actions issued by the evaluation team after the field audit were submitted to Orsa. The company complied with all of those before the completion of this report, as verified by SCS. If recertification is awarded, SCS will post this public summary on the SCS webpage (www.scscertified.com)

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SECTION A – PUBLIC SUMMARY AND BASIC INFORMATION

1.0 BASIC INFORMATION

1.1 DATA REQUIRED BY FSC

Company	**ORSA FLORESTAL S.A.**	
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WEB	www.jari.com.br	
Type of certification	Single area, single Amazon native forest management plan	
Number of FMU	1	
Number of areas in the FMU with less than 100 ha	0	
From 100 ha to 1.000 ha	0	
From 1.000 ha to 10.000 ha	0	
Over 10.000 ha	1	
Location of the forest to be certified Latitude	(Reference point - CAMP)	(Boundary Vertex) Lat 0º 20’ 00” S and 1º 40’ 00” S
Longitude	(Reference Point - CAMP)	Long 51º 50’ 00” W and 53º 20’ 00” W
Forest Region	Tropical	
Total of forest areas included in the FMU	545,024 hectares	
With less than 100 ha	--	
From 100 ha to 1.000 ha	--	
From 1.000 ha to 10.000 ha	--	
Over 10.000 ha	545,024 hectares	
Land tenure	Leased (100 %)	
Number of forest workers (including contractor’s) on the certificed area	350 workers on the forest area	
Forest protection areas, protected against harvesting activities and managed preferentially for conservation.	5 % control area with 27,255 ha. It consists of a continuous area including parts of APU (Annual Production Unity) #24, 25, 26, 27, and 30 of Orsa Florestal FMP (Forest Management Plan). The company holds a protection area of	

	92,782 ha.
Forest area defined as High Conservation Value Forest	Two ecologic corridors were recently defined (two strips of native forest) as HCVF with 100 ha in total.
List of high canservation values present	- Connectivity areas - Biologic and ecologic corridors
Productive forest area	452,553.00 ha
Productive forest area classified as "plantation" for the estimate of the Annual Accredited Rate (AAR)	N/A
List of commercial timber included in the assessment (botanic and common names)	Angelim-vermelho (*Dinizia excelsa*), Angelim-pedra (*Hymenolobium petraeum*), Cupiuba (*Goupia glabra*), Itaúba-amarela (*Mezilaurus lindaviana*), Fava-bolota (*Parkia pendula*), Mandioqueira-escamosa (*Qualea paraensis*), Jatobá (*Hymenaea courbaril*), Maçaranduba (*Manilkara huberi*) and Piquiá (*Caryocar villosum*).
Approximate annual volume authorized for harvesting	Approximately 233,000.00 m^3/year of logs and 166,200.00 m^3/year of forest residues, corresponding to AOP (Annual Operational Plan) (2007/2008) of 11,080.00 ha.
List of FM/COC jointly certified product categories and, therefore, liable to be sold as FSC products	Tropical logs and forest residues

1.2 FOREST MANAGEMENT CONTEXT

The native forest management developed by ORSA FLORESTAL S.A. at JarI valley must follow national and state laws and norms pertaining to the activity. The following main regulations must be complied with:

At federal level:

a. The Brazilian Forest Code (Law # 4771/65) and corresponding normative instructions.
b. Approval of the Management Plan by IBAMA
c. Normative Instruction # 04 of MMA, from 04/Mar/2002.
d. Normative Instruction # 05 of MMA, from 11/Dec/2006.
e. AUTEF – for forest harvesting
f. GF1 (SAWMILL LOGS) – for log transportation

At state level:

a. State Environment Policy (Law # 5887/95)
b. Issue of Bill of Sales when selling products.

At municipal level:

a. Payment of ISSQN when using constractor services.

Furthermore, payment of all labor taxes at federal level are mandatory, including:

a. Social security
b. Severance fund (FGTS)
c. Contribution to corporate bodies (Union fees)

1.2.1 Environmental context

ORSA FLORESTAL S.A. was created during 2003. It belongs to the same group that owned JARI CELULOSE. The latter became responsible for the administration of all operations except pulp mill in the region. These include native forest management with saw-log harvesting and subsequent aggregation of values, harvesting of non-timber products, and generation of agro-industrial businesses in conjunction of adjacent communities. For this effect, the management area was leased to Orsa and a timber sale contract between the two companies was signed. All forest operations are under the responsibility of ORSA FLORESTAL.

The ORSA Forest Management Unity, known as Gleba Jari I, is located at the left bank of the Amazon River, along the boundary with the State of Amapá, south of Monte Dourado District, municipality of Almeirim, State of Pará. The forests at Jari valley are crossed by two secondary drainage systems which are of Jari and Parú rivers, with a main system of which Amazon river is part. Parú river marks the western boundary of the property; Jari river separates the States of Pará and Amapá and crosses the property; and the Amazon river marks the southern boundary of the property.

Most of the soil at Jari is known as yellow Latosol (Oxisol), Cambisol (Inceptisol), and Argisol (Spodosol) with their several map unities. Other types of soil occur in lesser extensions such as structured red Latosol (Alfisol) and Plinthosol. The soils under upland forests vary in gravel, sand, clay, and silt contents.

The climate in the region can be characterized as Hot and Humid Equatorial with a rainfall regime marked by two well defined seasons: a rainy season from January to July when nearly 80 % of the annual rainfall occurs; and the dry season from August to December. The total rainfall is high and concentrated in the first half of the year. Temperatures are high all year round. The annual mean temperature is 26º C with a maximum of 34º C and a minimum of 22º C. The range of temperatures is small. The mean wind velocity is between 2 and 4 m/s. Wind gusts with high velocity are common. In rare cases they can reach 100 km/h.

The vegetation at Jarí is varied. It includes several types of forest and non-forest formations. The main type of vegetation is the equatorial sub-evergreen forest. The term "sub-evergreen" is used because the majority of trees shed their leaves during the driest months (August to November) and their crowns are reduced to about 30 %. The forest formations at Jari can be classified into six types: 1) dry and semi-open forest with *palha-preta* – a stemless palm plant [*Orbignya sagotii* Trail ex Im Thurm (M. J. Pires & N. Silva, 1765, det. Henderson)]; 2) mesophytic dry forests with *palha-preta* on the lowland and upland between 150 to 200 m; 3) closed forests without *palha-preta*; 4) floodplain forests with vines; 5) igapó (river) forests; and 6) non-forest formations.

The Jari valley forests are rich in wildlife. Many species of mammals, birds, reptiles, amphibians, and invertebrates in general participate in nutrient cycling, seed dispersion, and energy flow. These processes not only maintain the forest but also boost its regeneration. So far, 215 species of birds, 38 of mammals 33 of reptiles, and 6 of amphibians were recorded through literature review and field surveys.

No chemical product is needed in native forest management. The company does not use any pesticide in its forest activities.

1.2.2 Socio-economic context

Jari Celulose was created in 1967 and its headquarters and mill were established in the municipality of Almeirim, in the Munguba industrial district, nearly 18 km from Monte Dourado. Within the company area, there are three municipalities (Almeirim-PA, Laranjal do Jari-AP, and Vitória do Jari-AP), over a hundred thousand inhabitants, and one of the greatest operational infrastructures in the Amazon for the management of native and planted forests.

Jari Celulose played a significant role in the economic development in the municipality of Almeirim, mainly in housing complexes of Laranjal do Jari and Vitória do Jari. Historically, Almeirim was formed as the logistics base of the colonial development of the region and only in 1930 was it elevated to the category of municipality. Laranjal do Jari and Vitória do Jari appeared as the result of activities developed by Jari Project. They were elevated to the category of municipality in 1989 and 1997, respectively.

From 1967 to 1981, Jari Celulose S.A. was known as an industrial venture geared to self-sufficiency in terms of infrastructure, supply, production, services, and commerce. After that period, the company sought to decentralize the services by favoring the acquisition of a greater degree of market autonomy. This implied the development of a formal market in Laranjal do Jari by outsourcing and creation of service contractor companies. In summary, the economic development of Almeirim municipality was the result of several other actions, simultaneously established in the Amazon, Jari Project included.

The economy of Almeirim municipality was divided into three sectors: agriculture, animal husbandry, and plant extraction. The agriculture is basically for subsistence in which the main product is cassava. Plant extraction is characterized by gathering of Brazil-nut (*Bertholletia excelsa*) which is sold mainly in the international market. Timber extraction is done, largely, without an effective policy regarding reforestation or forest management and is a cause of deforestation in the region. Exceptions are some companies that adopt forest management such as Jari Celulose that manages its forests for the production of pulp and paper and Orsa Florestal that manages for timber production and subsequent aggregation of values, and for the production of non-timber products. The latter is one of the largest forest and economic development ventures in the region and in the Amazon.

The transportation in the municipality of Almeirim is mainly through the river. There are still a large number o boats that is not registered with the government. The municipality is not considered a touristic spot. The flow of people occurs mainly through Monte Dourado District because of the Jari Project and along its borders such as the municipality of Laranajal do Jari, State of Amapá.

At Monte Dourado, the Orsa/Jari Celulose S.A. Group owns almost all realestates (residential or not) and is the concession holder of utility and water services. The water supply and distribution are under the responsibility of Companhia de Saneamento do Pará (COSANPA) that serves 100 % of households in the area. All households are served by a sewage system and residue treatment. That coverage is restricted to the areas that were planned. In other rural communities, there is no public drinking water supply system. In these areas, the water supply comes from wells or directly from the rivers.

In the municipality in general, the access for the population to the main public services such as utility is still a great challenge. The fact that only 79.9 % of households have access to electric power illustrates the difficulty for the social and economic development in the region.

Large companies receive subsidized supplies of electric power from large hydroelectric plants but there is no assurance of their reaching all households in the region. Furthermore, there is no sewage system or household sewage treatment in the municipality of Almeirim. The decision about destination of wastes and sewage is taken on individual basis, according to their possibilities. Most commonly, human wastes are disposed of in outhouses.

The illiteracy rate in the municipality is higher than the state average. There is no committee or organization formed to deal with this issue. There are 34 associations, five unions, and one club registered at the city hall (Secretaria Municipal de Saúde, 2008).

According to a survey by Jari, prior to the arrival of Orsa Group at Jari valley in 2000, there were 98 rural communities. This represents more than three thousand families and nearly 14,500 people living within the area under the influence of Orsa Group. Most of these people are part of traditional communities and have always lived in the region. Others arrived recently in search for job opportunities at the agroindustrial ventures. Some communities are in the region for 40 to 60 years, while others are for less than 20 years. Among the 98 communities, 80 % have primary schools and 46 % have community organizations. Cassava crop is the main economic activity in 70 % of the communities. The second most important economic activity (in 26 % of communities) is Brazil-nut gathering.

