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1. Economic Sector

1.1 The Seventh National Socio-Economic Development Plan (2011-2015)



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Ministry of Planning and Investment

No: _____ /MPI

Vientiane Capital, Date: _____

“Draft”

The Seventh National Socio-Economic Development Plan (2011-2015)

Executive Summary

Unofficial translation from original Lao version

The document of the Seventh National Socio-Economic Development Plan (2011-2015) consists of two parts:

- I. Assessment of the Implementation of the Sixth NSEDP (2006-2010);*
- II. Direction, Targets, and Implementation Measures of the Seventh NSEDP (2011-2015).*

I. Initial Achievements of the Implementation of the VI NSEDP (2006-2010)

The Sixth National Socio-Economic Development Plan was prepared based on the overall targets of the Socio-Economic Development Strategy until the year 2020 and Resolution of the VIII Party Congress. This plan was endorsed at the initial session meeting of the Sixth National Assembly in June 2006. The Sixth NSEDP has been regarded as an ambitious plan, serving the country's purpose of achieving an average economic growth of 7.5% per year, and attaining social progress targets. The exact approach of implementation has been to work through annual plans, wherein individual projects and programmes are executed. Despite several constraints, line ministries, provincial authorities and the Lao people, under the leadership of the Party and the Government, have put-in their best efforts to achieve the main planned targets of the past five years. Some challenges, however, remain to be addressed.

A. Achievements

1. Macroeconomic indicators continue to remain stable and improve

- **Economic growth in the past 5 years:**

- o The Gross Domestic Product (GDP) for five years amounted 219,795 billion Kip, which represents an annual average of 43,959 billion Kip (at constant price). The average annual GDP growth has been 7.9% (which exceeds the target by 0.4%). The breakdown of GDP (tax excluded) by sectors is as follows:
 - Agriculture-Forestry sector increased by 4.1% (against a planned rate of 3.3%); accounting for 30.4% of the GDP
 - Industry sector increased by 12.5% annually (against a planned rate of 13.6%), accounting for 26% of the GDP
 - Services sector increased by 8.4% (against a planned rate of 7.4%), accounting for 37.2% of the GDP
- o GDP growth rate by fiscal year was as follows:
 - FY (Fiscal Year) 2005-2006: 8.2%
 - FY 2006-2007: 8.0%
 - FY 2007-2008: 7.8%
 - FY 2008-2009: 7.6%
 - FY 2009-2010: 7.8% (Initial estimated rate)

In the fiscal year 2008-2009, Gross Domestic Product at current prices reached 47,225 billion Kip. The GDP per capita in 2008-2009 was USD 906, and it is estimated that GDP per capita in FY 2009-2010 will be about USD 986 (in contrast, the Five-Year Plan states that the GDP per capita in 2010 should be USD 800)

Inflation rate decreased from 8% in FY 2005-2006 to 0.74% in FY 2008-2009. In March 2010 the inflation rate stood at 4.89%

Kip, the national currency, has continuously appreciated; the average exchange rate appreciated from 10,242 Kip/USD in FY 2005-2006 to 8,515.7 Kip/USD in FY 2008-2009 and 8,470 Kip/USD in the beginning of FY 2009-2010.

• Investment:

Public investment in the past five years amounted to 24,747 billion Kip, in which Government-funded investment amounted to 3,982 billion Kip and ODA-funded investment, to 20,765 billion Kip. ODA was provided in the form of grants (58%) and loans (42%). The amount of investment covered by ODA depends upon actual project implementation.¹

The approved private domestic and foreign direct investments in the past five years stood at 9.7 billion USD, in which private domestic investments amounted to 1.7 billion USD. The approved private domestic and foreign investments in each fiscal year were as follows:

- o FY 2005-2006: 2.7 billion USD, in which domestic investment was 0.36 billion USD
- o FY 2006-2007: 1.1 billion USD, in which domestic investment was 0.16 billion USD
- o FY 2007-2008: 1.21 billion USD, in which domestic investment was 0.25 billion USD

¹ This amount has been consolidated in collaboration with the Department of International Cooperation

- o FY 2008-2009: 4.3 billion USD, in which domestic investment was 0.86 billion USD
- o FY 2009-2010: 0.4 billion USD, in which domestic investment was 0.01 billion USD

- Budget-Revenue and Expenditure :

- o Total Revenue has been 36,876.75 billion Kip, amounting to 16.5% of the GDP
- o Total Expenditure has been 46,980.91 billion Kip, amounting to 21.2% of the GDP
- o Budget Deficit has been 10,228.42 billion Kip, amounting to 4.7% of the total GDP

- Import-Export in the past five years:

- o Exports amounted to 5.11 billion USD, and accounted for 20.72% of the GDP
- o Imports amounted to 6.49 billion USD, and accounted for 26.1% of the GDP
- o Trade deficit amounted to 1.38 billion USD, forming 5.3% of the GDP. The five-year plan had anticipated the deficit to be 1.02 billion USD, which is 5% of the total GDP.

Lao foreign trade continued to be in deficit. In the five years from 2006 to 2010 trade deficit amounted to 1,384 million USD (average annual trade deficit being 276.80 million USD, which is 27.1% of the total exports). However, foreign trade development appears to be following a positive trend, as trade deficit to GDP decreased from 10.79% in FY 2001-2005 (average). It was also low at 5.3% compared to a planned target of 5.8%.

2. Economic and Social Sectors

- Economic sector

- o Agricultural Sector: The annual (average) rice production was 2.9 million tonnes. This is 88% of the quantity projected in the Sixth Five Year Plan (3.3 million tonnes). Nevertheless, rice is adequate in the domestic markets. The production that stands out in this sector is of sugar, industrial tree plantations (rubber, eucalyptus), corn, cassava, sweet potatoes, and livestock and fisheries (cows, buffaloes, pigs, birds, fish, and other small animals, which have grown in urban suburbs and in mountainous areas for commercial purposes). The consolidated domestic agricultural supply amounts to about 102.4 million USD, and export amounts to about 24.6 million USD, as per current estimates.
- o Energy Sector: 97% of the plan projection was implemented, between 2006 and 2009. Construction of Nam Mung 3 Dam, NT2 Dam and Sesad 2 Dam, have been completed, and pilot production has begun. Dams that are still in the process of construction are Sekamarn 3, Nam Ngum 2, Nam Lik 1 and 2, Nam Yon, Nam Ngum 5, Theun-Hinboun (expansion), Tad Salan, and Nam Song. Their construction is expected to be completed during 2010- 2012. The total electricity production capacity is currently 1,377 MW, and the power generated nationwide reaches 5,950 million kWh per year. Currently, the total length of electricity transmission lines is 19,503 Km across the country.
- o Mineral production: The value added in mineral production has increased significantly, by 25% annually, and the share of this sector in the GDP has risen to 9.5% as per the

latest data. The total value of mineral production in the past five years between 2006 and 2010 increased 13.9% per year (as per current price) and 19.9% per year (at 2002 prices). The exploration and manufacturing of gold increased from 9.7 tonnes in FY 2005-2006 to 10.08 tonnes in FY 2007-2008 (Plan target for 2010 is 13 tons).

- o Manufacturing industry sector: The total value of manufacturing production rose at an average rate of 9.4% per year in the period 2006-2010. Manufacturing and processing activities requires less capital investment when compared to other types of industries, but has higher employment potential. Some sectors of manufacturing that have grown significantly are garment production, tailoring, timber and food processing industry.

- Services sector

- o The basic infrastructure has improved and significantly expanded, including all types of roads, electricity grids, irrigation systems, airports, others. These directly and indirectly support production, transportation, commerce, investment, people's living conditions, and defence and security activities.
- o There is expansion in the linkages between sub-regional growth, and expansion of roads and air transport. Roads have been extended from 33,803 Km to 39,568 Km in the past five years. Tourism infrastructure has benefited from road infrastructure expansion and the number of hotels increased by 17.3% and guest houses by 6.8% annually, from the years 2002-2004, until now. Tourists to Laos grew at 15.8% annually, or about 1.77 million people per year (arrival), and generated income of 261.32 million USD per year (equivalent to 5.19% of the GDP).
- o Telecommunication grids: There are 119 post offices, 99 telephone centres and 3,589,379 telephone connections in the country
- o A comparison of tourist arrival between the Sixth Five Year Plan (2006-2010) and the Fifth Five Year Plan (2001-2005) suggests that tourists to Laos increased 44.45%, and have generated twice the income in Sixth Plan compared to the Fifth Plan.

- International and Regional Economic Integration

The economic integration of Laos with its regional and international counterparts has been attempted through the implementation of a policy of open foreign economic cooperation, on the basis of independence and mutual benefit. As a result, there has been expansion in cooperation in the fields of economy and commerce. International trade negotiations at the bilateral, regional, sub-regional and global levels have increased and strengthened. International integration includes multi-party trade cooperation, ASEAN and Regional Economic Cooperation, Trade Negotiation within ASEAN and related countries, and Asia-Pacific Trade Agreement.

- Culture – Social Sector:

- o Poverty Reduction entails rural development, for which village and village development groups (kumban) are established. Six prioritised focal points in Xiengkhuang and

Vientiane provinces have been defined. Capacity building about Village Development Plans has been carried out with 2,586 provincial staff members, and Village Development Plans have been drawn up for 92 village groups in 61 poor districts. An amount of 41.7 billion Kip from domestic funds has been set aside to establish the Village Development Fund. In 2007 and 2008, the Agricultural Promotion Bank had extended loans to farmers amounting to 1,248 billion Kip for cultivation, livestock-raising and small business development. Nayobai (Policy) Bank has given loans to 24,762 households amounting to 1.8 billion Kip. According to the Consumer and Household Expenditure Surveys, the proportion of people below the poverty line decreased from 33.5% in FY 2002-2003 to 27.6% in FY 2007-2008; and from about 26.6% FY 2008-2009 to about 25.6% in FY 2009-2010 (estimate). On average, the poverty rate has decreased by about 3.8% per year.

- o The educational network has been improved, with schools being set up in remote areas and poor districts. Sub-standard teachers are getting trained. The numbers of childcare centres and kindergartens have increased to 1,129 and the numbers of elementary schools have gone up to 8,830. The enrolment rate of primary school has increased from 84.2% in 2005 to 89.2% in 2008, and 91.2% in 2009.
- o People have been increasingly receiving basic health care services. The average life expectancy is 63 years (for women it is about 64 years and men, about 62 years). There are four central hospitals, 12 provincial hospitals, four regional hospitals, 127 district hospitals, 793 health centres, and 6,736 hospital beds in the country. In the past five years, the country has successfully overcome the bird flu epidemic twice.
- o Skills-development among workers has been continuously implemented, and 642,884 new jobs have been created. This exceeds the Sixth Five-Year Plan target by 18.2%. The proportion of workers engaged in the agriculture and forestry sector gradually decreased from 78.5% of the workforce in 2005 to 75.1% in 2010. Correspondingly, the proportion of workers in industry and construction sectors increased from 4.8% to 5.5%, while the same in the services sector has increased from 16.7% to 19.5%, between 2005 and 2010 (estimates). The shift of workers from agricultural sector to non-agricultural sectors stands at 0.7% annually.
- o Senior revolutionary officers have been carefully looked after and provided special care. The total number of senior revolutionary officers is 9,039 which accounts for about 10.64% of the total officers. An estimated 2,217,187 people have benefited from the removal of unexploded ordnance from various locations. Construction of a memorial for revolutionaries and anonymous soldiers has been completed.
- o Information and Culture Sector has improved both in quantity and quality. Technical training has been given to staff for diffusing information in the society. FM radio stations increase by 14: there are now 43 stations nationwide covering 90% of the catchment area in the country. Next, there are 36 television stations. The Cultural Sector has been regenerated and it protects the country's culture. National culture has

been promoted nationwide and cultural awareness has been raised among the masses of populations. In all, 445 'cultural villages' have been established and 131,346 families have been awarded 'cultural families' status (families meeting high cultural and traditional standards).

3. Regional development

- Northern Part : Construction and repair of irrigation systems, roads, schools, hospitals and others have been carried out; e.g., the irrigation systems of Nam Seng, Nam Tair, and Nam Mao-Nam Nan; construction and up-grading of the national road connecting Luang Namtha to Nalair; laying down power cables between Ngoy district and Viengkham district in Luang Prabang province; and restoration and repair of the basic infrastructure in areas flooded in 2008. Farmers have been encouraged to grow dry-season crops for commercial purposes. The plantations of corn in Xayabouly, Oudomxay, Borkeo, Huaphanh and Xiengkhuang provinces are among the more successful examples.
- Central Part : Construction of a road to connect Dongdok to Phosy road (450-Years Road, of Vientiane Capital) has been initiated. Railway services between Vientiane and Nongkhai (in Thailand) have begun. The construction of the Mekong Friendship Bridge from Khammouane province to Nakhonphanom province in Thailand has commenced. A sugar factory in Savannakhet Province began production in March, 2009. The project of constructing President Souphanouvong Monument (21 March Park Construction Project) at Khammouane Province has been completed. The preparations of the celebration of 450 Years of Vientiane Capital are being successfully carried out.
- Southern Part: Construction and repair of irrigation systems has been carefully carried out. Farmers are encouraged to plant dry season rice, and other vegetables such as cabbage, Chinese cabbage, and cardamom, and raising livestock (e.g. cows, buffaloes, pigs, chicken, and goats). Fish aquaculture has also increased. Connecting triangular economic areas, e.g. construction of a road to connect Thatang District to the Bang Village Project (Grants for Triangle Economic Development Project) is going on. Construction of 15A road and Sedon River Bridge are also being completed.

4. National Defence and Security Sectors

National Defence and Security activities continued to be taken seriously, in order to control and combat crimes. People are encouraged to join the National Defence and Security schemes in their local villages, offices and organisations. Political stability, safety and order have been ensured. These are basic requirements for development of the society and economy, and establishment of village and village development groups.

5. Management of governance in line with the market economy with socialist orientation

- The Government has improved its public administration from central to local levels: the central level is responsible for macro management and local levels are responsible for

implementation.

- Improvements in coordination among line ministries, sectors and local authorities have been made through joint meetings between the Central Government and provincial authorities. Mechanisms have been built to protect and manage civil servants. Some sectors have integrated and harmonised their economic-planning and finance sectors in more than 40 districts on a pilot basis. The government has also prepared a public administration development strategy up to 2020. Improvement in the organisational structure of line ministries, equivalent ministries and central level has completed. The Government has drafted and improved a number of legislations in varied areas. The provincial authorities have participated in this process.
- Authorities at different levels in the Government have focused on justice and society issues, and harmony across society has been encouraged.

6. Implementation of 11 programs, 111 projects and 25 special projects:

All sectors and local authorities are integrating the 11 overarching programs into plans and projects. These include defence and security, agricultural development, forestry and timber industry management, national basic industry development and handicraft promotion, tourism and transit promotion, foreign economic linkages and investment promotion, transportation and telecommunication, improvement of efficiency in the management of macroeconomic plans, human resource and culture – society development, government public administration reform, and the one-stop service project.

B. Summary of Achievements and Outstanding Issues in Implementing the last Five-Year Development Plan

The implementation of the Sixth Five-Year Socio-Economic Development Plan (2006-2010) has been carried out in an environment that facilitates the work plan despite several challenges and constraints. In the past five years, the performance of the Socio-Economic Development Plan can be briefly summarised as follows:

1. Achievements

- Political stability, peace and security was maintained.
- The economy expanded continuously and at 7.9% GDP growth, exceeded the original target of 7.5%). Overall macro-economic stability has been maintained. The latent potentials have been tapped to a certain extent. The impacts of two natural disasters were withstood, and the country was able to effectively safeguard itself from the global financial crisis.. The economic structure is moving towards industrialisation and modernisation. Production for commercial purposes is increasingly occurring following the market mechanism, monitored by the Government.
- Poverty levels have decreased. The living conditions of Lao people have improved. To a certain extent, social problems have as well been solved.

- Because of the correct and stable foreign policy introduced by the Party, friendly relationships with other countries and international organisations have been maintained, which in turn enhanced economic cooperation and international integration..

