

SUMMARY MANAGEMENT PLAN RGI Sa 2010



I. Introduction

This management plan is the global guideline for RGI, as edited in 2010, with its main aim to adjust to the criteria of FSC, and new growth scenarios as developed in late 2009. This document is part of a cluster of documents to be held as a comprehensive guide of the OFM RGI s.a.

Hereby all former versions will be eliminated, but not all of its former content will be repeated.

RGI s.a, or Reforestacion Grupo Internacional is an Costarican entity managing its forests and plantation in the Huetar Norte of Costa Rica. RGI sa is inscribed in the registry of companies under inscription number 3-101-1979-16.

A summary of this report will be available at www.rgisa.com, excluding all internal information and included only whereas RGI is allowed to applicable law.

Timberland's proven steady returns; low volatility and non-correlation with global stock prices make it an extremely attractive asset class - and one that should be leveraged as an inflation hedge during this time of uncertainty.

This document is subject to change triggered by:

- a. New insights in general
- b. Undesired, or insight creating monitoring results of bio-, socioeconomic-, post harvest- and financial-monitoring activities



II. Company's statement

a: RGI mission

Successful cultivation of valuable and high quality Teak logs, and the mass production of Acacia- Pine and Cebo wood within a period of 10 to 20 years in the Northern area of Costa Rica, including the successful offset of the tangible CO2 credits, either as land owner or/and project developer and obedience to the latest FSC principles.

b: RGI tools

The management team of RGI currently consisting of Bjorn Arvid Jakobsen as president, Thomas van den Berg as GIS/server specialist, Olger Arias as front desk manager, David Cruz as log sales manager, MANFOR s.a. as external maintenance contractor, Guus de Hart as project developer and Jonathan Segura as goal keeper. Silvoconsult and DHforest as an external service provider for monitoring and financial evaluations.

c: RGI criteria

Social:

RGI should always be aware of its stakeholders and should treat them according to law and applicable regulations.

Financial:

The project is long-term and should therefore be financially solid (this will not be discussed in the management plan, as it has no direct links with maintenance procedures);

Environmental:

The environment is to be respected according to law and applicable regulations and Best Practice principles.



III. Species managed

a: *Introduction*

Tectona grandis, *Acacia mangium* and *Vochya Guatamalensis* are the main project species, of which *Tectona grandis* covers the vast majority. The intention of RGI will be to augment the area of non-teak species to either replace poor growing Teak or take into production other areas of properties. Enrichment of species is seen as a risk limiting improvement. Use of cloned material is estimated to be unnecessarily risky. Information on management of plantations and its guides have been published separately.

b: *Farmland selection*

Pinciples:

1. Farms should have a net plantable area of at least 50% of the total farm size
2. Original forests, creeks and forest patches will be respected and not modified
3. Soil test will prove the suitability prior to purchase

c: *Provenance*

Pinciples:

1. Seed has to be certified; preferably CASH program
2. No use of cloned material
3. Seed provenance is administered and evaluated by growth
4. RGI will try to get more involved in local forestry development programs as GENFOR and others



d: Soil Preparation

Pinciples:

1. Sequence is as follows: cross deep-plowing with 50-80cm shanks followed by cross disc-plowing for refining
2. Mechanized soil preparation for Vochya, Acacia and Pine has proven not to be necessary.
3. Before planting, soil analysis will provide the management with sufficient details on soil potential. With the implementation of growth monitoring, soil analysis will be matched with specific site-growth
4. All soil preparation activities should take place in dry, but not excessively dry, conditions; size of the disc should depend of machine power and humidity

e: Access rainwater

Pinciples:

1. Artificial drainage only applies when necessary.
2. Drainages will be such that no erosion is caused

f: Erosion of soils

Pinciples:

1. Chemical and physical erosion is not wishful and should be prevented according to the principle of good practice management.
2. Use of roads will be limited as much as possible.
3. Slope angle limits soil preparation.
4. Undergrowth will be managed as much as possible in the younger plantations and



gradually less as the canopy closes.

g: Thinning of stands

Pinciples:

1. Thinning of Teak will have to take place as soon as needed. Teak stands will have to be thinned back to commercial densities before, or during, the eight year.
2. Commercial thinning density depends on project size, wood market, climate and basal area.
3. Because of soil and infrastructural matters, thinning are preferred to take place in the dry period of February-April
4. Use of extraction machinery can only be processed in case of optimal conditions. Due to cultural matters, the use of oxen will always be preferred in case human labor is insufficient
5. Post harvest damage to the stand should be prevented by education on directional felling, proper tree selection pattern and low impact extraction methods; only mechanized when unavoidable
6. Harvests are subject to the extended harvest criteria of RGI_{sa} as described in the separate document and adopted safety regulations.

h: Use of chemicals

Pinciples:

1. All use of chemicals will be limited to FSC approved products according to the latest communicated list; equal biological means will be preferred
2. Use only allowed when not avoidable, and the situation is endangering the forest
3. Purchase of agrochemicals will go through three layers: RGI_{sa} office check,



MANFOR check and sales point check.