Although there are long established large landholdings in the area, according to the socio-environmental survey done by Jari in 2005, nearly 95 % of properties are smaller than 200 hectares. The main issues faced by these proprietors are the legalization of land tenure and land procurement by new migrants. Because of the large extension of land and the availability of forest resources, the company areas became a lure to land squatters and illegal timber harvesters. This created a strong social pressure, enticed by activists with different economic interests (union organizations, community representatives, timber harvesters, and others). In this context, the company has been working in a socially responsible manner by seeking peaceful and synergistic coexistence with the actors, both inside and outside its areas. This is to ensure protection and sustainability of its natural resources in pace with social and economic development of the local society.

1.3 FOREST MANAGEMENT AT THE COMPANY

1.3.1 Background

The settlement for exploitation of forest resources at Jari valley, where JARI CELULOSE S.A. estates are located, started in 1882 with José Júlio de Andrade, a migrant from the State of Ceará. He established an operation to gather Brazil-nut and collect rubber on a 16,000 km^2 land base. In 1948, this estate was acquired by a group of Portuguese and Brazilian merchants which pursued the same exploitation system. In 1967, the land base was acquired by Daniel Keith Ludwig, who established Jari Florestal e Agropecuária Ltd., popularly known as Jari Project. Its main objective was to produce pulp and paper. Other products were later added to its activities such as kaolin mining and rice production. In 1982, its stock control changed to Jari Company, headed by Augusto Trajano de Azevedo Antunes. In 2000, the company's control changed to Orsa Florestal of the ORSA Group, which already operated in the production of cardboards, corrugated cardboard casings, and kraftline paper.

Orsa Group has the control of *SAGA Investimentos e Participações* and *Grupo Orsa Participações S/A* holdings and has become one of the largest companies to produce pulp, container paper and cardboards in the country. Its main organizations are *Orsa Celulose, Papel e Embalagens* (which operates in the States of São Paulo, Goiás, and Amazonas), *Jari Celulose* and *Orsa Florestal* (in the States of Pará and Amapá), *Marquesa* (in the States of Pará and São Paulo), and *Fundação Orsa* (in the whole country). At Jari valley, Orsa Group maintains two acting organizations: *Fundação Orsa* and *Orsa Florestal*.

Orsa Florestal was created in 2002 with the objective to manage forests for timber harvesting to supply sawmills and to subsequently add value to non-timber products from the native forest, as well as to generate agroindustrial businesses in conjunction with adjacent communities. These projects are locally developed and followed up by Fundação Orsa technical team.

JARI CELULOSE S.A. lands (Gleba Jari I and II) add up to 1,259,958.37 ha. Gleba Jari I covers 545,024.953 ha on the left bank of Amazon river between latitudes 00º27'00"S and 01º30'00" S, and longitudes 51º40'00" W and 53º20'00" W, south of Monte Dourado District. These were handed to ORSA FLORESTAL S.A. to develop forest management activities.

At the lands of JARI CELULOSE S.A., activities involve not only native forest management but also eucalypt plantings to supply the pulp mill. The certified areas add up to 972,760.053 ha of which 427,736 ha are included in the Planted Forest Management Plan (Jari Celulose), 545,024.953 ha of native forests (Orsa Florestal), and 287,197.416 ha outside the scope of certification.

Orsa Florestal was certified in 2004 and has a large amount of information, both scientific and empirical, collected through forest inventories and monitoring of permanent plots in both natural and planted forests. The company has a history of actions and social benefits and these experiences are being incorporated into new actions for the improvement of forest management. The improvement in sustainable forest (native and planted) management technology through joint actions with research institutions, as well as through its own experiences asserts the maturity of the company so that it has become a model for the Amazon and apt to be certified by FSC.

1.3.2 Areas outside the scope of certification

The areas under certification are private properties, duly registered and recognized by the proper agencies. However, the Group owns 287,197.42 ha outside the scope of certification. These include areas in the process of appropriate documentation with INCRA. On or around these areas, there is no indigenous settlement. However, there is a large number of riverside settlements in the surrounding areas, which are considered to be traditional settlements. Furthermore, there are land squatters and families that "acquired" land lots from the squatters and live within the company lands. In the case of riverside settlements, they include those who arrived at the time of José Júlio de Andrade, during the first half of the 20th Century, and also those who arrived at the time of the "Portuguese", in the early 1950's. However, there are at least two communities (Recreio and Arumanduba) that, according to the survey, settled in the 21st Century. All established communities are in the process to regularizing their land tenure situation.

1.4 MANAGEMENT PLAN

1.4.1 Management objectives

General objective of the management at Orsa Florestal:

- Qualitative and quantitative assessment of the vegetation composition and wood volume on the area to be managed.

Specific objectives

<u>Technical:</u>

- To determine species/area ratios;

- To determine abundance, frequency, relative dominance, and importance value index of the main species;
- To determine volume distribution and frequencies of all species, including all diameter classes as well as trading classes;
- To determine the harvestable volume, both commercial and non-commercial, and the remnant volume;
- To determine the volume of residues from harvesting for use as energy source.

Economic:

- To estimate wood volume in condition to be readily harvested;
- To sort by commercial classes according to several markets;
- To obtain the maximum productivity at harvesting and to improve the ecologic and economic performances;
- To classify and to estimate the volume of residues for economic use, mainly as energy source.

1.4.2 Composition of the forest

The composition of the forest at Jari is highly diverse, including both forest and non-forest formations. According to the study done by the company, the forest formation at Jari valley was characterized as:

- *Floresta Ombrófila Densa (Floresta de Terra Firme) com as faciações* – Dense Tropical Rainforest (Upland Forest), with variations:
  - *Floresta Ombrófila Densa Montana (Fdm)* – Mountain Dense Tropical Rainforest;
  - *Floresta Ombrófila Densa Submontana (Fds)* – Submountainous Dense Tropical Rainforest;
  - *Floresta Ombrófila Densa de Terras Baixas (Fdb)* – Lowland Dense Tropical Rainforest;
- *Floresta Ombrófila Aberta, com as faciações*: - Open Tropical Rainforest, with variations:
  - *Floresta Ombrófila Aberta Submontana com palmeiras (Fap)* – Submountainous Open Tropical Rainforest with palms;
  - *Floresta Ombrófila Aberta Submontana com cipós (Fac)* - Submountainous Open Tropical Rainforest with vines.
- *Cerrado (Ce)* - Savanna;
- *Mata de Várzea (Floresta de Várzea, Fv)* – Floodplain Forest;
- *Vegetação com Influência Fluvial (Campos de Várzea, Cv)* – Vegetation under the influence of the river;
- Ecotone between Semidecidual Seasonal Forest and Lowland Semidecidual Forest (Fes);
- Transition from Floodplain Forest to Dense Rainforest (Evf); and,
- Secondary Vegetation and Areas under human disturbance (Fs).

The forest typology found in the greatest proportion is the Dense Tropical Rainforest (Upland Forest). It is characterized by the continuous canopy and heavy biomass. The canopy height varies from 30 m to 35 m aboveground and includes many emergent trees with more than 40 m in height. In general, this type of vegetation

produces around 500 m^3 of standing timber and around 40 m^2 in basal area per hectare, when only trees with dbh (diameter at 1.3 m from the groundlevel) of 45 cm are considered. These forest formations present nearly 500 trees per hectare, with 150 to 200 species. They are evergreen formations without a marked seasonal variation. The degree of deciduity in this type of forest is only residual, with less than 1 %. This phytophysiognomy is identified as of common accurrence at the Amazonian Terciary areas and dominates the lowland and Pleistocene terrace belts.

The total area at Gleba Jari I is 910,307.4277 ha of which 794,991.0262 ha are set aside as Legal Reserves (87.33 % of the area). The productive forest area is 452,553 ha. The permanent preservation areas add up to 50,000 ha distributed all over the property. Among these, 27.255 ha are set aside as control forests to comply with FSC standards (Table 1).

Table 1. Areas (ha) at Gleba Jari I, State of Pará.

Total Area at Gleba Jari I (PA)	**910,307.4277 (ha)**
Permanent Preservation Areas	50,000
Legal Reserves (*)	794,991
Planted forests	137,903
Infra-structure	1,156
Wildlife corridors	121
High conservation value areas	435

(*) The management area is totally included in this category.

1.4.3 Silvicultural practices

The silvicultural system in use is the polycyclic system. For the condition of the Brazilian Amazon Upland Forest, Embrapa named this system as the Brazilian System of Selective Management – SBMF. In this system, the forest rotation is divided into shorter intervals or cutting cycles. In each cycle, mature trees are harvested along the intermediate cuttings. In the present case of management, a cutting cycle of 30 years will be adopted initially, in conformance with the prevailing law. The 30 year cutting cycle was defined on the basis of research done in the Amazon region. The definition for this cycle was based on the assumption that, by performing a low intensity logging (up to 30 m^3/ha), along with silvicultural interventions in the residual forest, the return to the same area for a new cutting cycle can be done after a shorter period of time. However, the monitoring of the forest by using permanent plots established in the Forest Management Area will provide growth data for the adjustment of the initially predicted cycle.

The sequence of operations of the system to be developed at the management project at Orsa Florestal is shown on Table 2.

Table 2. Sequence of operations in the silvicultural system at the FMU.

Type of activities	**Activities**	**Subactivities**
	Setting boundaries of FMA* and APU**	- Opening of boundary trails - Fixing of sign boards
	Mapping	- Maps representing the FMA - Maps representing the UPA
	Opening of direction trails	Opening of direction trails

Pre-harvesting activities	Microzoning	- Identification of vine areas - Identification of topography and water bodies - Identification of preservation areas
	Forest census	- Identification of trees of interest - Record of quality and phytosanitary classes - Tagging of trees of interest - Record of mensuration parameters
Harvesting activities	Cutting of vines	Cutting of vines
	Infrastructure planning	- Main roads - Secondary roads - Log yards - Bridges and culverts
	Tree felling	- Felling of selected trees - Tagging of stumps
	Bucking	- Bucking and identification of logs
	Skidding	- Planning of skidding trails - Log skidding (from the forest to the log yard)
	Cutting and removal of forest residues	- Delimbing - Removal of short logs (from the forest to the log yard)
Post-harvesting activities	Monitoring of activities	- Control of activities - Monitoring of impacts/quality - Monitoring of safety
	Silvicultural treatments	Planting/gap enrichment - Thinnings/management

*FMA = Forest Management Area

**APU = Annual Production Unity

Concepts and criteria for the application of silvicultural treatments

The adoption of silvicultural treatments, such as canopy opening and regeneration management, have produced significant results in research carried out in the Amazon estuary region (Silva, 1997) and in managed areas in Costa Rica (Lehmann, 1991) where these practices enabled reduction of cutting cycles to 15 years in harvesting of *andiroba* (*Carapa guianensis*). Studies carried out in upland areas by Silva et al. (1997) and Piha-Rodrigues et al. (1999) indicated mean annual increments (MAI) of 0.8 to 1.0 m^3 in fast growing species such as *sumaúma* (*Ceiba pentandra*) and *breu-sucuruba* (*Trattinickia burseraefolia*). These results indicate the potential of forest tree species as long as correct silvicultural practices are adopted. This was demonstrated in management plans applied at Tapajós and Jari regions where a harvesting system in intensity of 40 m^3/ha along with silvicultural treatments every 10 years yielded increments of 0.7 to 1.0 cm/year in diameter and 2 m^3/ha.year, with a 30 year cutting cycle (Silva, 1997).