2. Outstanding Issues

- Macro-economic expectation
 - o The GDP has increased significantly but despite efforts deployed by public authorities to balance the dividend of growth across the country some disparities in terms of investment and distribution of national wealth remained. Poverty has considerably reduced but inequality persists. Raw materials are exported and not processed in the country, resulting in loss of value addition. The industry sector has grown at a slower rate compared to the service sector.
 - o There are good basic public investments, but no focal investment areas are identified. The effectiveness of public investment is low (capital-output ratio: 4/1). A number of public investment projects still lack financial support for implementation. Contribution from Government counterpart funding was relatively modest.. The implementation of the private investment promotion policy in several sectors and local areas has been inadequate, and lacked resources. The one-stop service mechanism has not been widely prevalent. Monitoring and evaluation of some approved projects is not carried out effectively.
 - o While the budget balance appears to have improved, reliance on foreign aid is still high. Domestic revenue collection is unpredictable, as revenues that are collected adequately in some fiscal years, are not as adequately collected in other fiscal years. This affects the utilisation of domestic revenues for public spending.
 - o Labour demand and job creation for the workforce have been carried out according to the market mechanism but have not been well planned. As the result, labour market is not balanced (some Lao labour works in neighbouring countries even when the domestic market requires more labour, as the result a large number of foreign workers are imported to fulfil the labour demand). In some localities, a large number of agricultural workers from rural areas have moved to urban areas to work in industrial sectors. As a result, some rural areas lack labour to work in agriculture.
- Sectors
 - o National forest conservation management, production forests and effective utilisation of agricultural land are not widely carried out. The production of agricultural products for commercial purposes is still in its infancy. Projects lack budget support and technical staff for effective implementation. Technical equipment utilisation and knowledge of management and business administration are still low (about 10%; while in Vietnam it is 33%, Thailand 40% and Singapore 84%).
 - o In social and service sectors, the quality of services is poor and speed of services is slow.

Many of the educational and health infrastructures are below standards, resulting in non-achievement of targets in “compulsory elementary school attendance”, and people’s health insurance.

- Regional Development

- o Regional development is not well-balanced resulting in low interdependence and integration between regions. Some provinces in the same region achieve higher development targets compared to others. This reflects a lack of coordinated development between different provinces. Economic growth does not effectively reflect the development of all areas in the same region. Co-ordination of the work plan, and development projects among provinces in the same region, are still lacking.

- Implementation of 11 programs and 111 projects:

- o The 11 programs and 111 projects were initiated late, much after the Sixth Five-Year Socio Economic Development Plan was launched. Therefore, there have been difficulties in arranging work plans and projects with the agencies responsible, as well as allocating funds to them. Many work plans and projects are not yet implemented. There have been delays in allocation of work plans and projects to responsible agencies (data: 2007-2008). A work plan, which is the responsibility of multiple ministries, leads to confusion of ownership and results in difficulties in implementation and reporting. Work plans that have not met the targets are basic poverty reduction, entire elimination of slash and burn cultivation practices, and relocation of habitants. These work plans are unlikely to meet targets in the next fiscal year as well.

3. Reasons for the Achievements

- Right political directions are defined in the Resolutions of the Party, especially the Resolution of the Eighth Party Congress. Direction and leadership of the Party is firm, up-to-date and compatible with local and international context.
- The National Assembly and the Government have considered and approved the Socio-Economic Development Plan according to prevailing regulations and laws. Socio-Economic sectors and local authorities translate plans into work plans and projects, take ownership and seek financial support for implementation.
- People at all levels and business community support and participate in the implementation of work plans and projects.
- Strong and valuable support provided by friendly countries and international organisations.

4. Reasons for Outstanding Issues

- Some sectors and local authorities experience delays in translating plans into work plans and projects and in taking ownership. The implementation of such work plans and projects have begun, in the middle of the five-year period and not since the beginning.

- Monitoring and evaluation of work plans and projects are not carried out on a regular basis. Assigned responsibility is still ambiguous.
- Technical knowledge of planning and administrative management of work plans and projects is still limited.
- Natural disasters occurred twice and the global financial crisis has affected the implementation of development plan.
- In a market mechanism, weak management could lead to social and economical problems, and the laws and regulations tend to be ignored.

C. Lessons Learned

1. Continue maintaining the Party's directions and translate its resolutions into detailed work plans and projects and assign responsible agencies for strict implementation.
2. Mobilise domestic and foreign funding and use it effectively. Rapidly respond to changes in world economic situation and prepare necessary measures to minimise the effects of crisis.
3. Restructure the economy towards greater industrialisation and modernisation, while expanding the potential for socio-economic development in each sector and locality.
4. Integrate into the region and the world on the basis of economic self-reliance, resulting in competition and increased output.
5. Expand the market-oriented economy in line with social development which targets poverty reduction, provides opportunity to vulnerable groups, and addresses social challenges.
6. Move toward quality and sustainability of development integrating the three elements of economic growth, social justice and modernisation, and sustainable environmental protection.
7. Improve administrative system so as to be accountable, effective, transparent and responsive. The public official should be a manager, service provider as well as a user of the administrative system.
8. All socio-economic activities must be aligned with: the work undertaken by government experts dispatched to work at the local levels; establishment of 'Development Villages'; and, national defence and security.
9. Efforts should be made to secure adequate and balanced development resources for the macro management and sectoral and regional development through the formulation of the 5 year socio economic development plan, annual plans and the national and sectoral monitoring and evaluation system.

II. Strategic Direction of the Seventh NSEDP (2011-2015)

The Seventh National Socio-Economic Development Plan (2011 – 2015) plays a crucial role to implement the Resolution of the Ninth Party Congress. It is also the means to implement the Socio-Economic Development Strategy until 2020 and transform the country into a modern and industrial society.

It is also the necessary thrust to graduate the country from the Least-Developed Country

(LDC) status by 2020, and creates opportunities for strengthened regional and international co-operation.

This five year plan is part of the long term goal of the country to implement its policy of national development, achieve economic growth of at least 8% annually, reduce poverty, achieve the Millennium Development Goals by 2015 and construct basic infrastructure for industrialisation and modernisation in the times to come.

The targets and directions of the Five-Year Social-Economic Development Plan are as follows:

1. Ensure continuation of national economic growth with security, peace and stability, and ensure GDP growth rate of at least 8% annually and GDP per capita to be at least USD 1,700.
2. Achieve the Millennium Development Goals by 2015, and adopt appropriate technology, skills and create favourable conditions for graduating the country from LDC by 2020.
3. Ensure the sustainability of development by emphasising economic development with, cultural and social progress, preserving natural resources and protecting the environment.
4. Ensure political stability, peace and an orderly society.

A. Expected Development Context and Challenges

a. Development Context

i. Opportunities and Strengths

- International level:
 - o Global and regional economies appear to be recovering
 - o International development partners are reiterating their continued support to the Lao development efforts
 - o The Lao economy is being upgraded in line with international standards, science and technology, and expansion of free trade

- Domestic level:
 - o The country is experiencing political stability and social order, and the multi-ethnic society is living in harmony and solidarity
 - o The government's socio-economic plans have been supported by national and international agencies
 - o Natural resources and geography of the country are significant factors in attracting investors
 - o Having appropriate technology and skills are lessons learned from the implementation of the 6th plan.

ii. Demographics

In the next five years, the population in each age group will increase; especially population in

working age (15-64 years) will increase from 3.76 million people in year 2011 to 4.10 million in 2015. This will be a positive factor for economic development, because population in working age can earn income more than the expenditure to be incurred on the population.

iii. Challenges and constraints

- International level:
 - o Uncertainty in the global financial crisis will have direct and indirect impacts on the economy of many countries in the world, and Lao PDR.
 - o Countries that have strong economies and international organisations tend to take advantage in different ways over developing countries especially LDCs.
 - o Competition in free trade areas is increasingly tough, which impacts the least developed countries
 - o The world's climate change and infectious diseases are serious problems

- Domestic level:
 - o The economic base of Lao PDR is still nascent and sensitive to external effects.
 - o The side effects of the free market economy mechanism is that it has adversely impacted the society and socio-economic management
 - o Impact from two previous major floods and climate change (heat, drought and flood)
 - o The needs for development needs have gradually increased, however the available resources and management and administrative capacities are limited

B. Overall Directions of VII NSEDP

The VII NSEDP identifies seven directions described as follows:

- (1) Develop all aspects of national economy: build a strong base for sustained economic growth by acquiring technologies and the means to pull the nation out of the status of a least-developed country; reduce poverty; centre-stage economic development (to be the core aim for achieving fast track continuous development); support a shift of economic structure and labour structure towards an industrialised and modernised one; distribute the benefits of development for all; implement State-led market economy mechanism ; promote small and medium enterprises; and promote people's participation.
- (2) Make dynamic changes towards rural development and poverty eradication, promote people's livelihoods, make the society just, reduce the gap between urban and rural areas and rich and poor people (through capacity-building and education), support production of goods, protect people through better sanitation, disease control and health extension, develop infrastructure, and put in place Ban and Kumban development.
- (3). Socio-cultural and economic development must reinforce each other, promote good livelihoods (both physical and mental) through strong educational reforms and human resource development, for example, through up-grading and expanding educational opportunities, developing the intellect, providing higher education, good health and

sanitation, building better management staff and high skilled workers, continuing to protect and raise the value of national culture together with openings for international exchange, and up-grading media and information.

- (4) Increase enforcement and effectiveness of public administration, reform democratic state in the direction of rule of law, ensure equality and justice in society, fight corruption, increase savings, and reduce extravagance. Pay attention to address social challenges in a timely manner, allocate responsibilities, and identify clear roles between the central and local levels authorities.
- (5) Ensure national defence and security across the country in order to maintain political stability, and social order. Improve mechanisms and enforce rules and regulations regarding migration, and respect the rule of law.
- (6) Increase the skills of labour for it to be appropriate with the nation's development, allocate, reorganise and optimise the use of natural resources, increase cooperation with friendly countries at regional and global levels, provide favourable conditions for socio-economic development, increase the country's involvement in regional integration, and raise competitiveness at the regional and international levels (with focus on domestic and foreign investment), in order to have strong economic growth, develop socio-economic infrastructure systematically, and draw-up investment promotion policies for economic sectors in priority development areas, production areas, and in difficult and remote areas.
- (7) Implement industrialisation and modernisation strategies in a progressive way, and develop focused sectors and regions in which to have favourable conditions and positive factors, so as to reduce the gap between development levels with other countries at regional and international levels quickly. Focus on large projects to achieve fundamental growth, and be able to integrate internationally, promote production units and small and medium enterprises, to use new techniques and technologies, in order to increase production quality and efficiency.

a. Targets at Macro Level

- Macroeconomic

- o Achievement of a growth rate of GDP of not less than 8% per year: agriculture-forestry sector grows at least at 3% annually and have a share of 23% in the GDP; industrial sector increases by 15% annually and have a share of 39% in the GDP, and service sector increases 6.5% annually and have a share of 38% in the GDP. The GDP per capita should be USD 1,700 (based on the exchange rate of 8.500 kip/USD).
- o Inflation rate is below the rate of economic growth, a stable exchange rate is maintained, and the year to year fluctuation of the Kip should not be more than 5% compared to major foreign currencies.
- o The rate of consumption in society is aimed at 75% of the GDP, investment (public and private) at 40%, export at 35%, and import at 50%.
- o Target domestic revenue levels of 16-17% of the GDP per year, total revenue (including

grants) at 18-19% of GDP, and budget deficit not more than 3-5% of GDP per year. Increase money deposits by about 20% per year, or about 30% of GDP.

- Economic sector

- o Aim to achieve rice production at 4 million tonnes, sown across in 1.04 million hectares, and achieve productivity at about 3.9 tonnes per hectares.
- o Aim to achieve growth in livestock at 4-5% per year, including cows and buffaloes at about 2-3%, and pigs and poultry at about 6%.
- o Aim to achieve annual exports growth at about 18% and imports at about 8% per year.
- o Aim to expand electricity transmission lines of 22 KV and spread electricity in areas which are not presently covered by the grid including rural and remote areas, so as to achieve 80% coverage of households in the country.
- o Aim to have mining and processing of important minerals, such as copper plates (86,200 tonnes per year), gold bars (six tonnes per year), and coal 728,000 tonnes per year.
- o Aim to increase the inflow of tourists to about 2.8 million people, discover and expand natural, cultural and historical sites, and aim to have two more world heritage sites.
- o Aim to achieve aviation growth by 8-10% per year,
- o Aim to provide water supply to people in urban areas, covering 67% of total urban population.
- o Aim to expand the network and communication service to rural areas, covering 90% of all villages in the country. Increase more mobile phone and fixed line telephone connections to cover 80% of total population.

- Social sector

- o Decrease poverty to below 19% of the total population, and poor households to below 11% of total households, by year 2015.
- o Increase net primary school enrolment rate to 98% in year 2015.
- o Achieve enrolment rate of students who continue study from year 1-5 at 95%, and literacy rate of people in the group of 15-23 years old at 99%.
- o Reduce mortality rate of children below five years at 70 per 1,000 live births;
- o Reduce infant mortality rate (below one year) at 45 per 1,000 live births;
- o Reduce children below five years that are underweight to 20% and stunting to 34%;
- o Reduce maternal mortality rate so as not to exceed 260 women per 100 000 live births;
- o Increase population having access to clean water to 80% and use of latrine at 60% of total population
- o Control average unemployment rate to no more than 2%
- o Decrease labour deployment in the agriculture-forestry sector to 70%, increase labour in industrial-construction-mining to 7%, and increase labour in the service sector to 23% of the total workforce.
- o Increase 'cultural villages' to more than 700, increase 'cultural families' to more than

100,000 families, develop at least four central public parks and at least one park in each province.

- Environment

- o Ensure forest cover at 65% of the total area of the country.
- o Preserve mineral sources (keep mineral source at more than 65% of total mineral wealth in the county), keep good condition of the soil, water, and help mitigate climate change.
- o Secure the country from losses due to natural disasters, such as controlling forest fires, drought, flood, erosion of rivers, and denuding of mountains.

- International integration

- o Enhance international trade and economic cooperation and full international integration. Reach the political, security, economic and social targets set by the ASEAN community by 2015. Also, aim to be a member of WTO.

- Balances at Macro Level:

- o The balance of investment: To ensure growth of 8%, there must be investment of about 127 thousand billion kip (USD 15 billion) or about 32% of the GDP. The public investment (including domestic budget investment, grants and loans) is aimed at about 43-47 thousand billion kip, domestic private investment, foreign private investment and converting assets into capital at about 64-70 thousand billion kip, and bank borrowings and loans at about 13-15 thousand billion kip.

- o Division of Responsibilities

- i. Central level: Programmes and projects, which are national and large-scale, and are a priority
 - ii. Sector level: Programmes and projects, which are large-scale, at ministry/government/agency and macro levels (Type 1)
 - iii. Provincial level: Programmes and projects, which are large, at the provincial level (Type 2)
 - iv. District level: Programmes and projects, which are large at district level (Type 3)
- o Fund allocation based on sectors: Economic sectors 30%, Social sector 35%, and Infrastructure 35% of total investment
 - o Fund to pay for debt at 35% of the expenditure on domestic investment

- Balance in budget: Expect total budget in the next five years to be 18-19% of GDP, government expenditure to be 20-22% of GDP, and deficit to be at 3-5% of GDP.

- Balance in expenditure and saving: Aim to increase savings in banks to 30% of GDP per year and the State Accumulation Fund should have more than 3-5% of the domestic revenue.

- Balance in import-export: Increase the value of exports by an average of 18%, increase foreign currency in secondary stock, and have enough foreign exchange reserves for imports

equivalent to at least six months in a year.

- Balance in labour: In the year 2015, there will be demand of 3.26 million workers, but the workforce supply will be only 3.17 million (including 276,828 new workers, average 55,365 workers per year). This will include labour in the agricultural sector by about 209,669 workers, industry sector about 14,272 workers, and service sector about 52,431 workers.

