Aceh Green

Concept Paper:

Green Economic Development and Investment Strategy for Aceh, Indonesia

"*Aceh Green*"

July 2008

EXECUTIVE SUMMARY

A. Introduction

After Aceh's historic gubernatorial elections in December 2006 and his inauguration as the first democratically chosen Governor in February 2007, Irwandi Yusuf has refined his vision for a comprehensive, holistic strategy to rebuild the economy of Aceh in the aftermath of the December 2004 tsunami and the three decade-long conflict for independence.

For Aceh's reconstruction efforts and the peace process to succeed, the Governor knows his policies and programs must quickly generate both employment and income opportunities for all Acehnese, with a particular focus on the poor and ex-combatants. At the same time, it is critical to ensure the protection and preservation of Aceh's natural resources — particularly its extensive inland forests, watersheds and marine reserves — as key resources for sustainable economic development available for future generations.

The Governor is acutely aware that successful and sustainable post-disaster, post-conflict recovery requires major new investments and financing from a variety of sources. He is determined to ensure that investors share and contribute toward his vision.

With the rise of climate change as one of the most imminent threats to the security and prosperity of the Asia Pacific region, there is a need for an integrated approach to sustainable development. Particularly with the withdrawal of many aid agencies in April 2009, Aceh will require public-private partnerships, non-governmental oversight, and private sector involvement to manage clean energy, biofuel feedstock, reforestation and avoided deforestation, all of which involve issues related to carbon and a commitment to green development.

In June 2007 Governor Irwandi declared a moratorium on all logging to provide time to a) review the current status of Aceh's forests (including forest cover, concessions, and sustainable production capacity); b) redesign a proper and sustainable forest development and management strategy (including forestry zoning, policy framework, and institutional framework); and c) re-enact stronger, more effective enforcement mechanisms to prevent violations of this policy. The moratorium is sending a message to the international community that the province is willing to stop deforestation but not without receiving something in return, i.e., new revenues from trade, not only aid.

To help enforce the moratorium, Governor Irwandi recruited and employed 1,000 forest rangers / forest facilitators to raise awareness within Aceh's communities to be more actively involved in forest protection and implement sustainable forest management. He will add as many as 2,000 more forest facilitators over the next two years.

Since June 2007, the Governor has initiated a community-based forest management pilot conducted by local civil society organizations in partnership with the Aceh administration.

Finally, to elevate the issue of deforestation to a global audience during the recent United Nations Framework Conference on Climate Change (UNFCCC), Governor Irwandi signed on 7 December 2007 a joint declaration with the Governors of Amazonas, Brazil, and Papua and Papua Barat to a) implement policies / programs aimed at promoting forest conservation and poverty alleviation to reduce emissions from deforestation; b) share best practices in research and public policies applied to sustainable development, forest conservation and reduction of deforestation; c) exchange technical and scientific information; and d) establish mutually beneficial linkages between local communities.

As a result of these actions, the Governor launched his vision — the **Green Economic Development and Investment Strategy for Aceh, or *Aceh Green***.

Aceh Green will integrate and expand carefully and consciously integrated themes of climate change via renewable energy and land use management, community development, commerce and conservation. The Governor recognizes that achieving environmentally sustainable outcomes is only possible with economically sustainable livelihoods for the people of Aceh, especially the dispossessed and disenfranchised.

Aceh Green will explore establishing an ***Aceh Green Fund*** to finance public-private partnerships dealing with infrastructure programs, urban development, clean energy (including geothermal and hydropower), creation of biofuel feedstock, integrated land use program in tropical commodities (including, but not limited to coffee, cocoa, palm oil and rubber), aquaculture and coastal artisinal fisheries, reforestation (rainforest/mangroves) and avoided deforestation.

B. Outline of the Governor's Vision for Green Economic Development

Aceh Green consists of eight main components spread among three priority categories.

1. Land Use, Land Use Change and Forest (LULUCF) Management
   Component 1: Primary Forest Protection and Management
   Component 2: Reforestation and Forest Restoration
   Component 3: Community Forestry and Agro-forestry Development

2. Sustainable Economic Development
   Component 4: Smallholder Estate Crop Development in Partnership with Private Sector and Parastatal Estate Crops & Associated Infrastructure
   Component 5: Spatial Planning, Management, and Development of Capture Fisheries and Aquaculture
   Component 6: Public Infrastructure Development

3. Renewable Green Energy
   Component 7: Geothermal Energy
   Component 8: Micro Hydro

The strategy outlines a five-tiered approach to sustainable land-use management:

1. The Core Zone / Protected Forests: estimated to total approximately 3.1 million hectares of eternal forests.
2. Restoration Zone / Replanting Protected Forests: estimated at 250,000 hectares logged-over or secondary forest in higher elevations and steep slopes suitable for forest restoration through reforestation and assisted natural regeneration, again the eternal forest.
3. Community-based Production Zone / Community Forests: estimated at 350,000 hectares of mid-elevation, more gently sloping logged-over or secondary forests suitable for community forestry / agro-forestry schemes.
4. Land Reform / Smallholder Plantation Zone: estimated at 250,000 hectares of largely level land that fulfills agro-ecological and climatic conditions for smallholder estate crops like oil palm, rubber, coffee, and coconut with well-established local and global market demand.
5. Capture fisheries and aquaculture: institutional focus for the development of a “Green Investment” system for fisheries and other coastal activities, and improvements in the quality and quantity of post harvest fishery’s products and market access in cooperation with the private sector.