Carvalho *et al.* (1986) found that harvesting intensities of 23 % to 40 % in volume cause no damage to the diversity of Tapajós National Forest upland forest, especially when

only trees with dbh above 45 cm are harvested. Silva (1989) recommended that tree fellings be performed in well distributed patterns (as best as possible) to prevent opening of gaps. He further suggested cutting of vines 10 years after timber harvesting because the incidence of vines increase greately after canopy opening. Such practice must be performed together with a refinement to release desirable trees.

The experience with management in upland areas has demonstrated that moderate intensity harvesting is recommended, by removing from 30 to 40 m^3/ha, combined with 25 to 30 year cutting cycles (Silva, 1997) in order to avoid opening of wide gaps. According tho this author, other cutting intensities and silvicultural treatments must be tested in order to minimize cutting cycles.

Orsa will adopt the following cycle of operations as proposed by Silva (1990) as silvicultural treatment:

- Pre-harvesting inventory of all trees with DBH $\geq$ 60 cm and preparation of harvesting maps;
- Selection of trees to be harvested by observing a suitable spatial distribution in order to avoid formation of excessively wide gaps;
- Marking of trees to be harvested and those to be saved;
- Cutting of vines, if necessary, in order to reduce damages by tree felling;
- Establishment and measurement of permanent plots for growth and production studies (two one-hectare plots for each 230 – 300 ha of managed forest);
- Harvesting by observing directional felling whenever possible;
- Remeasurement of permanent plots in order to estimate damages caused by harvesting and the residual forest stock;
- Removal of non-commercial and severely damaged species. Reduce the basal area by 1/3 from the original. Consider the initial reduction due to harvesting;
- Remeasurement of permanent plots;
- Refinement in order to provide good growth conditions to the residual trees;
- Remeasurement of permanent plots;
- Repeat measurements every 5 years and silvicultural treatments every 10 years.

Utilization of residues generated at harvesting

The activities carried out during timber harvesting, mainly in tropical forests, generate considerable amounts of residues that are left in the area after the harvesting operations. After a given time, most of them decay before serving any purpose. However, they can be used as fuel wood or be converted into charcoal, as long as their harvesting and transporting be economically viable without causing any further environmental impact.

Among the main sources of residues from timber harvesting are:

1. Canopies of harvested trees and other trees felled along in the harvesting process;
2. Opening of the main and secondary roads, as well as trails and 10 cm to 30 cm dbh log yards;
3. Trees in dbh over 30 cm that are eventually felled during the opening of roads and log yards;

4. Naturally felled trees near the skidding trails;
5. Hollow logs or trimmings from logs left over at the yard;
6. Flat log buttresses in some species;

By considering the high demand of residues by Orsa Florestal S.A. for energy generation at its pulp mill and the large volume of them left over after timber harvesting, the company will collect them in the form of fuel wood and wood stakes for trading and/or to use as energy source.

In order to determine the volume of residues, parameters determined in studies by SUDAM, in Curuá-Una, were used. For each cubic meter of timber harvested, 2 to 4 m^3 of residues are produced. By considering that only residues from the log and branches will be retrieved and, also, due to difficulty in handling, only 50 % of the total volume will be effectively used.

The estimate of the total residues was 114.816 m^3/ha and those to be salvaged in the form of fuel wood and stakes was 57.408 m^3/ha. The use of residues from the timber harvesting operations will generate additional revenues from the investment, thereby improving the conditions for the natural regeneration to reclaim the harvested area.

1.4.4 Estimate of the sustainability of forest production

The drafting of the Sustainable Forest Management at ORSA FLORESTAL is based on forest inventory and harvesting with reduced impact and reclamation of the remnant forest through an adequate silvicultural system. The harvesting is planned by taking into consideration the spatial distribution of the species identified as of commercial value and those with future value. All planning is based on an Exploratory Inventory (census), and a map base showing the distribution of commercial species with dbh above 45 cm. The silvicultural system considers both the cultural treatments and the monitoring of the evolution of remnant forest growth, according recommendation by SILVA (1990).

GROWTH OF TREES IN TROPICAL FORESTS

The complexity inherent to tropical forests and to factors influencing the species growth has limited the studies about tropical forest growth dynamics, thereby making it difficult to estimate future volumes and basal areas. The pattern of development of the trees in tropical forests is heterogeneous. The variability in form and growth is due mainly to the species auto-ecology. From the generic point of view, the growth of the forest is influenced mainly by factors such as age, local soil conditions, sociological position of the trees, and genetic factors inherent to each species.

The rate of increase in basal area is higher under light harvesting, when only commercial species were considered. The tendency was opposite when comparisons were made for all species.

The expected harvesting cycle was of 30 years. Silvicultural treatments must be applied during this period. These include cutting of vines, removal of trees with bad form or other defects, and the removal of some non-commercial trees.

In order to follow the growth of the managed forest, permanent plots will be established. These will be established prior to harvesting at the time of forest inventory, at an intensity of 0.5 % (one hectare - 100 m x 100 m square - permanent plot for each 200 hectares of operational area). The plots are further sub-divided into 100 sub-plots where all

plants in the plot are identified and measured. The measurement of the trees is made by following the most appropriate method that varies with their sizes:

- Trees with dbh ≥10.0 cm – all trees in all plots are measured. Every tree is numbered and the following variables are recorded: code number, common and scientific names, forest class, dbh, crown form, damages, stem identification, and presence of vines.
- Trees with dbh from 5.0 to 9.9 cm are identified and counted.
- Seedlings smaller than 5.0 cm are identified and counted.

1.4.5 Estimates of the present and planned productions

Tables 3 and 4 show the composition of the company forest by Annual Production Unit – APU as prescribed in the management plan.

Table 3. Composition of Orsa forests as prescribed in the management plan.

APU	Area reserved according to the Management Plan	
	(ha)	%
1	13,209	2.4
2	14,486	2.7
3	10,690	2.0
4	12,200	2.2
5	16,265	3.0
6	15,738	2.9
7	17,765	3.3
8	20,180	3.7
9	21,615	4.0
10	11,946	2.2
11	13,113	2.4
12	12,834	2.4
13	20,412	3.7
14	12,820	2.4
15	53,254	9.8
-	-	-

APU	Area reserved according to the Management Plan	
	(ha)	%
16	18,279	3.4
17	33,634	6.2
18	17,911	3.3
19	24,609	4.5
20	22,714	4.2
21	14,848	2.7
22	14,090	2.6
23	15,036	2.8
24	16,709	3.1
25	14,039	2.6
26	14,016	2.6
27	15,341	2.8
28	15,393	2.8
29	25,973	4.8
30	15,900	2.769
Total	**545,022.51**	**100**

Table 4. Composition of registered forest areas

APU	Year	Registered Areas (AOP*)	Effective Areas (AOP*)
		Total (ha)	Total (ha)
1	2003	2,280.0	1,635.0
2	2004	7,530.0	3,448.0
3	2005	9,860.0	1,338.7
3	2006	8,521.0	2,447.0
3	2007	6,074.0	3,100.0
4	2007	12,200.5	6,158.8
Total registered		**31,870.5**	**18,127.5**
Total in the Management		**545,022.5**	**545,022.5**

Plan		

* Annual Operational Plan

Tables 3 and 4 show that the registered areas are smaller than those originally reserved in the Management Plan. This is because the company is beginning its activities and has not yet achieved its full productive potential. The tendency is for the areas to increase in scale as the production volume increases. This will directly result in higher consumption of logs in the sawmill and, consequently, need for larger annual harvesting areas.

APU 3 was managed in three years due to difficulty to get approval. This caused temporary discontinuity in operations and led the company to file an injunction with the justice to keep operating. Thus, part of APU 3 was managed in the years 2005, 2006, and 2007. Table 5 shows the volumes of the most important among more than 30 species that are harvested.

Table 5. Main species harvested at the Forest Management Unit of Orsa Florestal.

Commercial Species		Total Harvested (m^3)			
Common Names	**Scientific Names**	**2004**	**2005**	**2006**	**2007**
Acapu	*Voucapoua americana*	679.25	5,103.29	168.26	87.17
Amapá-doce	*Brosimum parinarioides*	2.02	-	-	-
Angelim-pedra	*Hymenolobium petraeum* sp.	2,558.36	909.54	1,821.60	2,863.66
Angelim-vermelho	*Dinizia excelsa*	20,377.91	6,644.36	15,043.21	16,435.54
Araracanga	*Aspidosperma* sp.	-	24.27	-	-
Cedrinho	*Erisma uncinatum*	-	55.95	773.95	2,747.05
Cedrorana	*Cedrelinga catanaefolia*	5.13	-	-	-
Cumaru	*Dipteryx intermedia magnífica*	2,364.67	1,873.15	1,685.71	2,362.37
Cupiúba	*Goupia glabra*	895.68	3,630.32	5,747.00	2,121.86
Fava	*Parkia pendula* sp.	856.76	3.44	-	-
Guajará	*Pouteria elegans*	-	314.50	-	-
Ipê	*Tabebuia serratifolia*	-	211.25	305.60	168.53
Itaúba	*Mezilaurus lindaviana itauba*	3,131.69	291.02	156.07	2,086.50
Jatobá	*Hymenaea courbaril* sp.	1,322.05	614.26	2,114.70	2,546.54
Louro-faia	*Roupala montana*	-	1,472.62	3,801.56	2,436.15
Maçaranduba	*Manilkara huberi bidentata*	2,484.25	12,045.13	18,838.06	9,547.34
Mandioqueira-escamosa	*Qualea rosa, paraensis*	8,563.12	5,364.77	7,460.60	8,247.97
Mandioqueira-lisa	*Qualea albiflora* sp.	3,649.20	1,011.21	1,389.87	4,893.83
Matamatá	*Eschweilera paniculata* sp.	-	245.11	9.10	-
Muiracatiara	*Astronium gracile*	41.05	4.28	-	-
Pequiá	*Caryocar villosum*	522.90	2,290.67	3,730.93	2,347.02
Pequiarana	*Caryocar glabrum*	307.82	1,057.27	1,175.56	1,062.28
Quaruba	*Vochysia maxima* sp.	404.00	570.13	428.72	2,137.08
Quaruba-cedro	*Vochysia vismiaefolia*	165.70	3.90	-	-
Sapucaia	*Lecythis pisonis*	86.95	9.44	-	-