C. Specific Directions of the VII NSEDP

Rural development and poverty reduction

- Directions:
 - o From 2011-2015, poor villages and Kumbans all over the country will be the main targets and priority for rural development and poverty reduction
- Targets:
 - o Decrease poverty to less than 19% of the total population and 11% of total households in the country by 2015.
 - o More than half of the villages to become 'development villages', and to urbanise Kumbans for them to become small town centres (at least 1-2 Kumbans per district)
 - o Expand electricity in rural areas, covering 60% of the rural population, and access to clean water in the rural areas covering 75% of the rural population.
- Measures:
 - o Continue to dispatch government experts to help work at the grass roots level within the Kumban development context (four contents and targets) for strengthening the capacity and leadership of local government officials for planning and implementation of poverty reduction and rural development programs.
 - o Administrative restructuring of the rural development and poverty reduction agencies to strengthen institutional capacities from the central level to the grassroots in management, monitoring, reporting and leadership.
 - o Analyse appropriate rules and mechanisms for implementing policies regarding tax, customs and credit, adequate mobilisation and utilisation of local resources , capitalisation of assets and other relevant policies for poor districts, historical areas, remote and mountainous areas as well as ethnics not in poor districts.

Economic development

Agriculture and forestry sector

- Directions:
 - o Systematically develop all aspects of agriculture and forestry in line with industrialisation and modernisation priorities in areas that have favourable conditions; ensure food security; promote commodity production for domestic use and export;

improve productivity and enhance end-product quality.

- Targets:

- o Food production: To produce rice equivalent to 4 million tonnes, at 3.9 tonnes per hectare on average; produce meat at 32 kg/person/year and aquatic products (fish, frogs, shrimps) at 22 kg/person/year
- o Commodity production: To produce 100,000 tonnes of high quality rice seeds by 2015; produce 40,000 tonnes of high quality maize seeds, expand maize production to 150,000 hectares, and produce 120,000 cattle for export (in border areas). Produce coffee at more than 553,000 tonnes.
- o Forestry: Increase forest coverage to 65% of the total country's area by 2015, rehabilitation of 3.9 million hectares of deteriorated forest and reforest 200,000 hectares. Additionally, undertake a survey of 60% of forest cover under the three classification types. Expand the certified production forest area by 10% by 2015.
- o Irrigation: By 2015 the irrigated area in the dry season to be increased to 500 thousand hectares including 300 thousand hectares for dry season irrigated rice; wet season irrigated areas to be expanded to 9.5 hundred thousand hectares.
- o Experiment and use technology in agriculture: Improve 216 existing agriculture and forestry extension centres and expand to over 500 extension centres across the country.

- Measures:

- o Use modern technologies and methodologies, and improve productivity through established extension centres in Kumbans, especially in districts where villages and/or people have been relocated.
- o Optimal use of capital and formulation and implementation of policy for tax incentives and trade facilitation that support the expansion of market networks from the wholesale to the retail, including the storage, processing facilities and logistics for better market access.
- o Promote irrigated farming systems to support production activities and improve productivity.
- o Develop human resources by sending government experts in the area of veterinary and agricultural extension to the areas where there is insufficient expertise, to assist, guide and train local farmers in new techniques in agriculture and animal husbandry to ensure high productivity.
- o Management, legislation and policies: Take measures and implement policies regarding the quality control, phytosanitary standards (SPS) and diseases prevention; reforest by reidentifying areas for protection of natural forests; and improve the quality and structure of forests by planting appropriate species of plants.

Industry and commerce

- Directions:
 - o Promote agricultural products for export so they rapidly become a source of economic growth; promote SMEs, especially in products that already have access to markets and are highly competitive; promote handicraft products which represent the tradition of the Lao people; concentrate and integrate trade with foreign countries and carry out obligations as mentioned in international treaties; and prepare for entry into the ASEAN community by 2015 and become the WTO members.

- Targets:
 - o Expand food processing and handicraft at an average of 12-13% per year, expand handicraft at 15% per year, increase the trade volume at average 11% per year, increase exports value at 18% per year, expand retail markets to cover 80% of the total Kumbans, and establish rural enterprise units in at least 30% of the villages.

- Measures
 - o Apply modern technology in production, especially improving the value-added of products, and be able to compete in the international market.
 - o Attract investment and participation of economic operators for infrastructure development, such as wholesale-retail markets, rural markets, and border area markets, by establishing suitable market mechanisms to increase production activities.
 - o To regulate the industry and commerce sector to support the requirements of rapid economic growth; and strengthen capacity of staff, and workers in production units, enterprises and import-export entities.

Energy-mining

- Directions
 - o Develop hydropower sources and renewable energy in order to supply energy to the production sectors and the society, and become the battery of ASEAN. Extractive industries should take into consideration the conservation of the resource and protection of the environment (including water). It is also the aim to develop systems for transmitting electricity to target areas (to raise production), and to reduce poverty, especially in remote areas, and expand power in other areas that have the potential to produce exportable goods.

- Targets
 - o Build 10 more large dams, to produce 5,015 Mega watt power
 - o Ensure that the number of households who access electricity increases to 80% by 2015
 - o Complete transmission lines (115 KV lines) in the north, central and south regions, to meet the power demand.
 - o Operate mining, and process important minerals to transform into finished products or

semi finished products, like copper plates (86,200 tonnes/year), gold bar (six tonnes/year), coal (728,000 tonnes/year), copper ore (298,000 tonnes/year), and gypsum (600,000 tonnes per year).

- Measures

- o Mobilise and effectively utilise resources including grants and concessional loans for effective development of power infrastructure; and invest in developing the mining sector especially in those areas having high return and economic potential. ,
- o Regulate the mining sector to ensure the highest return and benefits to the country;, draw up legal measures for the extractive industries and ensure full enforcement of prevailing laws and regulations.
- o Improve policies, laws, regulations and coordination procedures; and increase effectiveness and transparency in the procedures for the study of project proposals and other documents, to attract more investment.
- o Strengthen the numbers and capacity and effectiveness of personnel in the geology and mining sector.

Public works and transportation

- Directions

- o Strengthen public works and transportation sector to increase efficiency in production, so that it becomes a fundamental factor for modernisation and industrialisation. Additionally, connect north-south and east-west economic corridors, and connect with neighbouring countries.

- Targets:

- o Build and expand road connectivity at the sub-regional levels to complete 100% of the transport plan, or about 920 km.
- o Build main roads of districts, and rural roads that connect with priority areas and Kumban development areas. The roads must meet standards (e.g. made from gravel and be usable at least for one season in a year). All these roads should be 100% complete by the year 2015
- o Build connecting roads, which are important and necessary for national defence/security
- o Complete the construction of road transport connecting to Vietnam's sea port (Vung Ang port)
- o Conduct a feasibility study to build a new airport large enough for landing a Boeing 747 aircraft in Vientiane Capital. Additionally, conduct studies for four other airports, large enough to land a Boeing 737 aircraft (in Luang Prabang, Xiengkhouang, Savannakhet, and Champassack).
- o Increase total freight volumes to reach 23 million tonnes (or on average, increase by 7% per year).

- o Increase product flows to reach 2.2 billion tonnes-km, or an average increase of 7% per year.

- Measures

- o Increase loans and grants from foreign countries, especially sources that offer untied and unconditional assistance
- o Strengthen macro management: formulate regulations, rules, decrees and necessary technical standards for management of construction, transport and postage.
- o Promote use of modern technology, and strengthen the capacity of staff, personnel and organisation in the public works sector.

Post and telecommunication

- Directions

- o Promote infrastructure development in postal services, telecommunications and high-speed Internet in order to modernise this sector for augmenting socio-economic development as well as be a link-point in the region and the world.

- Targets:

- o Expand telecommunication network and services to rural areas to cover 90% of all villages, and install 17,192 kilometres of fibre-optic cables.
- o Expand mobile phone connections and fixed line phone connections to cover 80% of total population.
- o Build stations to inspect and manage radio frequency at three locations in the country

- Measures

- o Create a favourable environment for telecom and post operators/entrepreneurs in the sectors of post, telecommunication and Internet through the provision of necessary infrastructure, and advanced technology.
- o Regularly disseminate policies and strategic plans on post, telecommunication, and Internet development.
- o Develop the capacity of personnel in the post, telecommunication and Internet sectors to meet international standards.

Tourism

- Directions

- o Expand and strengthen the tourism sector and its contribution to the promotion and distribution of the country's goods and services Develop natural, cultural and historical tourist sites and attractions, and promote eco-tourism, ensuring sustainability through people's participation.

- Targets:
 - o By 2015, the aim is to have more than 2.8 million tourists, which will generate receipts of about 350 million USD. The aim is to have 300 hotels in the country and to explore the natural, cultural and historical attractions. Additionally, the country is to have two world heritage sites and 29 national heritage sites.
- Measures:
 - o Develop tourism sites and facilities systematically between villages, districts and provinces nationwide, with detailed tourism programmes and improve existing sites to meet standards.
 - o Ensure that tourists have access to travel information; encourage people who live in tourism areas to produce domestic products; and build clean and quality accommodation and services.
 - o Improve tourism services to attain high quality, through facilitating in-coming and out-going services.

Public Finance and Banking Public Finance:

- Directions
 - o To strengthen the fiscal and monetary policy in order to effectively enhance the macroeconomic management and stability, increase both domestic and international revenues, and efficiently use such revenue to gradually reduce the budget deficit.
- Targets:
 - o Total revenue of more than 18-19% of GDP.
 - o Public expenditure at a level of 20-22% of GDP; average increase each year being 0.2-0.25% of GDP.
 - o Budget deficit of no more than 3-5% of GDP.
 - o Public investment is aimed at more than 9.5% of GDP by 2015.
- Measures:
 - o To strictly implement the Budget Law No. 02/NA, Dated 26 December 2006 and financial regulations; and take any necessary financial measures to mitigate the impacts of external factor effects;
 - o To enhance coordination between line ministries, concerned agencies, and local authorities in financial supervision;
 - o Advocate for and upgrade the knowledge related to financial regulation for the businesses through the provision of regular trainings.

Banking:

- Directions

- o To ensure stability of the national currency and contribute to reach socio-economic development targets.
- Targets:
 - o To increase deposits to approximately 20% per year or about 30% of GDP.
 - o To increase commercial loans by 20% per year, (and reach 20-23% of GDP) .
 - o To secure sufficient foreign reserves to cover imports for six months or more.
- Measures:
 - o To improve private banking regulation and financial institution supervision through application of advanced technologies, in harmony with the global financial environment.
 - o To strengthen and ensure stability in the banking system and develop a sustainable capital market, integrated and connected to the international markets.
 - o Develop a capital market - that has public trust and confidence - as a financial place to attract investment, direct resource mobilisation and to become the long-term funding resource for the Lao PDR development.

Land Management, Administration and Development

- Directions:
 - o To establish a land use system, protect and develop land and other natural resources in a sustainable, integrated and efficient manner in order to secure land for the Lao people for housing, subsistence and agricultural and non-agricultural commercial production, as part of economic development.
- Targets:
 - o To create a detailed land management plan at both macro and micro levels , and land use plans in villages and Kumbans across the country.
 - o To complete issuing one million land titles in a systemic and regulated manner, without conflict and achieving a three-fold increase in land revenue (or equal to 5% of the national revenue).
- Measures:
 - o To survey and collect information, manage and classify areas by type, create maps and master plans for use in administration, regulation, protection, development and utilisation of land and other natural resources, with cooperation across all levels, and in collaboration with the Land Management Authority.
 - o To focus on disseminating policy and raising public awareness of government policy, and creating conditions for people to follow policies and regulations related to land and other natural resources through media, meetings, workshops and via schools.

Social and cultural development

Education and Human Resource Development

- Directions

- o Educational development from now until 2015 aims to ensure continuous increase of quantity and quality of education, continue the national education system reform, and ensure improvement of education in three areas: physical, intellectual and social behaviour in the national context as well as contemporary concepts. To develop human resources in a variety of fields, including skilled labour, mechanics, technicians, engineers, managers, executives and others. , in order for them to have a secure job and be able to compete in labour market.

- Targets:

- o To increase the primary school net enrolment rate to 98% by 2015;
- o To increase the total enrolment of secondary school students to 75% by 2015;
- o To achieve 75% upper secondary school students enrolment by 2015;
- o To create a favourable environment to reduce illiteracy among citizens of age 15-24 years to 99% by 2015;
- o To reduce the illiteracy of citizens of age more than 15 years to 87% by 2015;
- o To build at least three vocation training schools in cities that have high economic potential and growth.

- Measures:

- o To increase investment in the educational sector to 18% of the total budget expenditure through mobilising funds from various sources.
- o To have policies that support talented people to become scientists and competent managers
- o To expand upper secondary schools, vocational and technical schools and universities according to the plan, and to encourage scientific studies, foreign languages and new technologies, to meet development needs.
- o To create and increase educational opportunities in remote areas for children, especially the poor, female, ethnics, and disabled children.

Health and Nutrition Health Development

- Directions

- o To focus on improving conditions for people to be physically and mentally healthy and thus be capable of engaging in their economic and social activities; to create conditions for them to be able to access health-services and receive quality care; to attain equality in receiving health services among people; and to balance the improvement of hygienic activities and health promotion. All these are to increase the standards of living of the

people.

- Targets:
 - o To decrease maternal mortality ratio to not more than 260 per 100,000 live births;
 - o To decrease the infant mortality to 45 per 1,000 live births;
 - o To decrease under-five child mortality ratio to 70 per 1,000 live births;
 - o 80% of total population to have access to potable water;
 - o 60% of total population to have and use latrines.
 - o To decrease the proportion of underweight children age under five years to 20%;
 - o To decrease the proportion of stunted children under five years to 34%;
- Measures:
 - o To make use of modern techniques and technologies in health services.
 - o To continue setting up mobile medical treatment units to reach rural areas, at least four times in a year in order to assist poor communities in each village, especially areas that have high risks of illness and high maternal and infant mortality rates.
 - o To increase the ability of disease prevention and enhance the quality of treatment at hospitals at every level; To continue to strengthen the capacity, knowledge and skills of doctors, and particularly female midwives and skilled birth attendants at the local levels.

Nutrition Development

- Directions
 - o It is important to ensure adequate nutrition and food security for the Lao people, to achieve the Millennium Development Goals.
- Targets:
 - o To decrease the proportion of stunted children under five years to 34%;
 - o To decrease the proportion of wasted children under five years to 4%;
 - o To decrease the proportion of children under five, suffering from anaemia to 30%;
 - o To decrease anaemia among women in the reproductive age to 30%.
- Measures:
 - o To encourage scientific research for improving the capacity in the areas of drug and food safety.
 - o To attract investment in the nutrition development sector, for the implementation of planned activities.
 - o To increase the awareness of three hygienic principles (in eating, drinking water, and habitat) among the Lao people for practice in daily life.

Labour and social welfare

- Directions
 - o To develop and up-grade skills, knowledge, ability, experience, vision and discipline for Lao workers to obtain the right jobs; having social protection and better welfare; and create opportunities for disadvantaged people and victims of disasters, to receive assistance quickly.

- Targets
 - o In the next five years, the demand for labour is expected to be about 3.26 million; the agriculture sector at approximately 2.29 million, processing industry and construction at approximately 226,000 and service sector 739,000.
 - o To implement the policy for 51,337 people who served the revolution before 1954, and provide housing for disable officers.

- Measures
 - o Mobilise resources from various sectors: the government, private domestic sector and international development partners to form a pool of funds for labour development. This would be used for creating conditions for employment as per the Labour Law, as well as creating more self employment.
 - o To extend cooperation among different economic sectors including regional and international cooperation, for enhancing employment opportunities for Lao workers overseas.
 - o To continue research and formulate strategic plans for labour and social welfare as well as improve legal and regulatory framework in relation to the development of labour and social welfare. Meanwhile, also disseminate, instruct and implement these two strategic plans effectively.

Information and Culture

- Directions
 - o To ensure that Lao culture, heritage and values remains the foundation of the nation and is protected and preserved as part of the development process.
 - o Use the media to promote political awareness, Party and State direction and the rule of law.

- Targets
 - o Increase ‘cultural villages’ to more than 700, increase ‘cultural families’ to more than 100,000 families, develop at least four central public parks and at least one park in each province by 2015.
 - o Expand the broadcasting coverage of radio stations to cities and villages to cover more than 95% of the country by 2015.