In addition there are two other land use classifications that are part of the overall Aceh land situation:

1. Existing Plantation: 200,000 hectares.
2. Existing Agriculture, Aquaculture and Settlements: 1.47 million hectares.

A. Introduction

After Aceh's historic gubernatorial elections in December 2006 and his inauguration as the first democratically chosen Governor in February 2007, Irwandi Yusuf has refined his vision for rolling out a comprehensive strategy to rebuild the economy of his province in the aftermath of the December 2004 tsunami and the three decade-long conflict for independence. For Aceh's reconstruction efforts and the peace process to succeed, Governor Irwandi knows his policies and programs must quickly generate both employment and income opportunities for all Acehnese, but with a particular focus on ex-combatants.

The Governor is also determined to protect and preserve Aceh's natural resources — particularly its extensive inland forests, watersheds and marine reserves — as key resources for sustainable economic development available for future generations. He is acutely aware that successful and sustainable post-disaster, post-conflict recovery requires major new investments and financing from a variety of sources. However, he is determined to ensure that investors share and contribute toward his vision.

With the rise of climate change as one of the most imminent threats to the security and prosperity of the Asia Pacific region, there is a need for an integrated approach to sustainable development. Particularly with the withdrawal of many aid agencies in April 2009, Aceh will require public-private partnerships, non-governmental oversight, and private sector involvement to manage clean energy, biofuel feedstock, reforestation and avoided deforestation, all of which involve issues related to carbon and a commitment to green development.

This paper outlines the key components that will be required to deliver this vision for the future of Aceh, provides preliminary projections of the financing and investment requirements and potential funding sources, and indicates potential revenues over the next two decades.

B. Origins of the Governor's Vision for Green Economic Development

To explore new business, technology, and financing partnerships, Governor Irwandi has led several trade and investment missions to Malaysia, Turkey, India, Europe, China, South America and the United States. He has called on experts from government, business, and civil society sectors in Aceh and elsewhere to assist him.

Governor Irwandi also took the bold yet innovative step in declaring a moratorium on all logging in June 2007. This policy will provide the Governor time to a) review the current status of Aceh's forests (including forest cover, concessions, and sustainable production capacity); b) redesign a proper and sustainable forest development and management strategy (including forestry zoning, policy framework, and institutional framework); and c) re-enact stronger, more effective enforcement mechanisms to prevent violations of this policy.

Aceh's logging moratorium is sending a message to the international community that the province is willing to stop deforestation but not without receiving something in return, i.e., new revenues from trade, not only aid, in environmental services and a commitment from developed countries to continue efforts to reduce their emissions.

To help enforce the moratorium, the Governor recruited and employed 1,000 forest rangers / forest facilitators to raise awareness within Aceh's communities to be more actively involved in forest protection and implement sustainable forest management. He will add as many as 2,000 more forest facilitators over the next two years.

Since June 2007, Governor has initiated a community-based forest management pilot conducted by local civil society organizations in partnership with the Aceh administration to achieve the vision of sustainable forest management while at the same time implement an assessment of the Aceh timber industry to accurately identify timber demand for domestic use.

Finally, to elevate the issue of deforestation to a global audience during the recent United Nations Framework Conference on Climate Change (UNFCCC), Governor Irwandi signed on 7 December 2007 a joint declaration with the Governors of Amazonas, Brazil, and Papua and Papua Barat. The objectives are to a) implement policies and programs aimed at promoting forest conservation and poverty alleviation to reduce emissions from deforestation; b) share best practices in research and public policies applied to sustainable development, forest conservation and reduction of deforestation; c) exchange technical and scientific information on implementation methodologies, verification techniques, branding and trust mark development, landscape solution developments, investor and buyer development for forest carbon in foreign markets, risk management techniques, monitoring and protection strategies, and community benefit sharing and stakeholder policy development; and d) establish mutually beneficial linkages between local communities as sustainable forest management practices are rolled out.

As a result of these actions, Governor Irwandi launched his vision — the **Green Economic Development and Investment Strategy for Aceh (*Aceh Green*)**. The strategy can be likened to a 'green" version of the Marshall Plan, which enabled Europe's shattered economies to recover after World War II. ***Aceh Green*** is seeking expansion capital and will build upon and extend the strong platform already established by longstanding multi donor funded environmental programs.

Aceh Green will integrate and expand carefully and consciously integrated themes of climate change via renewable energy and land use management, community development, commerce and conservation. The Governor recognizes that achieving environmentally sustainable outcomes is only possible with economically sustainable livelihoods for the people of Aceh, especially the dispossessed and disenfranchised.

Aceh Green will also establish an ***Aceh Green Fund*** to finance public-private partnerships dealing with infrastructure programs (harbor facilities), urban development, clean energy (geothermal), creation of biofuel feedstock, integrated land use program in

tropical commodities (including, but not limited to coffee, cocoa, palm oil and rubber), aquaculture and coastal artisinal fisheries, reforestation (rainforest/mangroves) and avoided deforestation.