Sucupira-preta	*Diplotropis racemosa purpurea*	113.17	215.87	121.20	477.55
Tanibuca	*Buchenavia grandis parvifolia*	-	1,025.05	1,826.15	1,142.43
Tatajuba	*Bagassa guianensis*	-	232.02	401.83	517.09
Tauari	*Couratari guianensi oblongifolia*	194.34	-	-	-
Taxi	*Tachigali myrmecophila*	2.72	484.65	529.94	1,145.07
Taxi-vermelho	*Sclerolobium melanocarpum*	-	208.53	-	-
Timborana	*Piptadenia gonoachanta*	268.98	896.22	1,710.75	19.85
Grand Total		**49,586.13**	**47,181.70**	**69,928.09**	**66,036.29**

The harvest volume, as predicted in the AOP 4, Year 05, APU 4, period 2007/2008 must reach about 184,791.21 m^3 of logs and 277,186.82 m^3 of residues to be used at Orsa Group sawmill. The APU for 2007 and 2008 is made up of 1,227 WU (Work Unit) distributed over an area of 12,200.46 ha. Of these, 847 WU are operational, with effective productive area of 6,158.77 ha.

The survey at APU 4 involved all trees with dbh $\geq$ 45 cm and the diameter limits for harvesting were the minimum of 50 cm and the maximum of 180 cm. By considering the operational area of APU 4 (6,158.77 ha from a total of 12,200.46 ha) and the total volume tallied (893,341.38 m^3), there is a gross mean production estimate of 145.05 m^3/ha. Of these, only 30.00 m^3/ha is being requested for harvesting, so that 115.05 m^3/ha is maintained as stock remnant. These figures show the good productivity of the forest typology at APU 4. By planning to harvest only 20.69 % of the available volume, the allowed harvesting of 30.00 m^3/ha is attained (Table 6).

Table 6. Wood volumes surveyed and for harvesting by species.

Species (common names)	Total volume tallied (m^3)	Total harvesting volume (m^3)	% of tally
Acapu	73,112.21	677.87	0.9
Angelim-pedra	11,804.46	7,569.96	64.1
Angelim-vermelho	156,425.78	93,225.64	59.6
Cedrinho	28,388.08	4,022.57	14.2
Cumaru	10,557.59	3,240.67	30.7
Cupiúba	67,350.90	2,153.79	3.2
Ipê	2,359.79	942.13	39.9
Itaúba	14,518.97	2,163.12	14.9
Jatobá	9,319.19	3,841.68	41.2
Louro-faia	7,137.65	1,598.30	22.4
Maçaranduba	110,911.42	32,381.11	29.2
Mandioqueira-escamosa	42,322.85	16,282.60	38.5
Mandioqueira-lisa	16,493.48	951.68	5.8
Pequiá	18,546.69	8,178.10	44.1
Pequiarana	10,664.91	973.93	9.1
Quaruba	23,211.20	932.24	4.0
Sucupira-amarela	6,299.44	1,070.44	17.0
Sucupira-preta	3,765.80	1,209.47	32.1
Tanibuca	18,078.31	1,814.41	10.0
Tatajuba	1,793.09	982.43	54.8
Taxi	83,650.06	579.07	0.7
Total	**893,341.38**	**184,791.21**	**20.69**

2.0 STANDARDS USED IN THE ASSESSMENT PROCESS

The standards used in the re-certification process for Gleba Jari I under Orsa Florestal management were the principles, criteria and indicators defined by the Brazil Work Group of FSC (Forest Stewardship Council) for upland forest in the Brazilian Amazon, according to the document approved by the Council of FSC International directors, on March 24th, 2002. The standard can be accessed at FSC Brazil web page: www.fsc.org.br

3.0 EVALUATION PROCESS

3.1 ASSESSMENT DATES

- Recertification audit: November 02-07, 2008.

3.2 ASSESSMENT TEAM

Dr. Vanilda Rosângela de Souza is a forestry graduate from USP (University of São Paulo) with doctor degree from UFPR (Federal University of Paraná) in Wood Technology. She has over twenty year experience in the profession. She held the position of researcher, consultant, and service provider for private companies in Brazil. For the forest departments in companies, she has developed, established, and carried out forest quality control programs. She has also developed research to improve forest productivity and wood quality. She has worked in timber harvesting for more than seven years. In the environmental sector, she has carried out studies and developed programs to minimize environmental impacts caused by forest activities. She has developed management programs to deal with waste generated by forest operations. She has also developed requirements handle chemical products and introduced new products. She has coordinated natural forest fragment studies and projects on reclamation of degraded areas. In the social sector, she has developed human resources qualification programs (training and recycling), involving subjects such as productivity, quality, labor safety, and environment. She has developed projects, established, and carried out environmental education programs for the northern region in the State of Paraná. In the industrial sector, she has developed and carried out programs to integrate Forest x Industry aiming to improve the final product cost and to reduce the production costs; she has also carried out studies and programs for a better use of raw material. She coordinates the SCS certification program in Brazil through Sysflor and has acted as auditor in several processes of preliminary evaluations, certification and recertification of forest management units, including both planted and natural forests, as well as chains of custody of a variety of wood products.

Dr. Ana Cristina Mendes de Oliveira is a biology graduate from Universidade Federal de Minas Gerais with M.Sc. degree in animal behavior and Doctor degree in sustainable development in the humid tropics, both from Universidade Federal do Pará. She is associate professor III at the Department of Biology of Universidade Federal do Pará and a student supervisor at the graduate program in zoology of Museu Paraense Emilio Goeldi. She is also a collaborator researcher at Instituto de Pesquisa Ambiental da Amazônia and has been in the Amazon for 13 years. During this period, she has amassed a great amount of knowledge in ecology, mainly in wildlife. In the area of forest certification, she has participated as auditor for certification and re-certification of natural forests in the Amazon, as well as of planted forests in southern Brazil.

Rossynara Batista Cabral Marques is a graduate in forestry (1995) from Instituto de Tecnologia da Amazônia and specialized in environmental engineering from Universidade Federal do Amazonas (UFAM). Presently, she is pursuing a specialization in forest administration at Universidade Federal do Paraná (UFPR). She has experience in forest management in the Brazilian Amazon and in the management of projects in partnership with logging companies and communities. As the coordinator of the Promising Initiative Component of the ProManejo project of Ibama for five years, she articulated forest management assistance actions, as well as in implementating training centers in the Amazon among different government environmental agencies. Her experience in community forest management includes work carried out in Latin America. Since 2000, she has participated in the MFC Work Group in which she has contributed with public policy proposals. Her experience in forest certification involves work with Imaflora (Brazil) and Centro de Investigación y Manejo de Recursos Naturales Renovables (CIMAR - Bolivia). In the social area, she has established and is presently in charge of the development in community forest management plan within conservation units in the State of Pará. The work includes support for training, adjustment of harvesting techniques for reduced impact on the communities, work safety, and community administration. She worked, also, as an aid to Instituto de Desenvolvimento de Florestas do Estado do Pará (IDEFLOR) at the Public Forest Management board with the assignment to draft and implement a system to monitor the Pará State forest concession process. Since 2007, she has worked as auditor in forest management and chain of custody for Sysflor (Certificações de Manejo e Produtos Florestais Ltda.) which represents SCS (Scientific Certification Systems) in Brazil. She has completed more than 10 audits in chain of custody and 6 in forest management in northern Brazil.

Josué Rogério de Souza is a forestry graduate from Universidade Federal Rural do Rio de Janeiro (UFRRJ) and agricultural technicial from Escola Agrotécnica Federal de Inconfidentes (EAFI), Minas Gerais. He has over 12 years of professional experience in sustainable forest management in the Amazon and is, presently, coordinating the forest licensing process at Mil Madeiras company in Itacoatiara where he had acted, also, as forest manager for 6 years. This is the first company to be certified by FSC. He has experience in drafting, managing, and following up forest management projects as an independent professional in the Amazon.

3.3 ASSESSMENT PROCESS

The assessment process for recertification of Gleba Jarí I started with the Public Consultation on October 3rd, 2008. FSC and a number of environmental, social, and economics institutions operating at local, regional, and national levels were notified through e-mail and regular mail. The multidisciplinary team of auditors specialized in forestry, environment, economics, and social areas started the work by verifying the documents and the formal procedures in management. A data bank was structured with information contained in the Jari company geodatabase (years 2007-2008) in support of field verification of planned forest management macrozoning with the activities that were effectively performed. Moreover, 2007-2008 APU were characterized on the GIS in order to verify whether the operations performed in these areas were in conformance with those proposed in the Annual Operational Plan.

In the field, the auditors verified operational procedures in harvesting, planning, monitoring, and work safety. They verified, also, the environmental aspects, following the itinerary described in item 3.3.1.

On the last day of assessment, the auditors convened in order to analyze the information gathered during the field work and to confront them with FSC Principles,

Criteria and Indicators. Finally, a list of major and minor corrective actions required was drafted and presented at the closing meeting to the company directors and the technical staff.

3.3.1 Itinerary

The itinerary followed by the auditors during the assessment process is shown on Table 7.

Table 7. Areas visited by the auditors for the assessment of forest management at Orsa/Jari.