- o Expand TV receiving stations and improve the quality of TV programmes. Programmes in provinces and rural areas to broadcast for at least 10 hours per day and cover at least 80% of the country.

- **Measures**

- o Ensure the Nation's cultural values are conserved by strategically undertaking cultural activities that are open to modern concepts while reflecting traditional values.
- o To encourage all the people of Lao society to effectively participate in the development of information and cultural affairs.
- o To promote and foster cultural exchange among ethnics, in order to protect and preserve these valuable cultures.

The 7th Five Year Plan will also continue to emphasise priorities such as gender equity, scouts, youth and sport development, , technological research and application, unity among all ethnics and religions; social and behavioural challenges, cooperation within ASEAN, GMS and foreign countries, and public administration. Details of these are contained in the full text of the 7th NSEDP.

Environmental Protection, Natural Resources Management and Sustainable Development

- **Directions**

- o To ensure that socio-economic development is fully aligned with protection of the environment and sustainable development of water resources

- **Targets:**

- o To protect the quality of the environment (water, land and air) in 25 towns having development projects within the national environmental standards..
- o To set up models for managing green environments, particularly in the four main cities along Mekong river: Vientiane Capital, Luang Prabang, Kaysone Phomvihane and Pakse. Establish clean development and carbon credit mechanisms to maximize the benefits for the country.

- **Measures:**

- o To raise awareness among people about environmental protection in the society, so that they understand the importance of protecting water resources and environment, and get involved in protecting these.
- o To share the focal plan on environment with the relevant sectors for their knowledge and understanding, in order to translate these concepts into rules, programmes and projects, for effective implementation.
- o Together with the relevant sectors, to undertake research and improve efficiency of

- early warning systems if drastic changes in weather occur.
- o To mitigate the effects of climate change, which can affect approximately 1.1% of GDP each year.

Development of Enterprises

• Direction

- o The plan will aim to develop all economic and business sectors in a harmonised and systematic manner. It would also improve the state enterprises for them to act as models for other sectors. The different measures would include developing enterprises in line with the market mechanism, and support small and medium enterprises (SMEs), mixed enterprises, partnerships, local enterprises and economic integration, so as to grow strongly in the future.

• Targets:

- o To establish strong enterprises, to broaden mixed businesses domestically and internationally, to establish conditions for business-enterprises in all economic sectors to closely follow government regulations.
- o To encourage production in small and medium enterprises, this to grow at least at 15% per annum, on average.
- o To accomplish greater market participation ratio of small and medium enterprises, so that they provide employment to more than 85% of the non-farm workforce.

• Measures:

- o To enhance coordination and divide the management responsibilities among different ministries, sectors and regions, to enable enterprises to work effectively. This would result in a strong associational system, allowing both domestic and international competitiveness.
- o To increase trade facilitation for entrepreneurs, provide greater market access, and enhance competitiveness of Lao-made products.

Regional and Local Development

Regional Development

- o The regional development approach is aimed at expanding the potential and capacity of the provinces. The purpose is also to integrate the development of a province with other provinces within the region, provide support to provinces that have potential for rapid growth, and assist provinces with less opportunity to be able to keep up with others.
- o The expectations of the 7th Five Year Plan are to reduce the development gap between the regions and provinces within the same region. Each province and region should develop according to its characteristics, relative advantages and actual conditions.

There must be synergies and complementarities between nationally, regionally and locally based projects. The plan aims to develop six focal areas as models, expand development areas within provinces, expand industrial zones, expand special economic zones, encourage other special zones, and develop joint village development areas and urban development.

- Measures:

- o Provinces within the same region, district within the same development area should jointly develop plans, programmes and projects which complement each other and share priorities.
- o The regional programmes and projects of any sector should be led and managed by the concerned Ministry, including resource mobilisation and coordinate the effective use of shared infrastructure.

Spatial Planning and Development

Allocate land and forests in a sustainable manner to people living in target areas that continue to practice slash and burn cultivation by balancing utilisation and protection of the allocated land and forest. Focus is also on the development of mountainous, plain, remote and border areas.

Urban Development

To consider urban areas as the focus for development as well as a meeting and linking point among focal areas. Improve urban planning system; develop cities conforming with industrial and business centres, and arrange for providing smaller cities with the opportunity to sufficiently support the movement of labour force.

Village and Focal Area Development

Infrastructure development is a necessary foundation for enhancing the people's quality of life; the promotion of the untapped potential and strengthen the capacity of each area for mutual assistance in socio-economic development. Encourage dispersed populations to group in villages, in pre-decided locations and provide job opportunities for them to gradually reduce poverty. Additionally, there would be attention on the development of six focal areas in Vientiane province and some focal areas in the southern provinces.

Special Economic Zones

To focus on special economic zones which are already established and create appropriate environment for building up special economic zones in other regions within the country. Some examples: special economic zone Boten in Luang Namtha, special economic zone Huaysai-Tonpheung in Bokeo, and special economic zone SavanSeno in Savannakhet.

- Measures

- o To improve and progressively upgrade the quality and efficiency of the management

system, while supporting the use of modern technology and media in management activities.

- o To create favourable environment for investment by focussing on providing basic infrastructure development, public utilities, water treatment, , waste management, as well as improving the quantity and quality of the labour force.

Governance

To focus on implementing prevailing laws , to ensure equality before the Law for the entire Lao population and further strengthen the legal framework to reflect the interests and concerns of citizens; continue to adequately address social issues, such as poverty, social challenges and corruption. To ensure people have access to the legal and judiciary system and gradually integrate the legal framework into the region. Promote ownership and encourage people and mass organisations to participate in development activities in order to achieve the targets as planned. Provide regular training and updated information including knowledge and technical know-how for the public administrators at all levels.

Public Security and National Defence

The plan aims to focus on strengthening the readiness (strong and firm) of the public security and national defence force at three levels. Economic development goes hand in hand with national defence, public security and foreign affairs in order to protect and promote peace, and expect these to accomplish the ultimate targets for peace and development by 2015.

International and Regional Cooperation

Implement cooperation policy to promote political and diplomatic cooperation that serves the purposes of economic development and cooperation through the aid effectiveness agenda; contribute to facilitate and improve the external environment. Additionally, implement foreign relations policy that fosters greater connectivity with regional, sub-regional and international environments, so as to capitalise on existing opportunities particularly within the ASEAN region, GMS and preparing for WTO membership.

Industrialisation and modernisation

To continue to establish strategic industrialisation and modernisation urgently for national development and prosperity, to encourage improvements in people's ways of living, and to derive maximum benefit from human and natural resources. To select sectors and regions having power and conditions for growth to quickly reduce the gaps between this country's and other countries' development level. The strategy would include stabilisation of the currency, raise experience and qualification of personnel, and enhance economic competitiveness. The emphasis in the first place would be the development of main sectors (agriculture, hydropower industry, tourism industry, mining industry and building material industry); next, other sectors such as human resources, technological development and application; and third, infrastructure

development and development of services.

In general, the Five Year Plan will continue to strengthen the foundations of the main areas for industrialisation and modernisation.

D. Strategic Implementation for the National Socio-Economic Development Plan for the period 2011-2015

To fulfil the above directions and targets, eight main groups of measures and proposed actions are listed below:

- a. Mobilise funds and improve the effectiveness of the use of funds.
- b. Adhere to the market economy, guided by the State
- c. Implement the industrial and modernised transition policy and encourage the use of modern technology
- d. Improve human resources and capacity development
- e. Strengthen capability and effectiveness of public management of the economy.
- f. Divide responsibilities among different management levels.
- g. Enhance international economic cooperation, mobilise resources and secure significant support from friends and development partners.
- h. Convert the 7th Five Year Socio-Economic Development Plan into sectoral, regional and local action plans.

1.2 Great Mekong Sub-region (GMS)

The Mekong River starts from the Tibetan Plateau and runs through the Yunnan Province in China, and then through the border between Myanmar and Laos, Cambodia and Vietnam, and finally down to the South China Sea. Countries and regions, which are situated in the Mekong River Basin, are called Great Mekong Sub-region (GMS). The map of the Basin is shown in Figure A1.2-1.



Source: Mekong River Commission (MRC)

Figure A1.2-1 Mekong River Basin

(1) Electricity Demand in GMS (2009)

Five countries in ASEAN are parts of the Great Mekong Sub-region. These are Cambodia, Lao PDR, Myanmar, Thailand and Vietnam. Among these countries, Thailand is the most industrialized and has the largest gross domestic product (GDP) both in terms of absolute values and per capita. Vietnam is industrializing and experienced rapid electricity demand growth in the past few years. Cambodia and Lao PDR are also growing at a fast rate as foreign investment start to locate in these two countries along with the upsurge in tourism. In 2009, electricity demand in these 5 countries collectively reached 220.8 TWh with Thailand accounting for 141.4 TWh or 63.7% of the total. Vietnam accounts for 71.0 TWh or 32.0% and Myanmar, 5.3 TWh of 2.4%. Cambodia and Lao PDR share the remaining 4.7 TWh or 1.9% almost equally. The average annual electricity consumption per capita in 2009 in was 1,103 kWh per person increasing from 442 kWh in 1995. The levels of electrification among these countries also vary widely from around 11% of all households in Myanmar in 2005 to 99% in Thailand during the same year. Cambodia also has a very low electrification rate of 20% of all

households in 2010. Lao PDR had a 70% household electrification level during the same year while Vietnam recorded a much higher level of 84% in 2005. From 1995 to 2009, 3 of these countries, Cambodia, Vietnam and Lao PDR experienced rapid demand average annual growth rates of 23.3%, 14.1% and 13.9%, respectively. Cambodia's demand growth could be attributed to having started from a very low consumption level of about 10 kWh per person in 1995 which gradually increased to 144 kWh per person in 2009, still lower than the regional average of 442 kWh per person in 1995. Cambodia's real GDP grew at an annual rate 7.7% during the same period.

(2) Electricity Supply and Trade

Except for Myanmar, 4 of the 5 countries in GMS are already trading electricity. Among the 4 countries, Lao PDR was the net exporter being able to export 1,921 GWh of electricity to Thailand while importing 1,175 GWh in 2009. Vietnam was the largest importer with China as the main source of imports. Thailand was the next largest importer buying from Lao PDR and Malaysia. Cambodia was an importer buying from Thailand and Vietnam. The electricity supply sources in the 5 countries in GMS are shown in Table 1.2-1

Table A1.2-1 Electricity Supply in GMS Countries in 2009, GWh

	Production	Imports	Exports	Domestic supply	Final consumption
Cambodia	1,206	843	0	2,049	1,766
Lao PDR	3,366	1,175	-1,921	2,620	2,258
Myanmar	5,850	0	0	5,850	4,657
Thailand	148,389	2,439	-1,580	149,258	135,209
Vietnam	83,191	4,103	-373	86,921	76,927
Total	242,002	8,668	-3,864	248,707	226,817

Source: IEA, MEM

In view of their large electricity consumption, Thailand and Vietnam are also the largest electricity producers in GMS with 148.4 TWh and 83.2 TWh, respectively in 2009 (Table 1.2-2).

Natural gas is also the largest source of electricity in both countries. Cambodia's major source of electricity is oil while Lao PDR is 100% dependent in hydroelectricity. Myanmar's main source of electricity is also hydro with some contributions from natural gas and oil.

Table A1.2-2 Electricity Generation by Fuel Source in 2009, GWh

	Coal	Oil	Natural Gas	Hydro	Others	Total
Cambodia	-	1,153	-	47	6	1,206
Lao PDR	-	0	-	3,366	-	3,366
Myanmar	-	523	1,145	4,181	-	6,850
Thailand	29,596	710	104,943	7,148	5,992	148,389
Vietnam	14,980	2,089	36,141	29,981	-	83,191
Total	44,676	4,476	142,280	44,728	6,898	242,002

Source: IEA, MEM

(3) Power Trading System

Regional power trade in the GMS is underway between some GMS countries (between China and Vietnam, Laos and Cambodia, Laos and Thailand, Thailand and Cambodia, Vietnam and Cambodia, and Vietnam and Laos). At the moment, most of the power trades are one-way and involve selling and buying of power generated at specific power plants. The interconnected transmission lines are for exporting power, rather than for interconnecting grids.

The GMS countries have the goals of developing cross-border power trade to increase mutual economic and technological benefits and building well-balanced power plants using local energy sources that allow cross-border power transmission across the region. To achieve the goals, various activities have been undertaken and inter-governmental agreements have been signed.

Following is the chronology of major events related to GMS power trade.

1) GMS Program (1992 to 1998)

Since 1992, the GMS countries, including the power sector, have developed close ties and economic cooperation through the GMS Program, a comprehensive regional economic cooperation program initiated with the support of the Asian Development Bank and other organizations. The Program focused on general, non-official issues on principles and systems, although it helped promote economic cooperation in the power sector between the GMS countries and the implementation of major power projects and identify technological, economic, financial, and institutional issues.

The GMS set up the GMS Electric Power Forum (EPF) in 1995 and the Experts' Group on Power Interconnection and Trade (EGP) on grid interconnection and power trade in 1998, and recognized the importance of cooperation in the power sector between the countries.

2) Policy Statement on Regional Power Trade in the GMS (January, 2000)

Following the above GMS Program, the Policy Statement on Regional Power Trade in the GMS was signed by the representatives of Cambodia, China, Laos, Myanmar, Thailand, and Vietnam at the 9th GMS Ministerial Meeting in Manila in January 2000. The purpose of the Policy Statement includes:

- (a) Promote economic growth and efficient development of the power sector in the GMS
- (b) Promote opportunities for the expansion of economic cooperation in the energy sector in the GMS
- (c) Promote the implementation of priority power projects
- (d) Identify technological, economic, financial, and institutional issues in power development in the region
- (e) Promote economic power trading
- (f) Protect and improve the environment through appropriate technology and scheduling

3) Inter-governmental Agreement on Regional Power Trade in the Greater Mekong Sub-Region (November 3, 2002)

The Inter-governmental Agreement on Regional Power Trade in the GMS is an inter-governmental agreement with the aim of implementing the Policy Statement on Regional Power Trade in the GMS and was signed by the representatives of the GMS countries at the first GMS Summit in Phnom Penh, Cambodia in November 2001. The Agreement provides for the establishment of the Regional Power Trade Coordination Committee (RPTCC), an organization responsible for the coordination of power trading between GMS countries, and actions for its establishment taken by each country.

The role of the RPTCC is, as the first step, to prepare the final draft of the Regional Power Trade Operating Agreement (RPTOA) and to determine Stage 1 for the implementation of the agreement.

4) Memorandum of Understanding on the Guidelines for the Implementation of the Regional Power Trade Operating Agreement – Stage #1 (MOU-1) (July 5, 2005)

MOU-1 is a memorandum with the aim of developing guidelines for power trading during Stage 1 (a period when power trading is allowed only between two countries). It provides for institutional arrangements for power trading during Stage 1 to be made by each country and the RPTCC.

5) Memorandum of Understanding on the Road Map for Implementing the GMS Cross-Border Power Trading (MOU-2) (March 31, 2008)

MOU-2 provides for institutional and other arrangements for power trading during Stage 1, including trading and operation for cross-border interconnections and power flows. It led to the establishment of i) the Focal Group (FG) responsible for the coordination of major RPTCC activities in each GMS country and ii) the Planning Working Group (PWG) responsible for developing plans and conducting research on system operation for the transition of the GMS countries to the guidelines for ordinary power trading. However, with the recognition that the GMS countries did not present a schedule for the evaluation of “Promotion of a Power Development Program” and “Cooperation in the Development of Power Trading to Achieve the Goal of the Inter-Governmental Agreement,” a road map was developed, containing a timeline indicative of completion of Stage 1 of regional cross-border power trading for the period of 2008 to 2012 and a methodology that should be considered to be a preparation for Stage 2 during implementation of Stage 1.