Since the December 2004 tsunami, subsequent devastation and outpouring of international aid, a unique coalition between the government and NGOs has committed to working on the sustainable development of Aceh.

Substantive global awareness and groundwork initiatives related to environmentally sustainable development have positioned Aceh at the cutting edge of public-private partnerships, poverty alleviation strategies via sustainable livelihoods and carbon markets and ecosystem services. Aceh is now in a unique position to capitalize on rapidly developing carbon finance to succeed in sustainable development.

Two main cornerstones for the Governor's Green Economic Development and Investment Strategy for Aceh have been funded and implemented over the last two years providing a solid investor base to build upon:

1. Aceh Forest and Environment Protection (AFEP), an $18M program funded by the World Bank's Multi Donor Fund and administered by Fauna and Flora International, has successfully mapped extensive land use and conservation protection opportunities; and
2. Community Climate and Biodiversity Alliance (CCBA) audited Aceh Avoided Deforestation Voluntary Carbon Program (AADVCP), a multi-million dollar project funded and administered by Carbon Conservation Pty Ltd., involving many parties at the forefront of forest carbon markets including SmartWood and the World Bank.

The innovative nature of ***Aceh Green*** springs from its pragmatic recognition of the long history of failure of piecemeal development strategies where private sector interests often approach investment with a cut-and-run mentality rather than a managed and sustainable development plan.

With the evolution of the carbon markets, carbon finance mechanisms are encouraging comprehensive planning for renewable energy, sustainable land use and forestry. With rising commodity prices, it is possible to fund sunk costs of developing positive cash flow agricultural buffer zones on existing deforested land rather than using deforested timber revenues to forward-fund often unsuccessful cash crops. In anticipation of a post-Kyoto regime, ***Aceh Green*** is economically viable and visionary.

Aceh Green is a lower risk proposition as it combines expansion capital to build upon existing public-private partnerships with carbon financing and strong commodity prices for cash crops and long-term land use planning and infrastructure management. The Governor believes that success is built upon success and, as such, priority will be given to initiatives based on a matrix of considerations, including ability for successful execution and return to investors as well as benefits to community, conservation and climate.

C. **Building on a Donor-Driven Economy**

The horrific earthquake and tsunami that struck Aceh in December 2004 lead to an outpouring of international humanitarian aid at levels never before seen. Nearly US$ 8.0 billion was pledged to assist in Aceh's relief, reconstruction, rehabilitation and recovery.

In August 2005, Aceh was again on the international scene with the historic signing of the Helsinki Peace Accord that brought peace to Aceh after nearly three decades of civil conflict.

It is still common to hear the refrain throughout Aceh that there cannot be a sustainable peace without successful reconstruction and rehabilitation just as there cannot be a successful recovery without sustained peace. The mandate of the ministerial-level agency created to manage Aceh's post-disaster recovery, BRR (the Agency for Reconstruction of Aceh and Nias), expires in April 2009. Donors working in Aceh, whether on reconstruction, reintegration or conflict resolution will finish many of their initiatives at more or less the same time.

Therefore, it is possible a significant level of reconstruction funding will remain unspent and that the Aceh provincial authorities will need an institutional "gap filler" to assist in preparing Aceh's provincial and local authorities to effectively administer and govern in a donor vacuum environment.

One solution will be to establish effective institutional arrangements to assist during this transition, such as public-private partnerships between the Aceh provincial administration (a key and necessary player), donors deciding to remain in Aceh for the long haul, and qualified non-governmental organizations providing professional technical assistance.

D. **Outline of the Governor's Vision for Green Economic Development**

The Governor's Green Economic Development and Investment Strategy for Aceh consists of eight main components. Three components fit into the Land use, Land Use Change and Forest Management category of activities which may be understood as both an investment sector and physical planning zone. Three components fit into the commercial-oriented Sustainable Economic Development category of investment requirements, which also reflect a sector and a physical planning zone. The remaining two components form part of an innovative, renewable green energy category.

All eight components are designed to generate revenue for the province and employment for rural communities. The strategy will benefit those in both post-tsunami and post-conflict areas.

<u>Land Use, Land Use Change and Forest (LULUCF) Management</u>

Component 1: Primary Forest Protection and Management
Component 2: Reforestation and Forest Restoration
Component 3: Community Forestry and Agro-forestry Development

Sustainable Economic Development

Component 4: Smallholder Estate Crop Development in Partnership with Private Sector and Parastatal Estate Crops & Associated Infrastructure

Component 5: Spatial planning, management, and development of capture fisheries and aquaculture

Component 6: Public Infrastructure Development

Renewable Green Energy

Component 7: Geothermal Energy

Component 8: Hydropower

Sectors and Zones in Spatial Terms

In spatial terms, the relationship between elements of the strategy can be described as concentric circles (see Figure 2). Actual physical planning and zoning will be influenced primarily by the capacity of different land types to sustainably support different land uses. But there will also be factors that relate to local, national and global conservation values; traditional, historical and current land tenure patterns; and physical factors relating to access and proximity between sites and proposed functions. These together will mean that on the ground, planning will often not follow the planning ideal of concentric circles of interrelated zones.