Date	Gleba Jari I	Auditor
Nov. 2nd, 2008	Transfer of auditor team to Monte Dourado District	all
Nov. 3rd, 2008	Audit opening meeting: breef presentation of audit procedures; presentation of activities developed by the company. Meeting to plan the logistics for the field audit.	all
	Analysis of documents (programs, maps, projects etc.)	Vanilda
	Analysis of documents (programs, maps, projects etc.). Visit to the harvesting areas to verify conservation areas (APP); visit to areas adjacent to the FMU including the proposed 5 % control area.	Ana Cristina
	Analysis of documents (programs, maps, projects etc.). Verification of the company social development, environmental education, and training programs.	Rossynara
	Analysis of documents (programs, maps, projects etc.). Structuring of the databank to characterize Orsa areas for the audit.	Josué
Nov. 4th, 2008	Visit to the harvesting areas, checking of work conditions, sanitation, and work safety. Visit to the Almeirim Public Prosecuting Counsel. Public meeting at Laranjal do Jari.	Vanilda
	Visit to the ecologic corridors proposed as HCVF; visit to the floodplain areas within the FMU and verification of conservation areas (APP and RL).	Ana Cristina
	Visit to Bom Jardim and Açaizal communities; visit to Vitória do Jari Rural Workers Union and to SINTRACOMVAJ at Laranjal do Jari; Public meeting at Laranjal do Jari.	Rossynara
	Public meeting at Laranjal do Jari.	Josué
Nov. 5th, 2008	Visit to Bituba community; interview with the mayor of Almeirim (Mr. Botelho); interview with the Almeirim Public Prosecuting Counsel; public meeting at Almeirim.	Vanilda
	Visit to the seedling nursery and the chemical storage facility; verification of documents at the office.	Ana Cristina

	Visit to Bituba and Goela da Morte communities; verification of forest operations involving operational plan, tree felling, bucking, skidding, safety conditions, environmental issues, opening of skidding trails, maintenance and conservation of forest roads; identification of stumps from different areas to trace the chain of custody; public meeting at Almeirim.	Rossynara
	Verification of forest operations involving operational plan, tree felling, bucking, skidding, safety conditions, environmental issues, opening of skidding trails, maintenance and conservation of forest roads; identification of stumps from different areas to trace the chain of custody; public meeting at Almeirim.	Josué
Nov. 6th, 2008	Visit to Bituba and Goela communities; analysis of documents at the office; meeting to verify compliance with P&C.	Vanilda
	Verification of documents on monitoring and environmental surveys; meeting to verify compliance with P&C.	Ana Cristina
	Visit to Acapumum and Acarapi communities; verification of the work and estate safety management plans; verification of documents at the office; meeting to verify compliance with P&C.	Rossynara
	Visit to Acapumum and Acarapi communities; verification of documents at the office; meeting to verify compliance with P&C.	Josué
Nov. 7th, 2008	Verification of documents at the office; verification of compliance with P&C; drafting of conditions; presenting of conditions to the company officials.	all

3.3.2 Assessment of the management system

For the analysis of the forest conditions, several sites with operations such as inventory, felling, skidding, and transport were visited. A database structured by the auditor Josué, with information from Jari company geodatabase (years 2007-2008) was used as a support tool for field verification. This database was matched with a Landsat 5 images taken in 2006 and a SRTM radar image that covered all project area. This structure was assembled in a GIS (ArcGis version 9.2) environment and was connected to a GPS to enable real time navigation in the management. With this base, it was possible to quickly match the planned macrozoning of the company forest management area with the activities that were effectively performed. Additionally, APU 2007-2008 were characterized on the GIS so that conformance of logistics operations with the proposal in the Annual Operational Plan in these areas could be confirmed.

For the analysis of the environmental aspects, areas harvested in different years were visited, including those harvested more recently for the evaluation of the impacts and of the recovery of forests that were harvested under the low impact system. Also, Permanent Preservation Areas and ecologic corridors proposed as HCVF (High Conservation Value Forest) were

verified on site. With respect to soil conservation, the conditions and maintenance of forest roads, including both main and secondary roads, were verified. Possible environmental impacts of water streams crossed by roads and under the influence of permanent infrastructure were evaluated. The works on wildlife monitoring, and pre- and post-harvesting silvicultural treatments carried out at the FMU were checked. The verification included, also, how these issues are checked through satellite image and georeferenced information, as well as the assessment of damages caused by the company operations and the mitigating actions adopted.

For the evaluation of social aspects, the audit was geared toward consultation with union representatives and community leaders by visiting communities that are most difficult to access and that are in a frail condition due to external pressure under the present regional scenario. Public agencies dealing with the environment and forest activities were consulted. Company employees and representatives of the local society that were present at the public consultation held at Laranajal do Jari and Almeirim were also consulted. The issues that were assessed included those related to safety conditions, labor, transport, meals, collective agreements, community land tenure and business sustainability, training, sanitation, and socio-environmental actions.

The assessment team concluded that both the analysis of documents and the field visits were sufficiently representative and guaranteed quality to the audit. The field work time was used to evaluate the phytogeographic situation in which Orsa is inserted and the relation of the company with the local society.

3.3.3 Stakeholder consultation

According to SCS procedures, the consultation to the most relevant stakeholders is an important component in the assessment process. The consultations took place prior to the field work by sending mails to a large number of entities (list at annex 1). The stakeholders included union leaders, public agency representatives, private organizations, political leaders, and residents in the vicinity of company properties. The main purposes of the consultation were to:

- Request inputs from the affected parties about the strong and the weak points of the forest management at Orsa Florestal, as well as about the nature of interactions between the company and the neighboring populations.
- Request information whether the person resposible for the forest management consulted the stakeholders in order to identify any high conservation value area.

The main stakeholders in this assessment were identified on the basis of a) information contained in the SCS databank; b) list of names and entities provided by the company; c) list provided by FSC-Brazil; and d) other sources. The following groups were identified as the main stakeholders:

- Company employees, including management personnel and field workers;
- Contractor workers;
- Neighboring landholders;
- Neighboring communities;
- FSC-Brasil members;
- Local and regional environmental NGO members;
- Local and regional social NGO members;
- Federal, state, and municipal environmental agency officers;

- Other relevant groups.

The assessment team contacted individuals and organizations of the main stakeholders. Only three entities or individuals spoke up about the assessment, although public consultation questionnaires with invitation letters had been sent to 180 organizations and individuals with a description of the certification process. An opportunity was offered them to make comments (Annex 2). The organizations or individuals that made comments and agreed to have their names cited in the report, as well as those that were contacted but did not reply are listed in Annex 2.

3.3.3.1 Model – ORSA FLORESTAL S.A. and JARI CELULOSE S.A. public consultation

INVITATION TO THE PUBLIC MEETING

Forest Recertification at GLEBA JARI I and FAZENDA DO FELIPE (PA and AP)

(JARI CELULOSE and ORSA FLORESTAL)

SCS – Scientific Certification Systems (**www.scscertified.com**), an entity accredited by **FSC** (*Forest Stewardship Council*) to perform Forest Certification, informs you that it is initiating the process of Public Consultation for Forest Recertification, as requested by JARI CELULOSE and ORSA FLORESTAL S.A. for Gleba Jari I and Fazenda do Felipe. In these locations, the company manages eucalypt plantations (52,000 hectares of effective plantations on 115,000 hectares to be certified), as well as native forests (545,000 hectares to be certified from a total of 1,700,000 hectares of company properties). In summary, they involve management of 115,000 ha of planted forests and 545,000 ha of native Amazon upland forest.

JARI CELULOSE and ORSA FLORESTAL are properties of Grupo ORSA and have a long history of activities in the country. Their origin stems from the JARI Company, owned by Mr. Daniel Ludwig between 1967 and 1982. Thereafter, the company was nationalized through acquisition by a group of investors headed by CAEMI. After the year 2000, Grupo Orsa, from São Paulo, acquired the company stock control and aimed to establish forest management in conformance with both the FSC "Certification Standards for Planted Forests" and "Certification Standards for Forest Management in the Brazilian Amazon Upland".

Presently, the company pulp mill produces nearly 390,000 t/year, of which, 95 % are exported. The total number of company employees is 3,039 (Jari, Orsa Florestal, Fundação, and Marquesa). When these are added to contractor workers, the total rises to 4,668. Specifically in forest activities, there are 3,382 workers of which 1,753 are company employees (Jari, Orsa Florestal, and Marquesa) and 1,629 are contractor workers. These figures place JARI CELULOSE and ORSA FLORESTAL as the main generators of jobs, direct and indirect, in Almeirim (PA) and Laranjal do Jari (AP) regions and are important to the local economy.

The recertification process requires participation of the *people* and the *civil society* through Public Meetings to be held at Almeirim (PA) and Laranjal do Jari (AP) municipalities. The first meeting will take place on November 4th, 2008 (Tuesday), from 18:30 h to 20:00 h at ACILAJA, Avenida Tancredo Neves s/n, next to the Post Office, Agreste suburb, Laranjal do Jari (AP). The second meeting will be on November 5th, 2008 (Wednesday), from 18:30 h to 20:00 h at Colônia dos Pescadores Z-33, Rua 17 de Março 1766, Nova Vida suburb, Almeirim (PA). The purpose of these meetings is to collect suggestions and evidences to steer the audit toward better assessment of how the forest

management progresses in the *social*, *legal*, *environmental*, and *economic* aspects. Therefore, the participation of citizens and representatives of the civil society will be very important so that everybody can express their concerns, comments, suggestions, and criticism, or present evidences that might be helpful to the process. These will be recorded in the minutes and will be shown on the public summary of the recertification.

If it interests you, a Questionnaire is attached and you can fill it in and send by e-mail to **vanilda.souza@sysflor.com.br** or, if you prefer, through fax to **(0xx43)3535-4906.** Moreover, if you wish to get more information about **FSC Standards for Certification of Brazilian Amazon Upland Forest**, the documents can be obtained from FSC web site (**www.fsc.org.br**) or from SCS (**www.scscertified.com**). They can be downloaded or requested by contacting us through the mentioned e-mails.

Everybody is invited to participate in the Public Meeting, regardless of having formally received this communication. We would appreciate if you could publicize these meetings to institutions and persons of your knowledge that might be interested to participate in the process.