2. Electric Power Sector

2.1 Power Project List

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
1	Nam Dong	Northern	Luangprabang	Nam Dong	Nam Dong	EDL	Laos	1.0	1970	EDL		France
2	Nam Ko	Northern	Oudomxay	Nam Ou	Nam Ko	EDL	Laos	1.5	1996	EDL		China
3	Nam Ngai	Northern	Phongsaly	Nam Ou	Nam Ou	EDL	Laos	1.2	2003	EDL		China
4	Nam Boun 2	Northern	Phongsaly		Nam Leng	EDL	Laos	15.0	2014	EDL		India
5	Nam Khan 2	Northern	Luangprabang		Nam Khan	EDL	Laos	130.0	2015	EDL		China
6	Nam Phak	Northern	Oudomxay		Nam Phak	EDL	Laos	30.0	2015	EDL		India
7	Nam Chien	Northern	Xiengkhuang		Nam Chien	EDL	Laos	80.0	2015	EDL		China
8	Nam Khan 3	Northern	Luangprabang		Nam Khan	EDL	Laos	47.0	2016	EDL		China
9	Hongsa (Lignite)	Northern	Xayabury		Coal fired	IPP(e)	Laos/Thailand	1,573.0	2015	Hongsa Power Company	<ul style="list-style-type: none"> • LHSE 20% • Ratchaburi 40% • BANPU 40% 	Laos Thailand Thailand
10	Nam Xam 1	Northern	Huaphanh		Nam Xam	IPP(e)	Laos / Vietnam	186.0	2016		<ul style="list-style-type: none"> • Saigon Investment Group 	Vietnam
11	Xayabury (Mekong)	Northern	Xayabury	Mekong	Mekong	IPP(e)	Laos/Thailand	1,285.0	2019		<ul style="list-style-type: none"> • GOL 20% • Ch.Kanchang & PT 80% 	Laos Thailand
12	Pakbeng (Mekong)	Northern	Luangprabang	Mekong	Mekong	IPP(e)	-	855.0	2018		<ul style="list-style-type: none"> • GOL 19% 	Laos
13	Luangprabang (Mekong)	Northern	Luangprabang	Mekong	Mekong	IPP(e)	Laos / Vietnam	1,410.0	2020		<ul style="list-style-type: none"> • Petrovietnam Power Corporation 	Vietnam
14	Nam Ma 1,2,3,4,5	Northern	Huaphanh		Nam Ma	IPP(e)	Laos / Vietnam	149.0	2019		<ul style="list-style-type: none"> • Linh Linh JFC Electrical Construction Investment Joint Stock Company 	Vietnam
15	Nam Ngum 4	Northern	Xiengkhuang		Nam Ngum	IPP(e)	Laos / Vietnam	220.0	2019		<ul style="list-style-type: none"> • Saigon Investment Group 	Vietnam
16	Nam Ngum 2	Northern	Vientiane		Nam Ngum	IPP(e)	Thailand	615.0	2011	Nam Ngum 2 Power Company (NN2PC)	<ul style="list-style-type: none"> • EDL 25% • CH. Kanchang 28.5% • PT Construction & Irrigation 4% • Ratchaburi 25% • Bangkok Expressway PCL 12.5% • TEAM Consulting Engineering 1% • Shalapak Group 4% 	Laos Thailand Laos Thailand Thailand Thailand USA
17	Nam Poui	Northern	Xayabury		Nam Poui	IPP(e)		60.0			<ul style="list-style-type: none"> • Mudajaya Corporation Berhad 	Malaysia
18	Nam Phoun	Northern	Xayabury		Nam Phoun	IPP(e)	Laos	74.0			<ul style="list-style-type: none"> • SOK Corporation 	Laos
19	Paklay (Mekong)	Northern	Xayabury	Mekong	Mekong	IPP(e)	Thailand / Laos	1,320.0			<ul style="list-style-type: none"> • CEIEC • Sinohydro 	China China
20	Sanakham (Mekong)	Northern	Xayabury	Mekong	Mekong	IPP(e)	-	660.0	2018		<ul style="list-style-type: none"> • GOL 19% • Datang Overseas Investment 81% 	Laos China
21	Nam Mo 1	Northern	Xiengkhuang		Nam Mo	IPP(e)	Vietnam	80.0			<ul style="list-style-type: none"> • GOL 15% • EVN International 85% 	Laos Vietnam
22	Nam Mo	Northern	Xiengkhuang		Nam Mo	IPP(e)	Vietnam	120.0	2015		<ul style="list-style-type: none"> • HN.CIT 65% • VLECG 35% 	Vietnam Vietnam
23	Nam Neun	Northern	Huaphanh		Nam Neun	IPP(e)	Vietnam	65.0			<ul style="list-style-type: none"> • GOL 25% • Indochina Consulting 75% 	Laos Korea
24	Nam Xam 3	Northern	Huaphanh		Nam Xam	IPP(e)	Laos / Vietnam	186.0			<ul style="list-style-type: none"> • Saigon Investment Group 	Vietnam
25	Nam Nhon	Northern	Bokeo		Nam Nhon	IPP(d)	Laos	2.4	2011		<ul style="list-style-type: none"> • Nam Nhone Co, Ltd 30% • MK Dynamic Resources Development 70% 	China
26	Nam Tha 3	Northern	Luangnamtha		Nam Tha	IPP(d)	Laos	1.3	2011			

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
27	Nam Ngum 5	Northern	Vientiane		Nam Ngum	IPP(d)	Laos	120.0	2012		•EDL 15% •Sinohydro 85%	Laos China
28	Nam Long	Northern	Luangnamtha		Nam Long	IPP(d)	Laos	5.0	2013		•Luangpaseuth Construction	Laos
29	Nam Ham 2	Northern	Xayabury		Nam Houng	IPP(d)	Laos	5.0	2013		•GOL 20% •Cobri 80%	Laos Laos
30	Nam Ngiew	Northern	Xiengkhuang		Nam Ngiew	IPP(d)	Laos	20.0	2014		•EDL •Right Engineering	Laos China
31	Nam Sim	Northern	Huaphanh		Nam Ma	IPP(d)	Laos	8.6	2015		•ECI 25% •Energy Development AS 75%	Laos Norway
32	Nam Beng	Northern	Oudomxay		Nam Beng	IPP(d)	Laos	34.0	2015		•China National Electrical Equipment Corp.	China
33	Nam Pot	Northern	Xiengkhuang		Nam Ngiep	IPP(d)	Laos	15.0	2015		•ACE Consultant	Laos
34	Nam Pha	Northern	Luangnamtha		Nam Pha	IPP(d)	Laos	130.0	2016		•AP Bizlink Group	Malaysia
35	Nam Ngiep 2	Northern	Xiengkhuang		Nam Ngiep	IPP(d)	Laos	180.0	2015		•China International Water & Electric Corp (CWE)	China
36	Nam Tha 1	Northern	Bokeo		Nam Tha	IPP(d)	Laos	168.0	2015		•GOL 25% •China Southern Grid 75%	Laos China
37	Nam Ou 2	Northern	Luangprabang		Nam Ou	IPP(d)	Laos	120.0	2016		•Sinohydro	China
38	Nam Ou 6	Northern	Luangprabang		Nam Ou	IPP(d)	Laos	180.0	2016		•Sinohydro	China
39	Nam Ou 5	Northern	Luangprabang		Nam Ou	IPP(d)	Laos	240.0	2016		•Sinohydro	China
40	Nam Seung 1	Northern	Luangprabang		Nam Seung	IPP(d)	Laos	63.0	2017		•Bru Thai International	Thailand
41	Nam Seung 2	Northern	Luangprabang		Nam Seung	IPP(d)	Laos	141.0	2017		•Bru Thai International	Thailand
42	Nam Ou 1	Northern	Luangprabang		Nam Ou	IPP(d)	Laos	160.0	2016		•GOL 10%-25% •Sinohydro 90% - 75%	Laos China
43	Nam Ou 3	Northern	Luangprabang		Nam Ou	IPP(d)		150.0	2018		•Sinohydro	China
44	Nam Ou 4	Northern	Luangprabang		Nam Ou	IPP(d)		116.0	2018		•Sinohydro	China
45	Nam Ou 7	Northern	Luangprabang		Nam Ou	IPP(d)		190.0	2018		•Sinohydro	China
46	Nam Tha 2	Northern	Luangnamtha		Nam Tha	Potential site		70.0				
47	Nam Nga	Northern	Luangprabang		Nam Ou	Potential site		110.0			•Norpower AS	Norway
48	Nam Ngao	Northern	Oudomxay		Nam Ou	Potential site		30.0				
49	Nam Pok	Northern	Phongsaly		Nam Ou	Potential site		2.6				
50	Nam Houn	Northern	Phongsaly		Nam Ou	Potential site		55.0				
51	Nam Khan 1	Northern	Luangprabang		Nam Khan	Potential site		30.0				
52	Nam Ming	Northern	Luangprabang		Nam Khan	Potential site		24.0				
53	Nam Gneun	Northern	Xayabury		Nam Gneun	Potential site		30.0				
54	Nam Houng	Northern	Xayabury		Nam Houng	Potential site		21.0				
55	Nam Lay	Northern	Xayabury		Nam Lay	Potential site		10.0				
56	Nam Peun 1	Northern	Huaphanh		Nam Neun	Potential site		34.0				
57	Nam Peun 2	Northern	Huaphanh		Nam Neun	Potential site		30.0				
58	Nam The	Northern	Xiengkhuang		Nam The	Potential site		30.0				
59	Nam Hao	Northern	Huaphanh		Nam Hao	Potential site		5.0			•Nice Engineering	
60	Nam Et 1	Northern	Huaphanh		Nam Ma	Potential site		136.0			•Hoang Anh Gai Lai Mineral Joint Stock	Vietnam
61	Nam Et 2	Northern	Huaphanh		Nam Ma	Potential site		166.0			•Hoang Anh Gai Lai Mineral Joint Stock	Vietnam
62	Nam Et 3	Northern	Huaphanh		Nam Ma	Potential site		110.0			•Hoang Anh Gai Lai Mineral Joint Stock	Vietnam
63	Nam Hum	Northern	Xayabury			Potential site		3.5			•Cobri	Laos
64	Nam Fa	Northern	Luangnamtha			Potential site		130.0			•AP Bizlink Group	Malaysia

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
65	Nam Ngum 1	Central	Vientiane		Nam Ngum	EDL-Gen	Laos / Thailand	155.0	1971	EDL-Gen		Japan+Others
66	Nam Leuk	Central	Vientiane		Nam Mang	EDL-Gen	Laos / Thailand	60.0	2000	EDL-Gen		Japan+ADB
67	Nam Mang 3	Central	Vientiane		Nam Mang	EDL-Gen	Laos / Thailand	40.0	2004	EDL-Gen		China
68	Nam Song (Extension)	Central	Vientiane		Nam Song	EDL-Gen	Laos	6.0	2011	EDL-Gen		India
69	Nam Sana	Central	Vientiane		Nam Sana	EDL	Laos	14.0	2013	EDL		Thai
70	Nam Ngum 1 (Extension)	Central	Vientiane		Nam Ngum	EDL	Laos	40.0	2014	EDL		Japan
71	Kengseuaten	Central	Borikhamxay		Nam Theun	EDL	Laos	54.0	2016	EDL		Thai
72	Theun Hinboun (Extension)	Central	Borikhamxay		Nam Theun	IPP(e)	Laos / Thailand	220.0	2012	Theun Hinboun Power Company (THPC)	<ul style="list-style-type: none"> •EDL 60% •Nordic Group 20% •MDX 20% 	Laos Norway Thailand
73	Nam Theun 1	Central	Borikhamxay		Nam Theun	IPP(e)	Laos / Thailand	523.0	2018		<ul style="list-style-type: none"> •LHSE 20% •Gamuda 40% •EGCO 40% 	Laos Malaysia Thailand
74	Nam Ngiep 1	Central	Borikhamxay		Nam Ngiep	IPP(e)	Laos / Thailand	262.9	2018		<ul style="list-style-type: none"> •LHSE 25% •Kansai Electric 45% •EGAT Inter 30% 	Laos Japan Thailand
75	Nam Ngum3	Central	Vientiane		Nam Ngum	IPP(e)	Thailand	460.0	2017	Nam Ngum 3 Power Company (NN3PC)	<ul style="list-style-type: none"> •LHSE 23% •Marubeni 25% •Ratchaburi 25% •GMS 27% 	Laos Japan Thailand Thailand
76	Nam Feung	Central	Vientiane		Nam Feung	IPP(e)	Laos	28.0			•Yunan Provincial Power Investment	China
77	Nam Bak 1	Central	Vientiane		Nam Ngum	IPP(e)	Thailand	160.0	2015	Num Ngum 2 Power Company	<ul style="list-style-type: none"> •EDL 25% •CH. Kanchang 28.5% •PT Construction & Irrigation 4% •Ratchaburi 25% •Bangkok Expressway PCL 12.5% •TEAM Consulting Engineering 1% •Shalapak Group 4% 	Laos Thailand Laos Thailand Thailand Thailand USA
78	Nam Bak 2	Central	Vientiane		Nam Ngum	IPP(e)	Laos / Thailand	40.0	2015	Num Ngum 2 Power Company	<ul style="list-style-type: none"> •EDL 25% •CH. Kanchang 28.5% •PT Construction & Irrigation 4% •Ratchaburi 25% •Bangkok Expressway PCL 12.5% •TEAM Consulting Engineering 1% •Shalapak Group 4% 	Laos Thailand Laos Thailand Thailand Thailand USA
79	Nam Phouan	Central	Vientiane		Nam Ngiep	IPP(e)	-	60.0	2015		<ul style="list-style-type: none"> •ECI •Velcan Energy 	Laos France
80	Nam Ngiep Muang Mai	Central	Borikhamxay		Nam Ngiep	IPP(e)		38.0				
81	Nam Mouan	Central	Borikhamxay		Nam Theun	IPP(e)	Vietnam	124.0	2017		•Chubu Electric Power	Japan
82	Nam Lik 1/2	Central	Vientiane		Nam Ngum	IPP(d)	Laos	100.0	2010		<ul style="list-style-type: none"> •EDL 10% •China International Water & Electric Corp (CWE) 90% 	Laos China
83	Nam Phao	Central	Borikhamxay		Nam Phao	IPP(d)	Laos	1.6	2012			