The strategy outlines a five-tiered approach to sustainable land-use management:

1) The Core Zone / Protected Forests: estimated at approximately 3.1 million hectares of eternal forests.
2) Restoration Zone / Replanting Protected Forests: estimated at 250,000 hectares logged-over or secondary forest in higher elevations and steep slopes suitable for forest restoration through reforestation and assisted natural regeneration, again the eternal forest.
3) Community-based Production Zone / Community Forests: estimated at up to 350,000 hectares of mid-elevation, more gently sloping logged-over or secondary forests suitable for community forestry / agro-forestry schemes.
4) Land Reform / Smallholder Plantation Zone: estimated at 250,000 hectares of largely level land that fulfills agro-ecological and climatic conditions for smallholder estate crops like oil palm, rubber, coffee, and coconut with well-established local and global market demand.
5) Agriculture, coastal capture fisheries, aquaculture and settlements: institutional focus for the development of a “green investment” system for fisheries and other coastal activities, and improvements in the quality and quantity of post harvest fisheries products and market access in cooperation with the private sector.

All five zones consist of lands under the administrative control of the local, provincial or national governments. The strategy proposes interface with additional estate crop lands

either owned by or under management permits held by private individuals, businesses (PT), or parastatal companies (PTP).

In addition there are two other land use classifications that are part of the overall Aceh land situation:

1) Existing Plantation: 200,000 hectares.
2) Existing Agriculture and Settlements: 1.47 million hectares.

E. Summary of the Strategy's Main Components

Component 1: Primary Forest Protection and Management

The protection and management of Aceh's primary forests and watersheds are essential to the entire strategy. To protect the more than 1.8 million hectares of natural forest in Aceh, Governor Irwandi declared on 6 June 2007 a unilateral total moratorium on logging activities in the province.

A force of 1,000 forest guards has been recruited to monitor and enforce the moratorium. Protection requires salaries for the guards sufficient to support their families and keep them highly motivated. The provincial Forestry and Estate Crops/Plantations Department will need additional funds to provide administrative and technical services and to conduct forest resource assessments.

Forest protection work will tie in with other forest conservation initiatives currently being conducted in the Ulu Masen and Leuser Ecosystems and with current and future local and international organizations and institutions contributing toward the delivery of conservation objectives in the province.

To help finance primary forest protection and management, Governor Irwandi has pursued and will continue to pursue development support and commercial arrangements to assist Aceh province in securing carbon credits for avoided deforestation, afforestation, and tree planting. Significant revenues from carbon credits could accrue to Aceh over the next 30 years as a direct result of the strategy's forest conservation and environmental restoration policies and practices. Other financing mechanisms, such as Debt for Nature swaps, will also be promoted.

Component 2: Reforestation and Forest Restoration

The strategy calls for the restoration (and assisted natural regeneration) of degraded and deforested land throughout the province. The work will create employment for people in local communities adjacent to these natural forests. To reinforce the peace accord, communities in active conflict areas will be prioritized.

Seedling nurseries managed by local entrepreneurs and cooperatives will be set up in several centralized and decentralized locations. This will ensure effective propagation

and distribution of appropriate silvicultural species. Local tree planting teams under the auspices of traditional or civil society organizations (e.g., the Acehnese *kemukiman* village organization system**,** religious groups, or NGOs) will be contracted to carry out site preparation, contouring, replanting, and other conservation measures.

Reforestation and restoration will be implemented through a partnership between the Aceh provincial government, local universities, and local and international NGOs. Appropriate management and monitoring mechanisms ensuring transparency and accountability will be established. A rigorous due diligence process will be instituted to identify the most appropriate institution(s) to undertake this portion of the program. Funding will be sought from the Australian government's new US$ 200.0 million Indonesia-wide reforestation initiative, the World Bank's pilot carbon facility, and other possible sources.

Component 3: Community Forestry and Agro-forestry Development

The strategy calls for community-based, multi-purpose tree crop planting involving about 150,000 hectares throughout Aceh province. Tree crop planting will generate initial employment and long-term income for farmers and laborers in a number of districts (*kabupaten*). Community forestry and agro-forestry will promote intercropping of diverse permanent tree crops for biofuels, fuel wood, building materials, gums and resins, and essential oils, as well as fruit trees for immediate consumption and/or sale. Species could include jatropha, candlenut (*kemiri*), betel palm (*pinang*), and dammar. Communities in former conflict areas will be prioritized. Nurseries and tree planting teams similar to those described in Component 2 will be established in the target areas. Local community organizations will coordinate planting with cooperatives and individual families managing the trees thereafter.

These various efforts will be coordinated with existing and future NGO initiatives such as the Ulu Masen and Leuser Ecosystem Corridor Conservation Program. Specific technical assistance and training expertise will be sought. Financing for this component - estimated at US$ 150.0 million - will be sought through carbon trading and multilateral finance organizations.

Component 4: Smallholder Estate Crop Development in Partnership with Private Sector and Parastatal Estate Crops and Associated Infrastructure Development

Smallholder estate crop development on land suitable for specific priority commodities is the fourth major component. The Governor has established a special body called the Aceh Plantation Development Authority (APDA) modeled after and receiving technical and managerial support from the Malaysian organization FELDA (Federal Land Development Agency).