Vanilda R. Souza
Auditor of SCS / Sysflor

3.3.3.2 Model – Public consultation questionnaire - ORSA FLORESTAL S.A. and JARI CELULOSE S.A.

PUBLIC CONSULTATION QUESTIONNAIRE
***GLEBA JARI I* AND *FAZENDA DO FELIPE*, JARI CELULOSE S.A. AND ORSA FLORESTAL S.A. FOREST RECERTIFICATION**

PLANTED AND NATURAL FOREST MANAGEMENT ON THE AMAZON UPLAND

Name	
Institution	
Address for contact	
ZIP:	
E-mail	

1. Do you know Jari Celulose S.A. and Orsa Florestal S.A.?
☐ Yes ☐ No

2. Do you have any comment about Jari Celulose S.A. and Orsa Florestal S.A.?
☐ Yes ☐ No

3. What comments?

4. Do you have any comment about Gleba Jari I and Fazenda do Felipe, in the municipalities of Almeirim (PA) and Vitória do Jari (AP)?
☐ Yes ☐ No

5. What comments?

6. Is there any environmental aspect that you consider worthy of attention in the field assessment?
☐ Yes ☐ No

What would be these environmental aspects?
6.1 _____
6.2

7. Is there any social aspect that you consider worthy of attention in the field assessment?
☐ Yes ☐ No

What would be these social aspects?
7.1 _____
7.2

The present questionnaire has the objective to allow citizens from the most diverse backgrounds and interests, or representatives from institutions of the civil society to actively participate in the process of FSC Forest Certification. Therefore, we appreciate if you could send this

questionnaire to **vanilda.souza@sysflor.com.br**. If you prefer, it can be sent through fax to (0xx43)3535-4906. We request that this questionnaire be publicized to those who, in your understanding, might contribute to the process.
OBS.: a) The issues raised in this questionnaire will not have any identification of the authors as exposed in the documents of the Recertification Process. b) The participation of the interested parties in the consultation does not imply co-responsibility in the Recertification Process.

3.3.3.3 Summary of public concerns and feedback from the team

Social concerns

- What would be the company obligations in regard to independent professionals and how could they participate in Orsa/Jari activities?

Reply: The company does not work with independent professionals in forest management activities.

- Does the failure by contractor companies to comply with labor dues affect Orsa/Jari forest management?

Reply: The company performs internal audits to monitor contractor companies obligations and requires, by contract, proof of payment of federal, state and municipal taxes, as well as any other labor dues. Part of these taxes is retained by Orsa, described on the fiscal bill, and collected according to procedures by law.

- Is Orsa/Jari concerned with health related issues in the communities? What are the company duties concerning health and education in the communities?

Reply: In partnership with the City Hall and Fundação Orsa, the company develops a training program for community health agents and keeps a close watch on cases of endemic diseases in the neighborhood of company areas. Additionally, the company performs localized actions with the Fundação Orsa team in which social agents visit communities and offer guidance on the basic treatment of water.

- How is the company dealing with regularization of community and isolated individual land tenure issues in its areas? Is there a work, also, in the neighborhood areas? How is society participating in that process?

Reply: The community land tenure regularization process is under the coordination of Iterpa (Instituto de Terras do Estado do Pará) and is done through participative diagnostics in the communities. This process involves all communities in the neighborhood of the company.

- After all community land tenure is regularized, will the company support the development of activities in the communities? Will the company continue to support community activities?

Reply: Through Fundação Orsa, the company already develops several activities on generation of revenues and socio-educational activities with the communities. These will be continued even after regularization of land tenure.

- Why did the company discontinue water service to Bituba and Goela da Morte communities?

Reply: The company does not recognize that Bituba community is a user of the water served at Bituba Camp. The distance between the camp and the community is not viable for access since no resident in the community possesses a vehicle. Moreover, the residents are scattered in the forest, often without any access trail.

- Does Orsa/Jari have any dispute with ITERPA over land ownership?

Reply: No! The company holds a term of commitment to regularize the community areas which, in practice, are already being complied with, as mentioned before.

- What will be of the court challenges in the case of land repossession? What will become of the situation of Mr. Boaventura from Bom Futuro Community?

Reply: In order to guarantee the company asset and the environmental responsibility, a repossession request was filed in court for all cases of illegal land possession (invasion). Land repossessions are being accomplished in pace with trial decisions.

- Is the company tearing down farmer houses and forcing them out in order to manage these areas?

Reply: All land repossession orders are being issued by the Agrarian Court, including the dismantling of constructions, and are being carried out by the military police, following court orders.

- The company reserves 1 % of the revenue to the producers. How can we trace the use of this resource in social actions?

Reply: Fundação Orsa funds are used in projects in several areas such as: health, education, children and teenager rights, culture, sports, etc. According to the law, the company renders accounts to the Public Prosecuting Counsel.

- What are the social benefits generated to the municipality with the company forest management certification?

Reply: There are numerous benefits such as generation of jobs in compliance with all labor laws; compliance with environmental laws; preservation and sustainable use of natural resources; compliance with fiscal and tax laws; increase in the state and municipal revenues. Moreover, it has been an example of sustainable development in the region.

- Is Orsa/Jari aware that a contractor company discontinued the distribution of basic food supply to the workers for a period and, when it resumed the distribution, it used to split one share into two?

Reply: The company is not aware o such issue and believes that it is a misunderstanding since, so far, there has not been any complaint from the workers on the subject.

- How will the issue of communities be dealt with in relation to the increase in size of their areas, for example, the case of Braço community? What will be the limits of these community areas?

Reply: All land tenure issues related to communities are being dealt with directly between the communities and Iterpa. If there is any situation in which the company participation is required, all the necessary support is offered to complete the regularization process. In public lands, the dimension of the community areas is associated with the type of economic utilization by the population and the legal rules defined by the state. This is not the case of Orsa.

- Does the company have the right to evict a person that has occupied one of its areas for three years, even if such area is not being used for 10 years?

Reply: In order to protect the company asset and the environmental responsibility, a request of land repossession was filed in court for all cases of illegal possession (invasion). Land repossessions are being accomplished in pace with trial decisions.

Environmental Concerns

- Can the FMP (Forest Management Plan) be implemented even without the appropriate title to the land?

Reply: The company has titles to all lands under management.

- In the company FMP, is there a specification on the survey of logs 1, 2, 3, and 4 during the inventory? Ten percent of the trees are left for restocking of the area.

Reply: One of the characteristics that are analyzed during the 100 % Forest Inventory is bole quality. It can be: 1 (straight and in excellent condition); 2 (slightly crooked); 3 (crooked and low recovery); and 4 (no recovery or commercial value). During the analysis to draft the AOP, all trees with bole quality 3 and 4 are left on the area as remnants. All trees with dbh smaller than 55 cm or larger than 180 cm are also left as remnants. Prior to the selection of trees for harvesting, all those of species that are present, on average, with less than 3 trees per 100 ha (rare species) are also left as remnants. Therefore, the remnant trees on the area exceed 10 %. In the case of AOP 5, the remnant trees amounted to 65 % of the commercial species count and to nearly 40 % of all trees eligible for harvesting. Trees eligible for harvesting are all those with bole quality 1 and 2, with dbh between 55 cm and 180 cm after removal of seed trees (10 % and minimum limit for maintenance), and rare species.

- Are the companies that provide assistance to private producers for eucalypt planting trying to force communities to use IPE (individual protection equipment)?

Reply: The company has done an information and awareness work so that the assisted producers adopt correct procedures to apply the necessary products in eucalypt management. This is for their protection and to help them to achieve economically viable productivity. Precautions that the company asks product users are the same as those recommended by the manufacturers and are legally based.

- The development of reduced impact management is under way for some time. What is the limit of area to be recertified and where is it located?

Reply: The area included in the Orsa Florestal FMP is in the northeastern region of Pará, at the border with the state of Amapá. They are all together 545,022.51 ha at the northern section of Amazon river, limited by Parú river to the West, Jari river to the East, Estação Ecológica do Jari to the North, and the Amazon river to the South.

- Is there any kind of government control on the company forest management?

Reply: In addition to the control on Orsa Florestal Sustainable Management area by competent and active environmental agencies in the region (IBAMA and SEMA – PA), Grupo Orsa maintains an asset protection team that constantly patrol the area under forest management in order to put out forest fires and to prevent illegal deforestation and invasion by land squatters. It maintains, also, a monitoring team with responsibility to verify whether all procedures are being carried out in compliance with the principles and criteria of a certified area. The certifying body also verifies and monitors the implementation of all these procedures.

- Does the forest management cause or will cause harm to the areas where settlers work?

Reply: Considering that community areas are being delimited, there will be no harm to the settlers because they will have their rights ensured by land tenure. Wherever community land delimitation has not been finished, traditional limits of family agriculture will be considered.

- Is the company forest management affecting the surrounding conservation unit (Estação Ecologica do Rio Jari and the FLOTA do Parú)?

Reply: The area under Orsa Florestal FMP is limited by Estação Ecológica do Jari to the north and Floresta Estadual do Parú to the west. Even considering that APU 5 is located approximately 65 km from Estação Ecológica do Jari, this conservation unit was informed of the AOP 2009 for approval. The company obtained the authorization to proceed with log harvesting at APU 5, since it does not affect the conservation unit.

Economic Concerns

- Should not the timber, that is managed and exported, aggregate values and generate revenues for the municipality, generate taxes, and maintain the trading process in the region?

Reply: The company is certain of the importance of processing all export timber in the region, thereby incressing its value and providing more jobs, taxes, and investments in the region. However, at the moment, the company has no condition to verticalize (processing), but it is planned for the near future.

- How is the company working toward the expansion of its productive activities in the communities, given the local reality?

Reply: The company has based its position on socio-participative diagnostics done in the communities. It demonstrated the cultural, economic, and social vocations of the region.

Along this line, several agroextractivist projects were already established to generate community revenues, aiming at the sustainable development of the region in order to improve life quality. For example, the following projects: Curauá; Assisted eucalypt plantations; Gardens and improvement of cassava productivity.

3.3.4 Other assessment techniques

No assessment technique other than the usual was used, such as field visits, interviews, and verification of documents.

3.4 TIME SPENT IN ASSESSMENT

For the assessment of Gleba Jari I, a team of auditors was formed to review all documents that were sent for the audit. The team members had to transfer from their places of origin to the company and performed field audits during five days. In addition, a time was spent to identify the stakeholders and to send them invitation and the questionnaire. The total time used by the team is presented on Table 8.

Table 8. Time (hours) spent by individual auditors during the assessment of the forest management at Orsa/Jari.

Activity	Vanilda	Cristina	Josué	Rossynara
Transfer (round trip)	20	8	9	12
Checking of documents	6	4	4	6
Field visit	20	20	22	20
Stakeholders / invitation	-	-	-	6
Discussion (Nov. 11th, 2008)	5	5	5	5
Closing session	3	3	3	3
Sub-total	54	40	43	52

3.5 PROCESS TO DETERMINE CONFORMANCES

The certification standards defined by FSC comprise three hierarquical levels: the principles, the criteria to look into each principle in detail, and the indicators for details in each criterion. According to the evaluation protocols of SCS Forest Conservation Program, the assessment team must collectively verify whether a given forest operation is in conformance with any applicable indicator within the relevancy of the certification standard. Each non-conformance with a criterion or sub-criterion must be evaluated in order to determine whether it constitutes a major or minor non-conformance. Not all indicators have the same importance and there is no numerical form to determine whether an operation is in non-conformance. The team uses the collective judgement to evaluate each criterion and to determine its conformance. If an operation is evaluated as in non-conformance for a given criterion, then, at least one indicator must be evaluated as in a major non-conformance.