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
84	Nam Lik 1	Central	Vientiane		Nam Lik	IPP(d)	Laos	60.0	2014		•GOL 20% •Hydro Engineering Co. 80%	Laos Thailand
85	Nam Kene	Central	Vientiane		Nam Ngum	IPP(d)	Laos	5.0	2014			
86	Nam Mang 1	Central	Borikhamxay		Nam Mang	IPP(d)	Laos	57.0	2015		•Far-East Industrial Co.	China
87	Nam Bak	Central	Vientiane		Nam Bak	IPP(d)	Laos	160.0	2015			
88	Nam Phai	Central	Vientiane		Nam Phai	IPP(d)	Laos	60.0	2015			
89	Nam Phay	Central	Vientiane		Nam Ngum	IPP(d)					•Norinco International Cooperation •Norinco International Cooperation	China China
90	Nam San 3	Central	Xiengkhuang		Nam San	IPP(d)	Laos	65.0	2016		•GOL 25% •Rohas Euco Industries Berhad 75%	Laos Malaysia
91	Nam San 2	Central	Borikhamxay		Nam San	IPP(d)						
92	Nam Ngum (Down)	Central	Vientiane Capital		Nam Ngum	IPP(d)	Laos	60.0	2018		•China National Electronics Import & Export Corp (CEIEC)	China
93	Nam San 3 (Down)	Central	Xiengkhuang		Nam San	IPP(d)		30.0	2018			China
94	Nam Gnuang 8	Central	Borikhamxay			IPP(d)		60.0	2012	Theun Hinboun Power Company (THPC)	•EDL 60% •Nordic Group 20% •MDX 20%	Laos Norway Thailand
95	Nam Ngum 4A	Central	Vientiane		Nam Ngum	Potential site		54.0				
96	Nam Ngum 4B	Central	Vientiane		Nam Ngum	Potential site		56.0				
97	Pha Mong (Mekong)	Central	Vientiane	Mekong	Mekong	Potential site		2,670.0				
98	Nam Theun 3	Central	Borikhamxay		Nam Theun	Potential site		60.0			•Heard Energy	USA
99	Nam Theun 4	Central	Borikhamxay		Nam Theun	Potential site		110.0			•Ree Power Plant	Vietnam
100	Nam Sen	Central	Borikhamxay			Potential site						
101	Nam Lik 2	Central	Vientiane		Nam Ngum	Potential site						
102	Xelabam	Southern	Champasack		Xedon	EDL-Gen	Laos	5.0	1970	EDL-Gen		WB+France
103	Xeset 1	Southern	Saravane		Xeset	EDL-Gen	Laos / Thailand	45.0	1990	EDL-Gen		ADB+Others
104	Xeset 2	Southern	Saravane		Xeset	EDL-Gen	Laos / Thailand	76.0	2009	EDL-Gen		China
105	Xelabam (Extension)	Southern	Champasack		Xedon	EDL		7.7	2013	EDL		Japan
106	Xeset 3	Southern	Saravane		Xedon	EDL		23.0	2013	EDL		China
107	Houay Lamphan Gnai	Southern	Sekong		Xekong	EDL		88.0	2014	EDL		China
108	Xeset 4	Southern	Champasack		Xeset	EDL		10.0	2015	EDL		China
109	Nam Hinboun	Southern	Khammuane		Nam Hinboun	EDL		40.0	2016	EDL		Thai
110	Theun Hinboun	Southern	Khammuane		Nam Theun	IPP(e)	Laos / Thailand	210.0	1998		•EDL 60% •Nordic 20% •GMS 20%	Laos Norway Thailand
111	Houay Ho	Southern	Attapeu		Xekong	IPP(e)	Thailand	152.1	1999	Houay Ho Power Company (HHPC)	•EDL 20% •Glow (GDF Suez Energy International) 67.25% •Hamaraj Land&Development 12.75%	Laos Belgium Thailand
112	Nam Theun 2	Southern	Khammuane		Nam Theun	IPP(e)	Laos / Thailand	1,075.0	2010	Nam Theun 2 Power Company (NTPC)	•LHSE 25% •EDF 40% •EGCO 35%	Laos France Thailand
113	Xekaman 3	Southern	Sekong		Xekong	IPP(e)	Laos / Vietnam	250.0	2012		•EDL 15% •Viet Lao Power (VLPC) 85%	Laos Vietnam
114	Xekaman 1	Southern	Attapeu		Xekong	IPP(e)	Vietnam / Laos	322.0	2013		•EDL 15-30% •Viet Lao Power (VLPC) 70-85%	Laos Vietnam

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
115	Xekaman Xanxai	Southern	Attapeu		Xekong	IPP(e)	Vietnam / Laos	32.0			•Viet Lao Power (VLPC)	Vietnam
116	Xekong 4	Southern	Sekong		Xekong	IPP(e)	Thailand	300.0	2017		•Region Oil 80% •LHSE 20%	Russia Laos
117	Xekong 5	Southern	Sekong		Xekong	IPP(e)	Thailand / Laos	330.0	2016		•Region Oil	Russia
118	Xebang Hieng 1	Southern	Savannakhet		Xebang Hieng	IPP(e)	Vietnam	50.0	2019		•Song Da Corp.	Vietnam
119	Xebang Hieng 2	Southern	Savannakhet		Xebang Hieng	IPP(e)	Vietnam	52.0	2015		•Song Da Corp.	Vietnam
120	Xebang Nouan	Southern	Saravane		Xebang Nouan	IPP(e)		80.0				
121	Xepian-Xenamnoy	Southern	Champasack		Xekong	IPP(e)	Thailand / Laos	390.0	2016		•LHSE 24% •SK Engineering & Construction 26% •Korea Western Power Co. 25% •Ratchaburi 25%	Lao Korea Korea Thailand
122	Xekong 3A	Southern	Champasack		Xekong	IPP(e)	Laos / Vietnam	105.0	2013		•Song Da Corp.	Vietnam
123	Xekong 3B	Southern	Champasack		Xekong	IPP(e)	Laos / Vietnam	100.0	2015		•Song Da Corp.	Vietnam
124	Xekong (Down)	Southern	Attapeu		Xekong	IPP(e)	-	80.0			•V&H Corp.	Laos
125	Dak E Meule	Southern	Champasack		Xekong	IPP(e)	Vietnam / Laos	130.0			•GOL 25% •Viet Lao Power (VLPC) 75%	Laos Vietnam
126	Ban Koum (Mekong)	Southern	Champasack	Mekong	Mekong	IPP(e)	Laos / Thailand	1,872.0			•Italian Thai •Asia Corp Holdings Limited.	Thailand Thailand
127	Phou Ngoy (Mekong)	Southern	Champasack	Mekong	Mekong	IPP(e)	Thailand / Laos	651.0	2018		•Charoen Energy and Water Asia Co.,Ltd	Thailand
128	Xekaman 4	Southern	Attapeu		Xekaman	IPP(e)	Vietnam	80.0	2015		•Viet Lao Power (VLPC)	Vietnam
129	Nam Kong 1	Southern	Attapeu		Nam Kong	IPP(e)	Thailand	150.0	2017		•Region Oil 80% •LHSE 20%	Russia Laos
130	Nam Ang Thabeng	Southern	Attapeu		Xekaman	IPP(e)	-	30.0			•ECI •Velcan Energy	Laos France
131	Xepian-Houaysoy	Southern	Attapeu		Xepian	IPP(e)	Thailand	100.0		Houay Ho Power Company (HHPC)	•EDL 20% •Glow (GDF Suez Energy International) 67.25% •Hamaraj Land&Development 12.75%	Laos Belgium Thailand
132	Tadsalen	Southern	Savannakhet		Xe Saloun	IPP(d)	Laos	3.2	2013		•SIC Manufacturer (Thailand) 100%	Thailand
133	Xenamnoy 1	Southern	Sekong		Xenamnoy	IPP(d)	-	15.0	2013		•GOL 10% •Phongxubthavy Road and Bridge Construction Co., Ltd 90%	Laos Laos
134	Houay Kapeuk	Southern	Saravane		Houay Kapeuk	IPP(d)		5.0	2014			Laos
135	Houay Champi	Southern	Champasack		Houay Champi	IPP(d)	Laos	5.0	2014		•SV Group Company Ltd	Laos
136	Nam Kong 2	Southern	Attapeu		Nam Kong	IPP(d)	-	66.0	2017	Hoang Anh Attapeu Electric Limited Company	•Hong Anh Gai Lai JSC (HAGL) Hydropower Co.	Vietnam
137	Nam Kong 3	Southern	Attapeu		Nam Kong	IPP(d)	Laos	45.0	2015	Hoang Anh Attapeu Electric Limited Company	•Hong Anh Gai Lai JSC (HAGL) Hydropower Co.	Vietnam
138	Thakho (Mekong)	Southern	Champasack	Mekong	Mekong	IPP(d)	Laos	50.0	2016		•Companie Nationale du Rhone (CNR) •EDL	France

No.	Name	Area	Province	Basin	River	Ownership	Planned Market	Installed	COD	Owner	Investor	Country
								Capacity (MW)				
139	Xepon 3 (Down)	Southern	Saravane		Xepon	IPP(d)		30.0	2016		•China International Water & Electric Corp (CWE)	China
140	Xepon 3 (Up)	Southern	Saravane		Xepon	IPP(d)		70.0	2016			
141	Nam Phak/Houaykatam	Southern	Champasack		Nam Ou	IPP(d)	Laos	45.0	2015		•EDL 20% •Kobe Green Power Co., Ltd 80%	Laos Japan
142	Xekatom	Southern	Champasack		Xenamnoy	IPP(d)	Laos	61.0	2016		•GOL 25% •Kansai 55%	Laos Japan
143	Don Sahong (Mekong)	Southern	Champasack	Mekong	Mekong	IPP(d)	Laos / Thailand	240.0	2017		•Thai investor 20% •GOL 20% •Mega First 80%	Thailand Laos Malaysia
144	Xe Lanong 1	Southern	Savannakhet		Xebang Hieng	IPP(d)	-	80.0	2018		•Sunpaper Holding Lao Co, Ltd. •Daosavanh Investment & Construction Group	China Laos
145	Xe Neua	Southern	Khammuane		Xe Neua	IPP(d)	Laos	53.0	2018		•Phonesack Bridge&Road Construction Co., Ltd	Thailand
146	Xe Lanong 2	Southern	Saravane		Xebang Hieng	IPP(d)		45.0	2018		•JRC Service 75% •GOL 25%	Japan Laos
147	Xedon 2	Southern	Saravane		Xedon	IPP(d)		20.0	2018			
148	M. Kalum (Lignite)	Southern	Sekong		Coal fired	IPP(d)		300.0	2014			
149	Nam Theun 5	Southern	Khammuane		Nam Theun	Potential site		150.0				
150	Nam Hinboun 2	Southern	Khammuane		Nam Hinboun	Potential site		12.0				
151	Xebangfai	Southern	Khammuane		Xebangfai	Potential site		100.0				
152	Xedon 3	Southern	Saravane		Xedon	Potential site		35.0				
153	Houaybanbieng	Southern	Champasack		Houaybanbieng	Potential site		30.0				
154	Tadsomphamid (Mekong)	Southern	Champasack	Mekong	Mekong	Potential site		30.0				
155	Khon San (Mekong)	Southern	Champasack	Mekong	Mekong	Potential site		30.0				
156	Xekaman 2A	Southern	Attapeu		Xekaman	Potential site		64.0				
157	Xekaman 2B	Southern	Attapeu		Xekaman	Potential site		100.0				
158	Xekaman 4A	Southern	Attapeu		Xekaman	Potential site		96.0				
159	Xekaman 4B	Southern	Attapeu		Xekaman	Potential site		74.0				
160	Xexou	Southern	Attapeu		Xekong	Potential site		60.0			•Hong Anh Gai Lai JSC (HAGL) Hydropower Co.	Vietnam
161	Xenamnoy 5	Southern	Sekong		Xekong	Potential site						

2.2 Status of the Power Project

No.	Name	Ownership	Status	Concession Agreement (CA)		Project Development Agreement (PDA)		Memorandum of Understanding (MOU)		Remarks
				Signed date	period	Signed date	period	Sined date	period	
1	Nam Dong	EDL	Existing							
2	Nam Ko	EDL	Existing							
3	Nam Ngai	EDL	Existing							
4	Nam Boun 2	EDL								
5	Nam Khan 2	EDL	Under Construction							
6	Nam Phak	EDL								
7	Nam Chien	EDL								
8	Nam Khan 3	EDL								
9	Hongsa (Lignite)	IPP(e)	Under Construction	2010/11/3		2006/12/18 2008/12/19	18 months 2009/6/20			Progress Construction 9.1%
10	Nam Xam 1	IPP(e)	PDA			2011/9/19	18 months	2008/3/30	18 months	FS on going
11	Xayabury (Mekong)	IPP(e)	Pre Construction	2010/10/29						
12	Pakbeng (Mekong)	IPP(e)	PDA			2010/12/27	18 months			PDA Completed
13	Luangprabang (Mekong)	IPP(e)	MOU					2007/10/13	30 months	FS on going
14	Nam Ma 1,2,3,4,5	IPP(e)	MOU					2008/12/30	18 months	FS on going
15	Nam Ngum 4	IPP(e)	MOU					2008/3/30	18 months	FS on going
16	Nam Ngum 2	IPP(e)	Existing							
17	Nam Poui	IPP(e)	MOU					2010/10/6	18 months	FS on going
18	Nam Phoun	IPP(e)	MOU					2008/12/5	18 months	PDA Negotiation
19	Paklay (Mekong)	IPP(e)	MOU					2007/6/11	30 months	
20	Sanakham (Mekong)	IPP(e)	PDA			2010/12/27	18 months			
21	Nam Mo 1	IPP(e)	MOU					2010/3/4	18 months	FS on going
22	Nam Mo	IPP(e)	PDA			2008/3/30	18 months			CA/PPA Negotiation
23	Nam Neun	IPP(e)	MOU					2009/10/8	18 months	FS on going
24	Nam Xam 3	IPP(e)	PDA			2011/9/19	18 months	2008/3/30	18 months	FS on going
25	Nam Nhon	IPP(d)	Existing							
26	Nam Tha 3	IPP(d)	Under Construction							
27	Nam Ngum 5	IPP(d)	Under Construction	2007/4/10	30 years					Progress Construction 80.6%
28	Nam Long	IPP(d)	Under Construction	2011/3/21	30 years					
29	Nam Ham 2	IPP(d)	MOU					2005/4/6 2008/12/14	18 months	
30	Nam Ngiew	IPP(d)								
31	Nam Sim	IPP(d)	Under Construction	Completed		2007/10/2	18 months			CA completed
32	Nam Beng	IPP(d)	PDA			2010/3/10	18 months			
33	Nam Pot	IPP(d)	MOU					2009/11/26	18 months	FS on going
34	Nam Pha	IPP(d)	PDA			2010/8/20	18 months			
35	Nam Ngiep 2	IPP(d)	Under Construction			2010/8/25	18 months			Under Construction
36	Nam Tha 1	IPP(d)	PDA			2010/6/16		2008/2/28	18 months	CA/PPA Negotiation
37	Nam Ou 2	IPP(d)	Under Construction			2007/10/15	18 months			CA Negotiation

No.	Name	Ownership	Status	Concession Agreement (CA)		Project Development Agreement (PDA)		Memorandum of Understanding (MOU)		Remarks
				Signed date	period	Signed date	period	Sined date	period	
38	Nam Ou 6	IPP(d)	Under Construction			2007/10/15	18 months			CA Negotiation
39	Nam Ou 5	IPP(d)	Under Construction			2007/10/15	18 months			CA Negotiation
40	Nam Seung 1	IPP(d)	PDA			2010/8/11	18 months	2007/5/4	18 months	
41	Nam Seung 2	IPP(d)	PDA			2010/8/11	18 months	2007/5/4	18 months	
42	Nam Ou 1	IPP(d)	PDA			2007/10/15	18 months			CA Negotiation
43	Nam Ou 3	IPP(d)	PDA			2007/10/15	18 months			CA Negotiation
44	Nam Ou 4	IPP(d)	PDA			2007/10/15	18 months			CA Negotiation
45	Nam Ou 7	IPP(d)	PDA			2007/10/15	18 months			CA Negotiation
46	Nam Tha 2	Potential site								
47	Nam Nga	Potential site								
48	Nam Ngao	Potential site								
49	Nam Pok	Potential site								
50	Nam Houn	Potential site								
51	Nam Khan 1	Potential site								
52	Nam Ming	Potential site								
53	Nam Gneun	Potential site								
54	Nam Houng	Potential site								
55	Nam Lay	Potential site								
56	Nam Peun 1	Potential site								
57	Nam Peun 2	Potential site								
58	Nam The	Potential site								
59	Nam Hao	Potential site								
60	Nam Et 1	Potential site	MOU					2011/9/10	18 months	
61	Nam Et 2	Potential site	MOU					2011/9/10	18 months	
62	Nam Et 3	Potential site								
63	Nam Hum	Potential site								
64	Nam Fa	Potential site				2010/8/20				
65	Nam Ngum 1	EDL-Gen	Existing							
66	Nam Leuk	EDL-Gen	Existing							
67	Nam Mang 3	EDL-Gen	Existing							
68	Nam Song (Extension)	EDL-Gen	Existing							
69	Nam Sana	EDL	Pre Construction							
70	Nam Ngum 1 (Extension)	EDL								
71	Kengseuaten	EDL								
72	Theun Hinboun (Extension)	IPP(e)	Under Construction	2008/8/27						Progress Construction 96%
73	Nam Theun 1	IPP(e)	PDA			2004/11/28				
74	Nam Ngiep 1	IPP(e)	PDA			2006/4/27	18 months			CA Negotiation
						2008/5/27	2009/2/26			
75	Nam Ngum3	IPP(e)	Under Construction			1997/11/15				CA/PPA Negotiation