4. Fertilizers applied always during planting and if needed during the second or third year. Afterwards plantations can be fertilized but preferably thinning option will be reviewed to reduce competition. When applied however, soil samples should be taken prior to the decision making.

5. The disposal of non-relevant agro chemical and material recycling activities are described in the waste handling document.

i: Financial review

Pinciples:

1. The financing calendar, the cost-income ratio, the NPV and the FV will be clarified before the implementation of species and rotation length changes/implementation

2. Might the NPV of a calculated rotation be negative, the species and/or rotation length changes will have to be rejected



IV. Natural forests and degraded areas

Specific attention is given to natural forests and degraded areas. The management of these sites will focus on conservation activities.

a: Conservation

Pinciples:

1. The natural course of forest development is the best option to safeguard the restoration of all natural forest types within the project boundaries.
2. Enrichment planting is seen, by RGI, as some sort of intervention, disrupting the natural forest ecology and its own course to complete repair.
3. All forest types within the project boundaries are secondary and should be classified as disturbed or heavily disturbed.



V. Climate and soil conditions

a: *Climate conditions*

The following table shows the climate data as available.

Illustration 1: Climate data Los chiles FN

Temp min	Temp max	Rainfall	Days with rain
20.7	29.9	90	21
20.3	31	39.3	16
20.4	32.7	28.6	12
21.2	33.9	38.7	10
22.7	32.7	170	21
23.1	31.5	238.4	26
22.8	30.8	259.7	26
22.9	31.5	223.7	25
22.8	32.3	200.7	23
22.8	31.8	206.5	24
22.2	30.5	186.4	23
21.4	30	134.2	22

The data refers to the San Jorge weather station at Los Chiles. The second nearest weather station is in Ciudad Quesada but its results do not reflect the south of the project area.

Climate monitoring the past ten years has shown an increasingly drying rainy season with an extended dry period. Rainfall has dropped more than 600mm the past 10-20 years, according to local people's interpretation.

It is not foreseeable if the changing climate conditions will reach tangible threshold levels for Teak growth. However, the conditions under which Teak grows have high amplitude.

b: *Soil conditions*

Soil conditions can be summarized as follows based on the RGI soil sample results of the past 10 years.



	pH	CEC	Depth A-horizon	Depth water table	Acidity
low	5.8	4.2	5cm	15cm	0.98
high	3.4	14.1	60cm	>1m	0.15

Table 1: General soil characteristics

The large scale soil classification varies but the majority is to be labeled as utisols and inceptisols.

The mini scale classification is done by RGI and mainly based on topography: low wetland, rolling hills, top dry land, etc. The following indicative table shows this mini classification related to the species selection.

	Low wet	Strong hill	Low dry	Top hill
Species	Cebo, Soto caballo, Gallinaso	Pine, acacia	Teak, Acacia	Teak

Table 2: Species and soil



VI. Monitoring

Monitoring will be implemented and used as such to check company's goals and steering management. The following matters will be monitored:

a: *Growth monitoring*

Age	Vcom/ha(m ³ /ha)	MAI-DBH(cm/yr)	MAI-Vtotal(m ³ /ha/yr)
>10 avg	94,67	1,67	9,07
5-10 avg	56,38	2,09	10,19
<5 avg	13,40	2,64	9,10

Principles:

- 4.95% accuracy of volume estimations on farm level
5. Prediction of future log flow
6. Retrieving stand parameters as basal area, MAI, CAI and commercial height per farm
7. Financial evaluation of standing wood stock
8. Annual tree administration on section level is required to sustain data accuracy

b: *Disease monitoring*

Principles:

1. Prevention start in the field by proper training of the field workers



2. Reporting of such has to be directly to RGI
3. Prevention is better than curing
4. Humidity is most frequent cause of illness
5. Curing guidelines will have to be followed strictly

c: *Bio-monitoring*

Pinciples:

1. Bio-monitoring aims at conservation management
2. Conservation is strict in all non-productive (non-plantation) areas
3. Bio-monitoring effort is related to RGI limited project size
4. The boundary area of non-productive and productive area is fixed. Conservation efforts area wise are thus fixed.

d: *Social monitoring*

Pinciple:

1. Social welfare and development has to be monitored to ensure continuity
2. The monitoring will be implemented through RGI, its main partners MANFOR and FUNDECOCA
3. Issues with stakeholders will be attended to during the weekly management meetings and corrective action will be taken if necessary
4. Monitoring of conflicts with neighbors, either land tenure, or whatever sort, are documented according to the conflict administration guidelines of RGI

e: *Wood market monitoring*

Pinciples:

1. Log price monitoring is essential for harvest planning.



2.B2B, ITTO, FAO and local information providers and buyers, including the measurement specifics and quality demands are collected and once a year send to trend watch.

3. The wood plan is based on an estimated time-related volume extraction as described in the monitoring reports. These volumes have been corrected for yield losses as the monitoring company has experienced. This means that some of the volume equations as many times applied in Costa Rica result in a systematic over-estimation, according to RGI.