FELDA has more than 45 years experience in organizing smallholder palm oil, rubber, and cocoa projects. As the largest oil palm producer in Malaysia, it is well versed in

agronomic issues, post-harvest processing, and cooperative development. The following crops will be prioritized:

a) Oil Palm

Development of oil palm plantations is considered to be a central element of plans to deliver livelihood opportunities for rural communities and economic development of the province. Oil palm would be developed through smallholder out-grower plantations working in partnership with private and government plantations. Participating families would own (e.g., have title to) and achieve secure employment and incomes through the out-grower plantations.

Currently in Aceh approximately 89,000 hectares are cultivated by smallholder oil palm producers, 39,000 hectares of government-managed estates (PTP) and 132,000 hectares in private estates. The total annual production of crude palm oil (CPO) in Aceh from these lands is currently about 400,000 metric tons. This falls well below the national average per hectare output. The strategy calls for a substantial increase in smallholder production combined with anticipated increases in land devoted to private and government estates.

APDA and the *Dinas Kehutanan dan Perkebunan* (*Dishutbun*) will play important roles in strengthening and improving the productivity of the palm oil smallholdings that are developed as part of the plasma component of private plantations.

The strategy will assure that both existing and new oil palm development in Aceh - whether government, private, or smallholder - will closely follow the principles and criteria of the Roundtable on Sustainable Palm Oil (RSPO), based in Kuala Lumpur, Malaysia. This global initiative of businesses, government, and civil society is creating high standards and strong incentives for environmental and social responsibility in the global palm oil industry. The strategy will stimulate cooperation among the various stakeholders in Aceh in order to maximize compliance with RSPO and to minimize major problems with oil palm expansion common in Indonesia and elsewhere. These problems include forest conversion and land tenure conflicts. If the strategy is instituted, Aceh will become a model for sustainable palm oil production worldwide.

The smallholder expansion program will be financed in stages, with initial pilot projects in former conflict areas such as Aceh Jaya/Aceh Barat (Meulaboh), Aceh Utara/Bireuen, Langsa/Aceh Tamiang and Aceh Selatan/Singkil.

Site selection and planning will be conducted through a participatory landscape-planning process that combines sophisticated land-use analysis and mapping technologies with grassroots organizing.

Plantations will be consolidated by local farmer organizations and cooperatives. In turn, they will have contractual processing and marketing relationships with large estates attached to crude palm oil (CPO) mills. Participating families will receive land titles,

land preparation assistance, optimal seedstock, tools, transition financing and management support until their plantations reach maturity. The strategy mandates that smallholders have an effective voice in local pricing boards, along with industry representatives and state government officials.

b) Coffee

The strategy calls for the rehabilitation of smallholder coffee plantations located in Aceh's interior Gayo highlands, specifically the districts of Aceh Tengah and Bener Meriah. These plantations were abandoned and degraded, and many buildings (mosques, schools, and homes) in the communities were severely damaged during the last years of the conflict, from 1998-2005.

After palm oil, coffee is the second-most valuable export commodity in Aceh -- and the best-known one in the international market. Annual production is now about 40,000 tons and is valued at more than US$ 110.0 million. Aceh's unique Arabica specialty coffee is prized by major international buyers such as Starbucks in North America and Europe. This coffee will be very helpful in establishing Aceh's post-tsunami / post-conflict branding and marketing strategy.

Rehabilitation of smallholder coffee could assist more than 12,000 families to recover their livelihoods and increase total production by about 15,000 tons.

In addition to rehabilitation of existing areas and replanting of new coffee trees, the strategy establishes post-harvest processing and marketing infrastructure and calls for the creation and strengthening of farmer organizations and cooperatives.

The strategy also increases certification and marketing via specialty channels such as organic and Fair Trade. Higher prices and greater incomes for farmers will result.

c) Other Estate Crops

The Governor's strategy proposes to establish smallholder plantations in other estate crops, especially rubber, cocoa, and nutmeg. This effort, similar to the coffee program above, includes new plantings through nursery establishment, modest post-harvest processing managed by farmers themselves, cooperative formation, and certification. Two programs supported by the German agency GTZ in the districts of Pidie and Bireuen in the northern part of Aceh covering 4,000 hectares will serve as a pilot project for these crops. Additional proposals will be formulated by NGOs and/or the private sector and presented to the BRR and other bilateral funders.

Private and parastatal companies with proven track records in Aceh and other parts of Indonesia will provide the needed capital, infrastructure, expertise, and market access for the new and existing smallholders. The private sector in Aceh, in Indonesia and internationally will be invited to make substantial equity and debt investments toward the rehabilitation of existing, and the setup of new, large-scale plantations and processing

plants, primarily for oil palm. The private sector and NGOs will also be encouraged to provide training and technical support to smallholders in such areas as Good Agricultural Practices (GAP), worker health and safety, quality control, and financial management.

The strategy anticipates new oil palm plantings by private companies in several coastal districts of Aceh within the next three-five years. These companies will also establish new large-scale CPO mills and create significant expansion of storage tanks and distribution facilities. Within five years, one or more palm oil refineries will also be established for value-added palm and palm kernel oil products. Investment of US$ 1.0 billion by private companies and banks can create a minimum of 30,000 full time jobs over the next 10 years. The strategy provides for special incentives and regulations to support private sector compliance with sustainability principles and practices, such as the RSPO, and fair labor and wage standards.