No.	Name	Ownership	Status	Concession Agreement (CA)		Project Development Agreement (PDA)		Memorandum of Understanding (MOU)		Remarks
				Signed date	period	Signed date	period	Sined date	period	
76	Nam Feung	IPP(e)	MOU					2007/4/3 2008/10/2	18 months 2009/6/3	FS on going
77	Nam Bak 1	IPP(e)	MOU					2007/4/11 2008/10/12	18 months 2009/5/12	-
78	Nam Bak 2	IPP(e)	MOU					2007/4/11 2008/10/12	18 months 2009/5/12	-
79	Nam Phouan	IPP(e)	MOU					2010/9/24		-
80	Nam Ngiep Muang Mai	IPP(e)	MOU					2010/2/25	18 months	
81	Nam Mouan	IPP(e)	MOU					2010/2/26	18 months	FS on going
82	Nam Lik 1/2	IPP(d)	Existing							
83	Nam Phao	IPP(d)	PDA							
84	Nam Lik 1	IPP(d)	PDA			2008/4/8	18 months			CA/PPA Negotiation
85	Nam Kene	IPP(d)	PDA							
86	Nam Mang 1	IPP(d)	PDA			2010/5/20		2009/4/21		CA/PPA Negotiation
87	Nam Bak	IPP(d)	PDA							
88	Nam Phai	IPP(d)	PDA			2011/12/20				
89	Nam Phay	IPP(d)	MOU					2011/12/20	18 months	
90	Nam San 3	IPP(d)	PDA			2008/6/19				
91	Nam San 2	IPP(d)	PDA							
92	Nam Ngum (Down)	IPP(d)	MOU					2008/1/28	18 months	
93	Nam San 3 (Down)	IPP(d)	PDA							
94	Nam Gnuang 8	IPP(d)	PDA							
95	Nam Ngum 4A	Potential site	MOU					2008/3/30	18 months	
96	Nam Ngum 4B	Potential site	MOU					2008/3/30	18 months	
97	Pha Mong (Mekong)	Potential site	PDA							
98	Nam Theun 3	Potential site	PDA							
99	Nam Theun 4	Potential site	MOU					2008/9/30	18 months	
100	Nam Sen	Potential site	PDA							
101	Nam Lik 2	Potential site	PDA							
102	Xelabam	EDL-Gen	Existing							
103	Xeset 1	EDL-Gen	Existing							
104	Xeset 2	EDL-Gen	Existing							
105	Xelabam (Extension)	EDL	Existing							
106	Xeset 3	EDL	Existing							
107	Houay Lamphan Gnai	EDL	Under Construction							
108	Xeset 4	EDL	Existing							
109	Nam Hinboun	EDL	Existing							
110	Theun Hinboun	IPP(e)	Existing	1994/10/17						
111	Houay Ho	IPP(e)	Existing	1993/9/23						
112	Nam Theun 2	IPP(e)	Existing							
113	Xekaman 3	IPP(e)	Under Construction	2006/1/4	30 years					Progress Construction 96.18%
114	Xekaman 1	IPP(e)	Under Construction	2011/2/10		2008/3/30				Progress Construction 11.6%
115	Xekaman Xanxai	IPP(e)	Under Construction	2011/2/10		2008/3/30				Progress Construction 11.6%

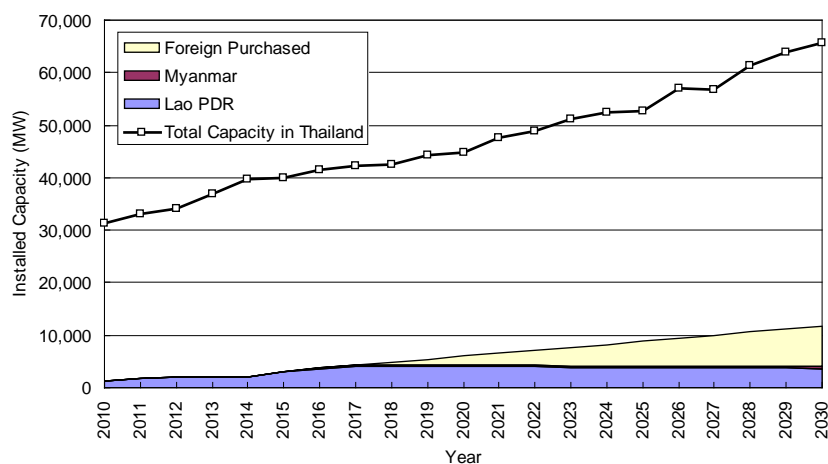
No.	Name	Ownership	Status	Concession Agreement (CA)		Project Development Agreement (PDA)		Memorandum of Understanding (MOU)		Remarks
				Signed date	period	Signed date	period	Sined date	period	
152	Xedon 3	Potential site								
153	Houaybanbieng	Potential site								
154	Tadsomphamid (Mekong)	Potential site								
155	Khon San (Mekong)	Potential site								
156	Xekaman 2A	Potential site								
157	Xekaman 2B	Potential site								
158	Xekaman 4A	Potential site								
159	Xekaman 4B	Potential site								
160	Xexou	Potential site	MOU					2011/9/10	18 months	FS on going
161	Xenamnoy 5	Potential site								

2.3 Power Development Plan in Lower Mekong Countries

(1) Thailand

The electricity supply in Thailand increased rapidly at the average growth rate of 6.6% from 1990 to 2009. Thailand is net importing electricity from Lao PDR and Malaysia, and exporting to Cambodia. The dependence on electricity import accounts for 4% of the total generating capacity.

“Thailand Power Development Plan 2010-2030” (PDP2010) was formulated by Electricity Generating Authority of Thailand (EGAT) in April 2010. In PDP 2010, power import from neighboring countries is planned to extend to 13.4% in 2020, and 17.8% in 2030 in terms of the supply capacity. Figure A2.3-1 shows the total installed capacity and import power in PDP 2010.



Source: Summary of Thailand Power Development Plan 2010-2030

Figure A2.3-1 Installed Capacity in Thailand (PDP2010)

The plan for importing electricity from neighboring countries is developed in PDP 2010 as follows;

(a) Power Purchase from Lao PDR

The Government of Thailand and the Government of Lao have signed the following MOUs;

- Import power up to 1,500MW (4 June 1993)
- Extend import capacity to 3,000MW (19 June 1996)
- Extend import capacity to 5,000MW (18 Dec. 2006)
- Extend import capacity to 7,000 MW (22 Dec. 2007)

(b) Power Purchase from Myanmar

The Government of Thailand had made an MOU with the Government of Myanmar in 1997 to import 1,500 MW from Myanmar. The following projects are listed in the

subsequent MOU.

- Hutgyi Hydroelectric Project (1,190MW)
- Tasang Hydroelectric Project (7,000MW)
- Mai Khot Coal Fired Thermal Power Plant. (369MW)

(c) Power Purchase from China

The Government of Thailand and the Government of China have entered into an MOU that Thailand will purchase 3,000 MW from China within the year 2017.

(d) Power Purchase from Cambodia

No MOU has been signed between the Governments. Private developers propose projects in Cambodia to export power to Thailand.

Table A2.3-1 shows the power purchase plan from neighboring countries in PDP 2010. After 2013, as a power import from Lao PDR, Hongsa Lignite is listed in 2015 and 2016, and Nam Ngum 3 is in 2017. After 2018, 600MW of electric power import from neighboring countries is listed every year in PDP specifying neither importing country nor project name.

Table A2.3-1 Power Import Plan in Thailand PDP 2010

Year	Project	Capacity	Peak Demand in Thailand
2010	Power Purchase from Lao PDR (Nam Theun 2)	920 MW	23,249 MW
2011	Power Purchase from Lao PDR (Nam Ngum 2)	597 MW	24,568 MW
2012	Power Purchase from Lao PDR (Theun Hinboun Ext.)	220 MW	25,913 MW
2013			27,188 MW
2014			28,341 MW
2015	Power Purchase from Lao PDR (Hongsa TH #1-2)	2x491 MW	29,463 MW
2016	Power Purchase from Myanmar (Mai Khot TH #1-3)	3x123 MW	30,754 MW
	Power Purchase from Lao PDR (Hongsa TH #3)	491 MW	
2017	Power Purchase from Lao PDR (Nam Ngum 3)	440 MW	32,225 MW
2018	Power Purchase from Neighboring Countries	450 MW	33,688 MW
2019	Power Purchase from Neighboring Countries	600 MW	34,988 MW
2020	Power Purchase from Neighboring Countries	600 MW	36,336 MW
2021	Power Purchase from Neighboring Countries	600 MW	37,856 MW
2022	Power Purchase from Neighboring Countries	600 MW	39,308 MW
2023	End of Theun Hinboun PPA	-214 MW	40,781 MW
	Power Purchase from Neighboring Countries	600 MW	
2024	Power Purchase from Neighboring Countries	600 MW	42,236 MW
2025	Power Purchase from Neighboring Countries	600 MW	43,962 MW
2026	Power Purchase from Neighboring Countries	600 MW	45,621 MW
2027	Power Purchase from Neighboring Countries	600 MW	47,344 MW
2028	Power Purchase from Neighboring Countries	600 MW	49,039 MW
2029	Power Purchase from Neighboring Countries	600 MW	50,959 MW
2030	Power Purchase from Neighboring Countries	600 MW	52,890 MW

Source: Summary of Thailand Power Development Plan 2010-2030

(2) Vietnam

Electric power demand in Vietnam increased at the average growth rate of 12.6% per year from 1990. The total electricity demand in 2009 reached 97TWh and the installed capacity in 2009 was 17,669MW.

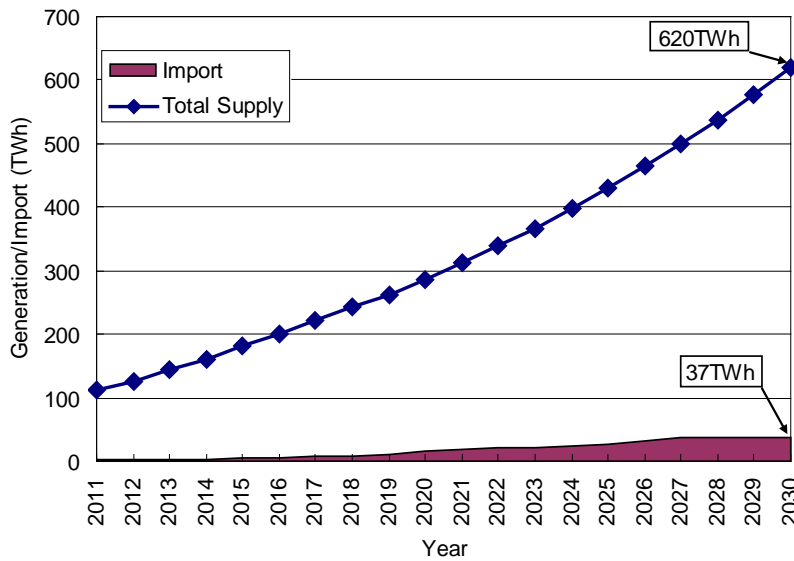
Power development plan of Vietnam was formulated in July 2011, named “National Power Development Plan for Period 2011-2020 with Perspective to 2030” shortly called as “Power Development Plan VII (PDP VII)”. The development of power sources, in specific the power exchange with neighboring countries is described in PDP VII as follows,

- Provide adequate electricity for the domestic demand, electricity production and import will range from 194 to 210TWh in 2015; 330 to 362TWh in 2020; and 695 to 834TWh in 2030.
- To develop the most appropriate plan for meeting needs with total installed capacity for the whole country in 2015, 2020, 2025, 2030 at the base case of 43GW, 65.4GW, 95GW, 135.7GW, respectively.
- Implement efficient power exchange with the countries in the region, ensuring the interests of the parties, increase the exchange to ensure the safety of the system, enhance electricity import from the potential regions of hydropower, especially Laos and then Cambodia, China. It is expected that imported electricity capacity will be about 2,200MW in 2020, approximately 7,000MW in 2030.

In the Article 1.3 c) of PDP IIV “Connectivity to power grids of countries in the region”, it is planned to implement the program of cooperation and connectivity with the power grids in South East Asian Nations (ASEAN) and the Mekong sub-region (GMS). Power exchange with Lao PDR is designed through the connection of the grid.

- Connection to Northern Lao grid: 220kV and 500kV transmission line to Thanh Hoa and Nho Quan (Ninh Binh) and Son La.
- Connection to Central and Southern Lao grid: 220kV and 500kV transmission line to Thach My (Quang Nam) and Pleiku (Gia Lai).

In the base scenario of PDP VII, 98,318MW and 620TWh of the electricity will be supplied in 2030. It is planned that 37TWh, which is 6% of power supply in Vietnam will be imported from neighboring countries such as Lao PDR, China and Cambodia



Source: PDP VII Draft April 2010

Figure A2.3-2 Electricity Supply and Import in Vietnam (PDP VII)

Table A2.3-2 shows the hydropower projects planned for power import from Lao PDR in PDP VII.

Table A2.3-2 Power Import Plan from Lao PDR (PDP VII)

Year	Area	Project	Installed Capacity (MW)
2011	Central	Xekaman 3	250
2014	North	Nam Mo	95
2015	South	Xekaman 1	290
2016	South	Xekaman 4	64
2017	South	Xekong 3A	100
	South	Xekong 3B	105
2018	South	Nam Sum 1	90
	South	Xekong	192
2019	South	Nam Sum 3	196
2020	North	Nam Mo 1	72
2021	South	Xekong	150
2022	Central	Nam Theun 1	400

Source: PDP VII

(3) Cambodia

Electricity demand in Cambodia has been growing at the average annual rate of 12.8% from 1995, and the total installed capacity was 372 MW and the power generation was 1,200 GWh in 2009. According to the power development plan, the electricity supply will be expanded to 3,000 MW and 16,000 GWh in 2024.

Theoretical hydropower potential in Cambodia is estimated more than 10,000 MW.

According to the Electricity Authority of Cambodia (EAC), hydropower potential technically exploitable is estimated 6,695 MW where 3,580 MW in Mekong mainstream. Table A2.3-3 shows the power development plan in Cambodia.

Table A2.3-3 Power Development in Cambodia

Project	Resource	Installed Capacity (MW)	Status	COD
Coal Power Plant I	Coal	100	PPA	2011
Kirirom Extension II	Hydro	18	PPA	2012
Coal Fired Power Plant	Coal	100	PPA	2013
Stung Atay	Hydro	120	PPA	2014
Stung Tatay	Hydro	246	PPA	2015
LSt. Russei Chrum	Hydro	338	PPA	2015
Coal Fired Power Plant	Coal	240	PPA	2015
Coal Fired Power Plant	Coal	135	PPA	2017
Sesan	Hydro	400	F/S	
Prek Laang	Hydro	90	Pre F/S	
Sambor	Hydro	2,600	MOU	
Lower Sesan II & Lower Srepok II	Hydro	420	MOU	
Lower Sesan III	Hydro	375	Pre F/S	
Lower Srepok III	Hydro	330	MOU	
Lower Srepok IV	Hydro	235	MOU	
Battambang I	Hydro	24	Pre F/S	
Battambang II	Hydro	36	Pre F/S	
Stung Pursat I	Hydro	75	MOU	
Stung Pursat II	Hydro	17	MOU	
Stung Sen	Hydro	40	F/S	
Stung Treng	Hydro	980	MOU	

Source: Report on Power Sector for the Year 2010, EAC, 2011

8th Meeting of the Focal Group, Greater Mekong Sub-region, Nov. 2009

3. Renewable Energy Sector

3.1 Main points of Renewable Energy Development Strategy (REDS)

Followings are main points of the REDS.

(1) Main points on Renewable Energy Development Strategy

1) Renewable Energy Development Strategy

Main points stated in the REDS are as follows.

(a) Overview of Renewable Energy

- Renewable energy development in Lao PDR

(b) Strategy and Policy

- Vision, Policies and objectives
- Targets for 2025
- Development strategy
- Financial mechanisms
- Estimated investment cost for RE sector

(c) Implementation Measures

- Institutional arrangement
- Driving measures to kick-start short term implementation
- Important factors for successful implementation

The REDS emphasizes the following points.

- Achieving target for the share of renewable energy development is up to 30% by the year 2025.
- The tentative vision for the promotion and development of biofuels is to substitute 10% of the transportation fuel demand by 2025.