A Corrective Action Request (CAR) is defined for each non-conformance. Major non-conformance are denoted as Major CAR and minor non-conformances as Minor CAR or just CAR.

Interpretation of Major CARs (pre-conditions), CARs (Minor CARs), and Recommendations

***Major CARs/Pre-conditions*:** correspond to major non-conformances, either alone or in combination with non-compliances of other requirements that results (or is likely to result) in a fundamental failure to achieve the objectives of the relevant FSC requirement. This non-conformance must be corrected or closed before the certification is issued. If a major CAR is determined after certification is awarded, the timeframe for correction is typically shorter than in the case of a minor CAR. The certification will become conditioned to the response from the forest operation to solve the pending issue in the given timeframe.

***CARs or Minor CARs*:** these are corrective actions in response to minor non-conformances. They are typically limited in scale or can be characterized as unusual errors in the system. The minor corrective actions request must be complied with within a pre-determined timeframe after the certificate is awarded.

***Recommendations*:** these are suggestions presented by the evaluation team, intending to help the company to achieve an ideal performance. Compliance with the recommendation is voluntary and does not affect the maintenance of the certificate. However, recommendations can become conditions if non-compliance with them affects some criterion.

4.0 RESULTS OF THE EVALUATION

Conclusions reached by the assessment team in regard to strong and weak points of Orsa Florestal forest operation in relation to FSC certification standards are presented in this section. Also, corrective actions request (major and minor) and recommendations for each principle are presented.

4.1 MAIN STRONG AND WEAK POINTS IN PERFORMACE OF ORSA FLORESTAL IN RELATION TO FSC P&C.

Principles	Strong Points	Weak Points	Measures
P 01: Compliance with laws and FSC principles	• Long term commitment with FSC principles and criteria. • Identification of high conservation value forest. • Compliance with laws pertaining to forest management, with Management Plan duly registered at SEMA (State Secretary of Environment). • Process to register legal reserves already concluded. • The APPs (Permanent Preservation Areas) are respected. • All documents of the company operation are duly registered. • All taxes and charges are paid. • Compliance with union laws. • Compliance with all agreements and treaties. • The person in charge of the Management Plan is trained.		

	• There are measures to protect the area against illegal activities, forest fires, and wildlife protection. • The laws pertaining to the activity are complied with. • Formal commitment of adherence to the maintenance of the forest on a long term. • Effective measures against illegal actions and invasions through an Area Patrol Plan. • Monitoring of the compliance with the law and payment of taxes by service contractor companies. • Respect to international agreements to which Brazil is signatory. • No evidence that Orsa is involved in illegal timber harvesting.		
P 02: Tenure and use rights and responsibilities	• Well documented property titles. • Peaceful land tenure. • Forest management without use of traditional population knowledge. • Respect for land tenure of neighboring communities. • Orsa demonstrates commitment to promote well-being and educational actions to the local society through the Fundação Orsa Social Program. • Excellent Geographic Information System structure. • The forest management does not interfere with or jeopardize traditional rights of neighboring residents to land tenure or use.	• Need to map already georeferenced land sections/title areas. • Pending adminitrative or juridical matters involving both the company and land squatters/invaders. • The company needs to establish communication channels with the local communities as a way to prevent and solve conflicts. • The company has procedures to control property invasions and to protect against forest fires. However, more effective prevention measures must be adopted.	**Major CAR 2008.01** **CAR 2008.08** **CAR 2008.07**
P 03: Indigenous peoples' and traditional communities' rights	• Areas for community use duly identified and mapped by the company. • Regularization of community areas tenure through ITERPA in process with company support. • Forest management for non-wood products will be carried out by some communities located in company areas. • Social impact study performed and used to steer the company social activities and to minimize	• The company has worked on social issues in a very comprehensive approach and needs to focus on actions to promote community socio-economic development and strenghthening of company/society relations through support from these actors for the protection and development of the company forest management.	**CAR 2008.07**

	negative impacts of forest management. • The forest management does not jeopardize any right of indigenous or traditional populations.		
P 04: Community relations and worker's rights	• There is no discrimination regarding race, religion, sex, or political position of the workers. • The workers are hired among residents in the region. • There is a training program for its employees and for the workers of contractor companies in harvesting techniques, first aid, labor safety, environmental education, and behavioral education. • The workers demonstrate understanding about environmental care pertaining to the activity. • The company has support from/partnership with different institutions (public, education, research, NGO, others) for the development of its activities and for actions with the communities. • Traditional practices of gathering forest non-wood products by local communities are allowed in the FMU as described in the FMP. • Good quality meals provided. • Good quality water served and monitored. • Well structured occupational health (PCMSO) and environmental risk prevention programs (PPRA). • Existence of Collective Agreement and good image to the Workers Union. • Good institutional image to the local society. • Company social actions steered according to the results of social impact assessments. • The company efficiently monitors all procedures regarding workers health and safety. • The company considers working together with local communities and other partners to explore non-wood products.	• There is a need to explain to the local society about the importance of forest management to its conservation and to the socio-economic development of the region. • There is a need to integrate CIPA (Internal Accident Prevention Committee) of Orsa/Jari with those of contractor companies. • Need to elaborate a labor safety management plan including systematization and analysis of accident and incident records (its own and those of contractor companies) and a CIPA program integrated with Orsa/Jari and contractor workers. • Update the management plan including: non-wood products; and results from the assessment of social impacts and mitigating measures. • There are some aspects in the social area that need to have higher priority in order to enable: community socio-economic development; strenghthening of company/society relations; and to seek support from these actors for the protection and development of the company forest management. • Need to create a formal channel of dialogue, records, and solution of doubts and complaints.	**CAR 2008.10** **CAR 2008.12** **Major CAR 2008.02** **CAR 2008.07** **CAR 2008.08**
P 05: Benefits	• The forest cycle and the rate of harvesting are justified in the		

from the forest	FMP. • Existence of a plan to utilize forest residues in charcoal production. • Existence of a permanent plot network in addition to those regularly measured, and a plan to improve monitoring and knowledge on the forest. • Maintains a saw-mill at Fazenda ABC, thereby creating jobs and revenues in the region. • Acquires goods and services from local suppliers, whenever available. • Technically and economically viable equipments such as chainsaws, skidders, and forklifts are used in harvesting operations. • The company effort is toward multiple use of the forest by using clear wood for veneer and other hardwoods for timber among more than 50 tree species. • The selection of species for harvesting is done with an efficient computer system (MATA NATIVA Program) which ensures that established criteria are met.		
P 06: Environmental Impact	• Environmental impact assessments are performed before and after harvesting activities. • The system to choose trees for harvesting is totally computerized and structured with criteria established on the basis of legal requirements and the knowledge acquired through research. This system avoids errors in terms of selection criteria. • The rigorous care in maintaining the remnant vegetation ensures the maintenance of wildlife. • There are instructions and measures to minimize impacts by infrastructure works. • Directional felling techniques are used to reduce damage, especially to trees left for the next harvest, as well as to make skidding easier, and to reduce excessive opening of canopy gap. • Planning and use of techniques,	• Need to redefine the 5 % area that is representative of all ecosystems in the FMU. • The company had to define indicators to assess damages to the roads and to incorporate them into its monitoring system. • Need to include environmental management as a tool for integration and consolidation of the company's environmental activities. • Need to present a study of the economic, social, and environmental impacts of installing and operating charcoal kilns within the areas of the FMU on the basis of experience and results from the project at Fazenda Rio Capim. The study must consider	**Major CAR 2008.03** **CAR 2008.06**

	including lifting of log butts for skidding and reduction of road and log yard areas to minimize soil compaction and other damages. • No chemical product is used in the FMU. • There are infrastructure and procedures for handling, treating, and final destination of residues and empty containers. • There was no conversion of FMU areas for any other use. • Species protected by law are not harvested (mahogany and Brazil-nut trees). • Standing dead trees are left as are because of their value to local wildlife and vegetation, whenever they are not on skidding trails or do not offer risk to the workers. • Existence of agreements with research institutions for scientific studies and publication of results, especially on inventory and ecologic characterization of species considered as rare, endemic, and threatened to extinction. • At least 10 % of trees of each species are left as seed-trees. • Identification of permanent preservation areas on maps and their inclusion in annual operational plans. • Trees in permanent preservation areas are not inventoried. • Existence of a plan to prevent and fight forest fires. • There is a macro-characterization of the ecosystems within the FMU (maps). • Potential environmental impacts are considered when choosing and utilizing forest operation equipments.	establishment of the project both inside and outside the FMU. • Need to present a program to monitor and control erosions with maps of all areas prone to erosion along the road system, including gravel quarries. • Need to present results from the measures taken to prevent soil erosion. • The local community must be informed about the forest management activities, as well as about their importance to the conservation of native forests and to the socio-economic development in the region.	**Major CAR 2008.04** **CAR 2008.09** **CAR 2008.10**
P 07: Management Plan	• Management Plan presented, containing: - clear objectives. - description of socio-economic and environmental conditions of the region. - land tenure.	• Need to map land areas/register already marked in GIS. • Need to update the Management Plan. • The local community must be informed of forest	**Major CAR 2008.01** **Major**

	- present use of the soil. - forest resources to be managed. - silvicultural systems to be used. - justification for the rate of harvesting. - sample and continuous inventories. - environmental assessment and measures for mitigation. - description of the harvesting techniques. - maps showing phytoecologic environments, protected areas, and planned management. • Orsa uses a low impact harvesting technology with added improvements from acquired knowledge. • Existence of procedures for the protection of wildlife, remnant and rare species, as well as those threatened to extinction. • Harvest trees selected by using the Mata Nativa Program. This does not allow errors in selection according to criteria adopted by the company. • Orsa performs forest survey and identifies all commercial trees with dbh over 40 cm. • Orsa has a consolidated training program in partnership with Instituto Floresta Tropical (IFT). • Monitoring of growth and dynamics of the forest. • Reference for the region in development of labor safety procedures. • Forest fire prevention/fighting course programs. • Environmental education program extended to neighboring populations. • Pre-harvesting inventory in 100 % of commercial species, including identification, numbering, and mapping of individual trees to be either harvested or protected. • The harvest maps contain all information including protected areas, transport infrastructure (roads, trails, and log yards),	management activities, as well as of its importance to the conservation of native forests and to the socio-economic development in the region. • The company has not produced evidence of having distributed or made available an updated summary of the management plan to community union and association leaders.	**CAR 2008.02** **CAR 2008.10** **CAR 2008.11**

	location of individual trees, and directions of tree felling. • There are procedures for road construction and maintenance. • Forest workers are trained for the job.		
P 08: Monitoring and assessment	• The company maintains partnerships with research institutions to perform environmental monitoring in the MFU. • Monitoring and assessment of impacts have been performed in the FMU. There are norms and pre-defined periodicity for all. • Wildlife monitoring is being done, both pre- and post-harvesting, as well as forest reclamation after harvesting, social aspects, and others.	• There is a non completed monitoring program on erosion control. • The company has not produced results from its erosion control program.	**Major CAR 2008.04** **CAR 2008.09**
P 09: Maintenance of high conservation value forests	• The company is surveying and has possibility to determine possible High Conservationa Valeu Areas. • The company delimited two ecologic corridor areas within the FMU.	• Although two ecologic corridor areas have been proposed as HCVF, it is necessary to increase the HCVF area because of the scale of FMU area and the lack of connectivity at certain poins in the FMU.	**CAR 2008.05**

4.2 PRE-CONDITIONS OR MAJOR CARs

Pre-conditions are major corrective actions (CAR) that are defined in a forest operation after the initial assessment, prior to its certification. Certification cannot be awarded as long as there is an outstanding pre-condition.