Biofuels development: The strategy encourages the private sector in developing a biofuels industry in Aceh. Biofuels would be based initially on palm oil and branch out to include other products such as jatropha, sago palm, and sugarcane. The strategy sets up a framework for Aceh's biofuels industry based on avoided deforestation, carbon credits, and strict sustainability standards. This will serve to distinguish Aceh from other parts of Indonesia and regions of the world and boost investor and consumer confidence in the province. The overall strategy for Sustainable Biofuels in Aceh – including financing, investments, infrastructure, and business development – will be developed within the next year.

During the Governor's trip to the U.S. in September 2007, two of the largest biodiesel producers expressed solid commitments in sourcing verified and/or certified sustainable palm oil from Aceh. These companies expressed strong interest in partnering with Indonesian and Malaysian companies to secure long-term product sourcing needs. This might include co-investment in existing and new plantations, supporting biofuel technology transfer, and underwriting long-term off take (supply) agreements. With the likely conversion of most of the liquid fuels in Hawaii to biofuels by 2010, the market needs for sustainable palm oil in the U.S. will rise substantially. The EU's mandate to increase biofuel content of overall engine fuels to 10% by 2020 and consumer preference for sustainable sourcing can help create a strong market opportunity for Aceh.

Component 5: Spatial Planning, Management, and Development of Capture Fisheries and Aquaculture

At least 21% of the total population in Aceh (810,000 of a total of 4 million) depends on the fisheries sector – as either fishermen, fish pond cultivators, traders, manufacturers, service providers, collectors and others – for their livelihoods. Currently there is an urgent need for greater attention to be concentrated on the fisheries sector to help facilitate livelihood rehabilitation and economic development. However, meeting this need will likely create changes in exploitation levels of fishery resources and changes in how marine and coastal ecosystems are used. It is therefore important that a

comprehensive process of sustainable management planning and policy formation accompany the development of the fisheries sector.

a) Coastal, Marine, and Fisheries Resources Conservation

Environmental conditions for Aceh coastal and marine resources have been under pressure because current rehabilitation activities have not adequately considered environmental impacts. This situation could lead to ecological imbalance, biological extinction, and reduced biodiversity, which will affect fisheries livelihoods.

There is a need for a community-based management model. This model is believed to be more efficient, effective, and strongly accepted by the public, which will lead to successful implementation. Local wisdom that is implemented as traditional law ("hukum adat laot") should become the basis for this management model. Governmental policies will need to be integrated with traditional "hukum adat laot", with more emphasis on efforts to care for, save, and protect marine and fisheries resources.

b) Fisheries Products

Post harvest handling and processing of fisheries products in Aceh are not optimal, which causes a loss in quality, economic value, and market access opportunities. An increase in productivity must be supported with good post harvest handling along the supply-chain to sustain quality and increase product value in the market.

In order to increase marine and fisheries contribution to Aceh public welfare and economic development, there is a need to promote fisheries products for marketing and distribution network expansion. There is also a need to empower public institutions, such as co-ops, to accommodate collection and distribution. Additionally, there is a need for processing and transportation infrastructure establishment, rehabilitation, and improvement that accelerate distribution for quality preservation. All of these initiatives must consider prioritization as well as unique characteristics of each area. There is also a need for an easily accessible integrated fisheries information system. Additionally, capacity building for any entities, which are involved in fisheries activities, must be strengthened to improve handling, processing, management, and diversification of fisheries products. All of these efforts are necessary to increase public revenue from fisheries activities.

c) Fair and Sustainable Policy on Resource Management: A Green Fisheries Investment System

Current problems in the fisheries sector appear because of policy, authority or institutional shortfalls – including, insufficient extension services for fishermen, conflict among fishermen, overlapping of exploitation licenses in coastal and marine areas, and a lack of spatial planning for aquaculture activities. There are also problems related to the unclear division between coastal and marine management authorities, no clear rules in regards to the amount, or allocation, of mangroves that can be converted or developed into *tambak*, and there are conflicts in exploration (conflict among inter-sector, inter-

government level, and inter-autonomy areas). There is also no institutional system to accommodate co-management among the government and other important parties and, just as important, there is no financial institution that can lend necessary capital.

There is an urgent need for the Aceh government to develop a Green Investment System as a base policy for any activities related to investments, infrastructure, and developments, which will be conducted on, or will impact, the marine, coastal, and fisheries resources. There is also a need to develop a compensation strategy or accreditation as ordered in UU no 27 2007 on coastal areas and small islands management. This accreditation will be applied to anyone who will utilize coastal and marine areas for developments or investments as a mean of responsible conduct. This strategy will ensure sustainable management of marine, coastal, and fisheries resources.

Component 6: Public Infrastructure Development

This component involves government programs and investments for significantly improving Aceh's infrastructure – specifically communications, transportation, and logistics. Such investments will be critical in boosting the competitiveness, attractiveness, and security of Aceh as a whole. Clearly, infrastructure development will cross between and establish linkages between the various development / planning zones.