VII. Resume of plantation farms

a: Comprehensive overview species

Illustration 2: Soil use specification

fname	Teak	Acacia	Cebo	Gmelina	Teak/Acacia	Teak/Cebo	roble	Reforested
Monte Verde 1	55,87	0,97	8,63	0	1,71	0	0	67,18
Monte Verde 2	27,59	0,7	0	0	0	0	0	28,29
Amparo	88,31	0	0	0	0	0	0	88,31
Arco Iris	174,11	0	0	0	0	0	0	174,11
Christ Rey	190,84	2,55	0	0	0	0	0	193,39
El Parque	328,15	30,22	0	0	0	0	0	358,37
Vasconia	24,84	0	0	0	0	0	0	24,84
Olger	11,77	0,27	0	0	0	0	0	12,04
Mairena	25,1	0	0	0	0	0	0	25,1
Carrizal	86,4	0	0	0	0	0	6,66	93,06
Concho	58,57	16,22	0	2,77	0	0	0	77,56
Combate	170,8	0	0	0	0	0	0	170,8
Conchito	59,01	0	0	0	0	11,5	0	70,51
Coopevega	10,36	5,46	3,07	2,44	0	0	0	21,33
Gallito	59,64	0	0	0	0	13,16	0	72,8
San Alejo	11,88	3,14	0	0	0	0	0	15,02
San Diego Uno	12,66	2,03	0	0	0	0	0	14,69
San Diego Dos	9,94	1,49	0	0	0	0	0	11,43
San Juan	12,01	0	0	0	0	0	0	12,01
San Lopez	16,66	0	0	0	0	0	0	16,66
Pavon Uno	21,88	0	0	0	0	0	0	21,88
Pavon Dos	13,74	0	0	0	0	0	0	13,74
	1470,13	63,05	11,7	5,21	1,71	24,66	6,66	1583,12
<i>Total RGI:</i>	<i>1302,43</i>	<i>34,71</i>	<i>8,63</i>	<i>0</i>	<i>1,71</i>	<i>24,66</i>	<i>6,66</i>	<i>1378,8</i>
<i>Total non-RGI:</i>	<i>167,7</i>	<i>28,34</i>	<i>3,07</i>	<i>5,21</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>204,32</i>



b: Comprehensive overview soil use

Illustration 2: Soil use specification

fname	Reforested	Natural Forest	Infrastructure	Wetlands	Other	Total
Monte Verde 1	67,18	2,08	5,34	6,85	0,87	82,32
Monte Verde 2	28,29	0,54	1,29	7,52	0	37,64
Amparo	88,3	9,39	2,37	0	0,93	100,99
Arco Iris	174,11	55,96	3,88	4,43	0,13	238,51
Christ Rey	193,38	53,62	14,83	18,39	0,05	280,27
El Parque	358,37	47,78	9,92	98,23	4,83	519,13
Vasconia	24,85	0,5	0,26	4,3	0	29,91
Olger	12,04	1,17	0,4	0	1,96	15,57
Mairena	25,1	0	1,32	5,81	0	32,23
Carrizal	93,06	34,09	1,99	0	0,39	129,53
Concho	77,55	35,06	2,75	1,88	2,82	120,06
Combate	170,79	21,27	5,47	20,37	1,2	219,1
Conchito	70,51	45,49	1,38	18,5	0	135,88
Coopevega	21,33	50,41	1,42	0	0	73,16
Gallito	72,81	3,2	3,62	18,17	0	97,8
San Alejo	15,02	1,52	0	0	0	16,54
San Diego Uno	14,69	5,81	0,69	0	0	21,19
San Diego Dos	11,43	8,82	0,41	0	0	20,66
San Juan	12,01	7,48	0	0	0	19,49
San Lopez	16,66	14,66	0,75	0	0	32,07
Pavon Uno	21,88	0	0,94	1,49	0	24,31
Pavon Dos	13,74	0	0,76	4,02	0	18,52
<i>Total</i>	<i>1583.12</i>					



VIII. Information technology

a: Introduction

Pinciples:

1. The philosophy is to gather and safeguard plantation history for as long as possible, placed on a safe server, to enhance institutional memory and limit damage to the entity in case of a brain drain
2. A GIS system does not reflect reality. The principle of waste-in waste-out is well understood

b: Planning

Continuation and extended use of GIS and DB for monitoring of all activity



IX. Wood plan

a: Introduction

Pinciple:

1. A wood plan facilitates sales planning for RGI and the eventual buyer.
2. A wood plan depends heavily on future market development, like minimal commercial diameter; the wood plan therefore depends on the market monitoring.
3. A wood plan is subject to thinning schedules as maybe enforced by growth and weather changes; so it is not static.
4. The wood plan will be adjusted every year as long as RGI keeps on growing in area.



X.Long term plan

Goals:

- 1.RGIsa will continue its projects in best sustainable manner
- 2.RGIsa keeps its overall quality standards minimally at the current growth levels
- 3.RGIsa will augment and enhance her institutional memory