The following pre-conditions were defined during the initial assessment at Orsa. These were all accepted and closed by the assessment team.

Non-conformance: Areas within the scope of certification and community areas were not clearly marked on maps.	
Major CAR 2008.01	Present a map and a spreadsheet with information on land areas/titles, highlighting (colors) those already delimited with GIS against the others still in the process of delimitation. On the same map, highlight the areas included in the scope of certification. The table must contain specifications on the land section (Gleba), the area included in the scope of certification for each Gleba and community areas.
References	P2.c2.i4; P7.c1.i2; P7.c1.i8

Company Actions
The company presented a list of 115 Glebas/titles of which 81 are already demilited with GIS and 34 still not delimited. Also, a map was drawn, showing Glebas highlighted in different colors for areas delimited with GIS and others that are not yet delimited, including community areas.
Position at the end of the audit
CAR complied with.

Non-conformance: The company has promoted social actions at local communities through Fundação Orsa, since 2007, and has generated results and new activities that have become part of the management plan. However, this aspect is not updated on the management plan.	
Major CAR 2008.02	Update the management plan by including: - Non-wood products - Results from the social impact evaluation and mitigating measures.
Reference	P4.c4.i1; P7.c2.i1
Company Actions	
The company presented an updated version of the Forest Management Plan with inclusion of activities on the use of non-wood products and the evaluation of social impacts to local communities generated by its activities. The harvesting of non-wood products will be, initially, in forests near the communities with activities such as collection of *copaiba* and *andiroba* oil, *pracaxi*, *buriti*, Brazil-nut, several seeds and *titica* vine, among others. Because these are considered sources of extractivism for the communities, timber trees such as *andiroba* and *copaiba* were not listed for harvesting in the Orsa Florestal Annual Operational Plan (AOP). In the social context, the company presented the results of the work with local communities that were initially structured, following the identification of their weaknesses in terms of education, health, citizenship, technical assistance and rural extension, transportation logistics, and others. It has established actions with priority toward some communities to support the development of sustainable businesses, focused on agricultural and forest projects, and strenghthening of local community ventures.	
Position at the end of the audit	
CAR complied with	

Non-conformance: Highland areas with highly differentiated phytophysiognomy were not included among control areas.	
Major CAR 2008.03	Define, map, and present the 5 % control area, representative of the highland phytophysiognomy. This area must be contiguous.
Reference	P6.c4.i2
Company Actions	
The company presented a proposal for the control area, well delimited and mapped. This contiguous highland area extends through approximately 25,000 ha at the boundary of the FMU.	
Position at the end of the audit	
CAR complied with	

Non-conformance: During the 2007 audit, erosion spots were detected and a monitoring and control program was requested. However, nothing was presented by the company.	
Major CAR 2008.04	Present an erosion monitoring and control program, with maps of all erosion spots along the company road system, including gravel quarries.

Reference	P6.c5.i6; P8.c1.i2
Company Actions	
The company presented procedures to define the necessary conditions for monitoring and control of erosions and gravel quarries. Occurrences of erosion are recorded on PAE (spotted erosion spreadsheet), RVEP (erosion and gravel quarry inspection report), and PRAD (degraded area reclamation plan).	
Position at the end of the audit	
CAR complied with	

5.0 DECISION ABOUT CERTIFICATION

5.1 RECOMENDATION FOR CERTIFICATION

As determined by SCS Forest Conservation Program protocol, the assessment team recommends that ORSA FLORESTAL S.A. be re-certified and awarded the FSC 5-year certificate of "well managed forest", for the period of 2009 to 2014, subject to compliance with corrective actions requests as described on item 5.2. ORSA FLORESTAL S.A. has demonstrated that its management system can ensure compliance with all FSC (Forest Stewardship Council) Standards for Certification of forest management in the Brazilian Amazon Upland, object of this assessment. Orsa has demonstrated, also, that the described management system is being carried out correctly over all areas covered in this assessment.

5.2 INITIAL CORRECTIVE ACTIONS REQUEST (CAR)

Non-conformance: In 2007, the company delimited and mapped two wildlife corridors in the native forest area, adding up to 400 ha and defined them as HCVF. However, their connectivity would have a greater ecologic efficiency if they were located in planted areas, without disregarding the importance for wildlife.	
CAR 2008.05	Based on the results obtained so far in studies on wildlife and vegetation, define, map, and present another HCVF area in the native forest management area (in addition to the two wildlife corridors), defining its attributes.
Deadline	2009 Audit
Reference	P9.c1.i1

Non-conformance: The company presented the 5 % control area, which is not mapped or correctly delimited. In this region, there are at least three phytophysiognomy that must be taken into consideration: the floodplain; the upland; and the highland.	
CAR 2008.06	Define, map, and present the remaining areas within the 5 % control area that are representative of the remaining phytophysiognomy of the region. The areas must be preferentially contiguous or subdivided into a maximum of two parts.
Deadline	2009 Audit
Reference	P6.c4.i2

Non-conformance: The company has some points in the social area that must have priority for the community socio-economic development, the strenghthening of the company/society relation, and the search of support from these actors for the protection and development of the company forest management.	
CAR 2008.07	Present an action plan regarding the communities, including:

	- streghthening their organization - incentives to traditional resource use activities (e.g.: Brazil-nut) - prevention of ivasions and degradation of forest management area (including fire control actions) - improvement in communication between the company and the communities - emphasis on actions in critical areas such as: communities located along Parú and Jari rivers; the area known as Estrada Nova.
Deadline	2009 Audit
Reference	P1.c5.i3; P1.c6.i2

Non-conformance: In spite of the socio-environmental work developed through Fundação Orsa, it is necessary to implement mechanisms for minimizing conflicts with local communities were detected.	
CAR 2008.08	Create a formal channel of dialogue, record, and solution of doubts and complaints.
Deadline	2009 Audit
Reference	P4.c4.i2

Non-conformance: ORSA/JARI elaborated and implemented a program to monitor and control erosions along the road system. However, no result of the actions was presented.	
CAR 2008.09	Present a report of the erosion monitoring and control program, by listing actions taken and the results already obtained.
Deadline	2009 Audit
Reference	P6.c5.i1; P6.c5.i6; P8.c1.i2

Non-conformance: The local community must be informed about the forest management activities, as well as about their importance for the conservation of native forests and the socio-economic development of the region.	
CAR 2008.10	Include, in the environmental education program, actions on publicizing forest management.
Deadline	2009 Audit
Reference	P4.c1.i4; P6.c5.i10 ; P7.c3.i4

Non-conformance: The company has updated its Forest Management Plan and, according to Principle 7, it must also update the summary of the Plan and publicize it.	
CAR 2008.11	Present records of distribution or publicity of the updated summary of the forest management plan to community union and association leaders.
Deadline	2009 Audit
Reference	P7.c4.i1

Non-conformance: ORSA has recorded all labor accidents and incidents. However, these need to be systematized and incorporated into a comprehensive labor safety plan, with focus on prevention.	
CAR 2008.12	Elaborate and implement a labor safety management plan, including sistematization and analysis of accident and incident records (Orsa's and contractor company's systems), and an integrated CIPA (Internal Committee for the Prevention of Accidents) program including Orsa/Jari and service contractor companies.

Deadline	2009 Audit
Reference	P4.c2.i13

5.3 RECOMMENDATIONS

There was no recommendation issued in this audit

6.0 SURVEILLANCE AUDITS

If a certificate is awarded, surveillance audits must be performed at least once a year in order to monitor the compliance with each corrective action required and to review the continuity of the company's compliance with the standards for certification of forest management in the Brazilian Amazon Upland. The public summary of the surveillance audits at Orsa Florestal S.A. will be posted on the SCS webpage (www.scscertified.com).

7.0 SUMMARY OF SCS PROCEDURES IN REGARD TO COMPLAINT INVESTIGATIONS

The following is a summary of SCS procedures regarding solution of complaints. The complete procedures are available at SCS upon request. These procedures were forethought and are available to any organization that notes any problem in relation to SCS Forest Conservation Program and that has any reason to question SCS by its actions, or in relation to SCS certificate holders.

The procedures constitute the first mechanism in attempt to solve problems in an amiable way, thereby avoiding the need to involve FSC. Complaints can originate from our clients (e.g.: forest owners, companies or suppliers) or from other stakeholders. In order to have a standard in that procedure, the complaints must be in written form, with support evidences attached and submitted within 30 days from the time of occurrence of the actions that caused the demand.

The complaint description must contain:

- Identification and the name of a contact person in regard to the presented complaint;
- A clear description of the claimed action (date, site, nature of the action) and of what parties or individuals are associated with the action;
- Explanation of how the action is violating the FSC requirements, in a most specific way as possible in relation to the FSC requirements applicable to the case;
- In the case of complaints against the actions of a certificate holder, it must describe also the efforts done directly with the certificate holder to solve the issue;
- Propose actions that should be pursued by taking into consideration the petitioner's opinion.

The formal complaints must be submitted to:

Dr. Robert J. Hrubes
Senior Vice-President
Scientific Certification Systems
2000 Powell Street, Suite 1350
Emeryville, California, USA94608

Email: rhrubes@scscertified.com

As detailed in the *SCS-FSC Certification Manual*, the investigations on complaints will be carried out confidentially within a reasonable period of time. If appropriate, corrective or preventive actions, as well as solutions to any deficiency in a product or service must be taken and documented.