An estimated minimum of US$ 525.0 million in credits, low interest loans, and partial grants is required to successfully launch this part of the strategy. This would include upgrading and expansion of major port facilities, setup of feeder ports and CPO terminals, and building of specific connective roads. On the communications side, it entails targeted improvements in communications infrastructure (i.e., satellite, wire, and cable) and power generation facilities.

Perhaps more important than the physical improvements, the Aceh government needs to create an educated and properly motivated workforce that abides by international standards of integrity and accountability to the fullest extent. This requires extensive *in-situ* and overseas training of Acehnese students in the coming years.

Several of the needed improvements and investments already exist on paper (if not in practice) under other program auspices. Accordingly, the strategy needs to be reviewed and coordinated with other organizations and initiatives such as BRR, the World Bank, the Asia Development Bank, USAID, AusAID, and other bilateral donors. Once this review process has been completed, the provincial and local governments of Aceh can finalize the remaining infrastructure investments in critical areas of the province.

Component 7: Geothermal Energy

There are large opportunities for geothermal energy in Aceh including the proposed 180 MW station with provisional support from a German government research fund. It is the intention to assist Aceh assess and develop feasibility studies of geothermal energy, which would power Aceh and provide for export of power to Sumatra.

Energy projects including renewable green energy will be the jurisdiction of the Provincial Government and not the Central Government based on new autonomy law for Aceh (Law No. 11/2006 on the Governing of Aceh).

Component 8: Hydropower

Given the number of watersheds and rivers in the contiguous forests of Aceh, there are a number of hydropower opportunities. Since the 2004 tsunami, dozens of functioning microhydro electricity facilities are already in operation.

F. Aceh's Global Leadership in LULUCF and Carbon Markets

Global attention is focused on the inclusion of Reduced Emissions from Deforestation and Degradation (REDD) into Kyoto or post-Kyoto carbon markets. REDD fits within the wider component of Land Use, Land Use Change and Forestry (LULUCF). LULUCF constitutes 18-25% and is the 2nd biggest category of global annual emissions behind coal fired power (IPCC 2007). With LULUCF emissions 85% of Indonesia's national emissions total, when included, the country rises from 21st to 3rd biggest emitter behind China and the USA (World Bank 2007). Reducing these emissions from land use and deforestation could represent revenues of $5-10 billion per annum (Stern 2007).

Working with Carbon Conservation and Fauna and Flora International, the Governor of Aceh put in motion plans for a moratorium on deforestation (all logging) on 26 April 2007 with the historic signing of a 3 Green Governors Declaration at Bali in anticipation of the Kyoto COP 13 event. To facilitate carbon financing, Aceh's Governor was a global pioneer, and with Carbon Conservation, Fauna and Flora International and SmartWood (Rainforest Alliance) have been working with the donor community and the private sector to consummate a significant carbon transaction.

Carbon Conservation, with the intention to develop a strong community, climate and biodiversity platform for all projects, assisted in developing an initial project design document (PDD) for the 750,000 Ha of the cross jurisdiction forested area of Ulu Masen. The project will use carbon finance to conserve forestland in one of the last unprotected tracts of tropical forest on the island of Sumatra.

Deforestation will be reduced by 85 percent over 30 years and thereby avoid the emission of more than 3.3 million tons of carbon dioxide annually. Local residents will benefit by receiving financial incentives to protect their resources and develop alternative livelihoods using income from carbon sales. In addition, the project will support increased forest monitoring, provide funding to civil society organizations to monitor project activities, and support the restoration and reforestation of mangroves, fruit tree gardens, coffee plantations and woodlots.

This provides the platform for a strong ethical and green credential for all projects and developments on the adjacent and surrounding land.

Figure 1

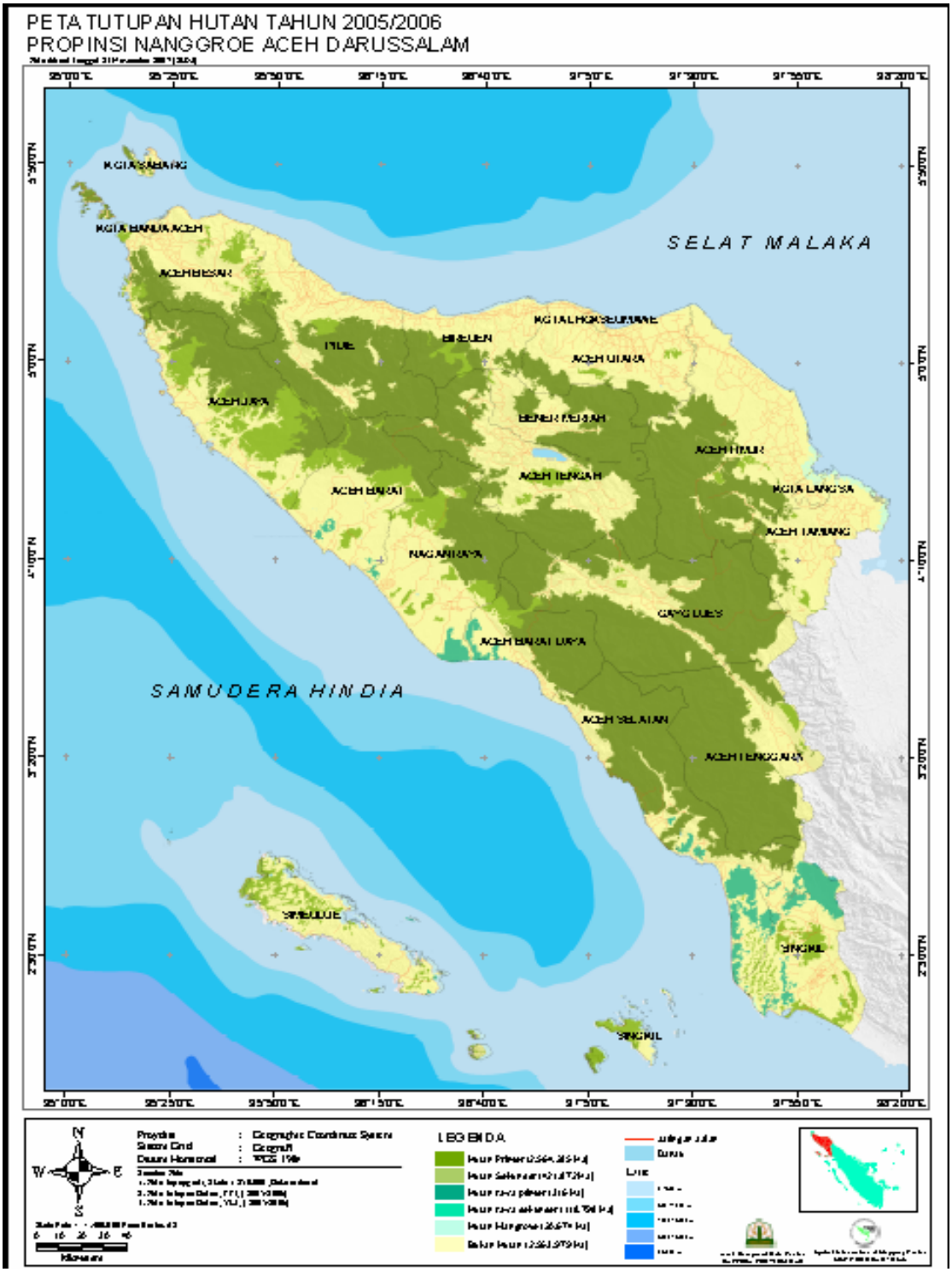
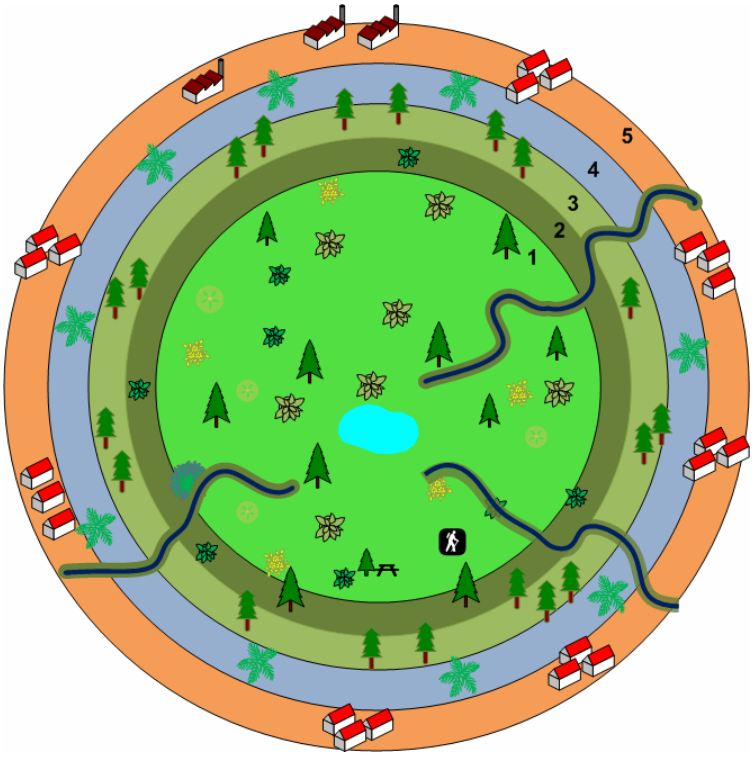

PETA TUTUPAN HUTAN TAHUN 2005/2006
PROPINSI NANGGROE ACEH DARUSSALAM
SELAT MALAKA
SAMUDERA HINDIA
ACEH BARAT DAYA
ACEH SELATAN
ACEH TENGGARA
SINGKIL
SIMEULUE
LEGENDA

Figure 2

Aceh Green Vision



Existing	
Forest	3,101,960
Degraded land	804,550
Plantation	209,703
Agriculture/coastal settlements/ urban	1,504,112
Total	5,620,325

1. Eternal Forest (existing)	3,101,960
2. Eternal Forest (replanting)	250,000
3. Community forestry	Up to 350,000
4. Land Reform (Smallholder Plantation)	250,000
5. Existing Plantation	200,000
5. Agriculture/ coastal settlements & other use	1,468,000
Total	± 5,619,960