(2) Development scenario by 2025

1) Share of renewable energies to 30% of the total energy consumption in 2025

The GoL aims to increase the share of renewable energies to 30% of the total energy consumption in 2025 as shown in Table A3.1-1. In order to reduce the importation of fossil fuels, the GoL outlines that a tentative development of biofuels is to substitute 10% of the transportation fuel demand by 2025. This target will be regularly revisited and revised, feeding in results of special studies, lessons learned from on-going implementation, and international technological developments in the field of RE.

Terms of small hydropower, biomass and biogas are defined in RDES as follows.

- Small hydropower means hydropower of the capacity less than 15MW.
- Biomass means the wastes from agriculture and forest production and processing of sugarcane bagasse, rice husks, corn cobs, wood wastes, municipal solid waste
- Biogas means animal and livestock waste, agro-industrial wastes, municipal solid waste, waste water treatment, etc.,
- Biofuel means ethanol and biodiesel which are made mainly from energy crops.

Table A3.1-1 Capacity to meet 30% target of renewable energy development until 2025

Item	Renewable energy types	Potential	Existing	2015		2020		2025	
		MW	MW	MW	ktoe	MW	ktoe	MW	ktoe
A	Electricity			140		243		666	427
1	Small Hydropower	2000	12	80	51	134	85	400	256
2	Solar	511	1	22	14	36	23	48	31
3	Wind	>40		6	4	12	8	73	47
4	Biomass	938		13	8	24	16	58	37
5	Biogas	313		10	6	19	12	51	33
6	Solid waste	216		9	6	17	11	36	23
7	Geothermal	59							
B	Biofuel	ML	ML	ML		ML		ML	
1	Ethanol	600		10	7	106	178	150	279
2	Biodiesel	1200	0.01	15	13	205	239	300	383
C	Thermal energy	ktoe	ktoe						
1	Biomass	227			23		29		113
2	Biogas	444			22		44		178
3	Solar	218			17		22		109
Total									
Energy demand (ktoe)					2504		4064		4930
Renewable energy contribution					172		668		1479
Proportion					7 %		20%		30%

Note: The values of Electricity and Solar in 2025 are corrected by JICA Survey Team.

2) Promotion for energy source

(a) Small hydropower

Small hydropower provides least-cost power supply to remote areas which currently rely on imported electricity. Local small hydropower plants will also help improve the reliability of the country's power system and reduce transmission and distribution line losses.

To promote the development of small hydropower resources, the GoL will implement following measures.

- Carry out resource assessment and prepare small hydropower development plan.
- Introduce procedures for solicited (identified by GoL) and unsolicited (identified by private company) small hydropower IPPs.
- Introduce simplified small hydropower development framework.
- Ensure grid access and promote third party sale of power.
- Introduce legal framework for setting off-take tariff
- Establish framework and program to provide financing and guarantees to small hydropower projects.

(b) Solar power

The GoL promotes the development of solar energies as follows:

- GoL provides lighting services through the installation of SHSs in rural and remote areas. For the period 2010-2020, the Government under the Rural Electrification Master Plan (REMP) aims to upscale the program covering additional 19,000 households.

- Support the development of the solar energy business in the country for the installation of large-scale grid connected solar energy systems and hybrid systems and for the provision of energy services in off-grid areas
- Promote the use of solar energy in water and space heating for households and commercial installations
- GoL encourages the development of grid connected solar PV systems and solar PV hybrid systems, such as the integration with small hydropower and wind power, to sustain supply of electricity during the dry season.

(c) Biofuels

Bio-energy provides an alternative fuel supply for the transportation sector and in the supply of energy to rural communities. The country imported 560 million liters of fossil fuels in 2010, a significant increase 5 percent a year. To reduce the importation of fossil fuels and optimize the use of marginal lands, the GoL will encourage and actively promote development of fuel crops in the country.

The tentative vision for the promotion and development of biofuels are the following:

- Substitute 10% of the transportation fuel demand by 2025
- Increase deployment of biofuels technologies in rural areas

In meeting this target, the GoL will carry out the several measure such as “Issue Biofuel Decree”, “Biofuel Action Plan (biodiesel and bioethanol)” etc., at national level.

(d) Biogas

Lao PDR imports liquefied petroleum gas (LPG) for domestic and industrial utilization. LPG imports could be potentially reduced through the development of household and industrial scale biogas systems in the country. Significant potential exists in Lao PDR for biogas production from animal and livestock wastes, agro-industrial wastes, municipal solid wastes and waste water treatment plants.

A number of demonstration projects have been initiated and funded by several donor organizations for the development of household and community scale biogas systems using animal and livestock wastes. The GoL aims to sustain these initiatives by up scaling and increasing the number of households using biogas by 50,000 in 2025 to reduce the importation of LPG, the use of firewood and charcoal, and the use of electricity for heating. The GoL also promotes the development of large-scale biogas production for lighting, heating and electricity generation using several feedstock such as agro-industrial wastes, municipal solid wastes, waste water treatments, and others.

(e) Other biomass energy

Lao PDR generates substantial amount of wastes from agriculture and forest production and processing such as sugarcane bagasse, rice husks, corn cobs, wood wastes, etc. Also, with growing urbanization, main cities are also generating significant amount of solid wastes. At present, there is no large-scale exploitation of these resources for energy generation. In addition, community forests could also be sustainably developed to supply fuel for energy generation. These resources could potentially generate power for productive

uses and other modern energy services in both urban and rural areas, either for off-grid or grid connected systems.

(f) Wind energy

Based on the existing data, Wind energy can be potentially developed for large-scale grid-connected power generation and for hybrid systems providing energy services to rural and remote villages. The GoL aims to develop around 50 MW of wind power by 2025. To promote the development of wind energy in the country, the GoL will undertake the measure such as identifying potential sites for grid-connected and off-grid hybrid systems, etc.

(3) Investment in renewable energy sector

1) Investment cost for RE sector

The GoL estimates the investment cost for RE sector as shown in Table A-2. The investments in 2025 is projected to reach around USD 1,897 million , of which USD 17 million is from the public sector, USD 36 million from domestic and USD 1746 million from foreign investors.

(Note) These figures cannot be read from the Table A3.1-2.

Table A3.1-2 Investment in renewable energy sector

Item	Phase Description	2015		2020		2025	
		MW	MUSD	MW	MUSD	MW	MUSD
1	Electricity	140	477	243	1041	666	1754
1.1	Small Hydropower	80	288	134	629	400	1010
1.2	Solar	22	41	36	90	48	144
1.3	Biomass	13	24	24	52	58	72
1.4	Biogas	10	21	19	45	51	192
1.5	Municipal solid waste	9	48	17	105	36	168
1.6	Wind	6	55	12	120	73	168
2	Biofuels production	ML	MUSD	ML	MUSD	ML	MUSD
2.1	Ethanol	2	5	41	33	79	63
2.2	Biodiesel	2	9	50	33	79	63
C	Research & Development		5		10		17
Total			496		1117		1897
Public investment			5		10		17
Public Enterprise Investment			10		22		36
Private Investment			481		1085		1844

Note1: MUSD: Million US dollars

Note2: Research and Development; Ministry of Science and Technology

Note3: Public investment: by GoL. Public Enterprise Investment: by EdL

2) Participation of the private sector

The private sector is permitted to invest in the following projects:

- Small power production (SPPs) projects with non-firm contract (the project is paid only for energy production);
- Grid connected renewable energy project with non-firm contract (for own use and sale to EdL for surplus production);

- Grid connected renewable energy project with firm contract (project is paid for capacity provision and energy production);
- Off-grid projects;
- Activities in bio-energy, biogas or biofuel production such as fuel crops plantation, construction of processing plant and biofuel production and blending.

3) Financial incentives

Financial related barriers to RE development in Lao PDR are high upfront investment requirement and lack of available fund for RE projects. The GoL will provide financial incentives and financing assistance to RE projects and investors.

(a) Financial Incentives

Investments in RE projects in Lao PDR, whether on biofuels production, grid-connected or isolated systems, off-grid projects, and individual systems, are entitled to investment incentives under the Investment Law of Lao PDR, update in 2009. The financial incentives include the following:

- Import duty free on production machinery, equipment and raw materials;
- Import duty free on chemical materials necessary for biofuels production within 7 years;
- Profit tax is divided into 3 categories: 20%, 15% and 10%. Profit tax exemption is possible for a certain period depending on activities, investment areas and size investment;
- Subsidies on unit product price depending on energy type and times period.

Additionally, the investors can obtain also non-fiscal incentives, such as:

- Up to 75 years leasing term (for enterprise construction land);
- Permission to expatriate earnings to home or third countries;
- Right to employ foreign workforce (not more that 10% of the enterprise's total labors).

(b) Financial mechanism

The GoL will provide support by seeking assistance from international organizations, commercial banks and low interest loans sources for funding RE projects; to encourage private commercial banks in understanding and interests to investment into RE projects. Besides, the government shall issue the investment guidelines and development roadmaps to attract internal and foreign investments in REs.

4) Renewable Energy Fund

To harmonize the support to REs in Lao PDR, the GoL will establish a Renewable Energy (REN) Fund as sub-account to the existing Rural Electrification (RE) Fund. The Fund will be used for the following:

- Financial assistance for the development of renewable energy and biofuel industry and market in Lao PDR;
- Finance barrier removal activities such as resource assessment; research, development, and demonstration activities; project preparatory studies, etc;
- Fund capacity building activities, promotional activities, dissemination of knowledge on effective RE use, etc.

The Fund will be sourced from the following:

- Government budget;
- International organizations and donor countries, international financial organizations and NGOs;
- Financial contribution or investment from social organizations and from domestic and foreign investors.

Though the REN Fund is a sub-account of the RE Fund, the GoL ensures that there is a clear separation between the two accounts. The existing management of the RE Fund will also manage the REN Fund whose functions are the following:

- account, control and disburse funds;
- monitor loans and grants

The Government will establish a Steering Committee who will be responsible for making decisions on the use of funds with MEM acting its Secretariat. Each Province will be represented in the Steering Committee to ensure development of RE markets in the provinces.

5) Carbon Financing

The Government recognizes carbon financing as one of the measures to improve RE project profitability in Lao PDR. The emissions reductions that could be generated by these projects could be traded in the global carbon markets.

Lao PDR satisfied the participation requirements for CDM. The GoL ratified the Kyoto Protocol in 2004, appointed Water Resources and Environmental Administration (WREA) to be the Designated National Authority, developed sustainable development criteria, and established the approval processes for CDM projects. With recent progress in CDM, the Government ensures that small-scale projects such as solar homes systems, pico hydropower, biogas, improved cook stoves, solar water heaters, etc will be developed under the CDM Program of Activities or programmatic CDM.

(4) Renewable Energy Road Maps

In constructing the renewable energy road maps, timelines and milestones were defined for the proposed policy, legal, financial, market and organizational interventions for each RE type to meet the national target and specific RE targets for 2025. The detail is omitted to describe in this report.

(5) Investment and potential benefit from the development of renewable energies

As shown in Table A3.1-3, the REDS explains the potential benefit of REs such as Economic (reduction of fossil fuel imports, promotion of private sector investments, etc.), Social (additional job opportunities in rural areas resulting in less migration into cities, increase in income from fuel crop cultivation), Environment (reduced emissions of environmental pollutants, reduce emission of greenhouse gases).

Table A3.1-3 Investment and potential benefit from the development of renewable energies

Item	Description	Short term 2010-15	Middle Term 2015-20	Long Term 2020-25	Total
I	Total Investment (MUSD)	496	1117	1897	3510
1.1	Public	5	10	17	32
1.2	Public Enterprise	10	22	36	68
1.3	Private	481	1085	1844	3410
II	Financial benefits				
2.1	Reduction of fossil fuel imports (ktoe)	61	105	199	365
2.2	Reduction of fossil fuel purchase (MUSD)	42	72	137	251
III	Reduction of public investments on power sector				
3.1	Reduction in public expenditure (million dollars)	219.3	478	770	1468
IV	Reduction of GHG				
4.1	Million Tons	5	31	73	109
4.3	Value (Million dollars)	19	125	291	436

3.2 Assistance from other countries and donors

Concerning the RE development for last five years, following assistances were carried out.

(1) International institution's support

(a) World Bank

- Rural Electrification Program Phase 1 (REP 1), 2006-2010 (WB, AUSIAD)

- Rural Electrification Program Phase 2 (REP2), 2010-2014 (WB, AUSIAD)

(Note) In REP1, 15,000 SHSs were installed for HHs.

(Note) In REP2, additional 15,000SHSs are to be installed. REP2 also includes solar (PV) for mini grid project. Biomass Gasification for mini grid.

(b) ADB

- Rural electrification in northern area was completed last year by installing 4,000km transmission line and distribution line. Number of houses electrified was 33,000.

- GMS Northern Power project targeting 4 provinces is on going and 18000house holds will be electrified.

- Small hydropower

(Note) First batch our small hydro project sites of up to 5MW were selected for rural electrification as off-grid power.

(2) Japan

(a) JICA

- The master plan study on small-hydro in northern Laos, 2004-2005

- Project for Introduction of Clean Energy by Solar Electricity Generation System, 2009-2011

(b) NEDO

- Demonstration Research Project to Stabilize output of Hybrid Photovoltaic Power Generation System (PV+ pumped storage hydropower), 2003-2005

- Demonstration Research Project to Stabilize output of Hybrid Photovoltaic Power Generation System (PV+ micro hydropower + capacitor), 2007-2010

(3) Other countries

(a) Finland

- Energy and Environment Partnership on Mekong

- Renewable Energy Development Strategy, 2010

- REDS matters, 2011-2020

(b) Norway (Norad)

- Grant aid, 2011~2014

(c) Australia (Ausaid)

- Hydropower project (Hoaphan province 60kW), REP 2

3.3 Energy Crops

(1) jatropha

Jatropha is feedstock of biodiesel. According to the Report¹, jatropha is classified as a small, perennial, drought-resistant bush. In terms of fruit yield, plants reach maturity after 3 years and can continue to bear fruit for 50 years. In the Lao PDR, jatropha can flower twice a year, with harvesting from June to December. Fruit development is heterogeneous and harvesting must be done manually. As such labour requirement is high (60-100 man days/ha/year), and may compete with rice cultivation especially upland rice. Considering expected conditions in the Lao PDR, a conservative estimate of 2 to 4 t/ha appears reasonable for forecasting purposes. Oil content ranges from 28 to 42 %, of which 70 % to >90 % can be extracted from small or large - scale processes respectively. Combining these figures, production in the Lao PDR could achieve 600 to 900 l/ha (density: 0.92 kg/l).

According to the Report², There are drawbacks jatropha seeds contain curcin, a poisonous substance that could endanger people who harvest the seeds, and children that may play with them. jatropha oil cannot be used for human or animal consumption and the plant is toxic to livestock. Harvesting of jatropha is labor intensive because the seed do not mature at the same time. jatropha plantations are mostly run by contract farming (99 %), so jatropha will be cultivated on existing agricultural land. Rice is the national staple food and its mean yield has to increase by 35% by 2020 to achieve national rice sufficiency. As such the calculations assume that jatropha land cannot compete with lowland rice.

(2) Vernicia Montana

Vernicia Montana (English name) is feedstock of biodiesel and it is also called Stone Jatropha. It is also called Mak Kao (by Sam Neua people), Mak Nam Man, Mak Yao Hin. or Tung Oil tree in Lao PDR. It is a tree that grows fast and big: Circumference of 50-70 centimeters, 12-15 meter height, life time up to 100 years, grows on upper land hills from 300-1300 meter elevation. □ The Kao oil tree can be found mostly in the provinces of Houaphanh, Phongsaly, Luangprabang, Borikhamxay, and uplands of Lao-Vietnamese borders. The tree nuts fall down in the cold season.

It prefers acidic soil, and requires temperature between 14.5 - 22.1 °C (35.5°C max). It is well adapted to subtropical regions and high elevations with moderate rainfall (870 - 2020 mm/year). Its requirements fit mainly to Northern middle and Lowland agro - ecosystem where it grows already. Cultivation is labor intensive in the first 2 - 3 years for weed control and plantation maintenance. The expected yield at maturity is 2 t/ha. Seed oil content varies around 35 to 40%. Stone Jatropha can produce 750 l/ha of biodiesel. Following information was obtained from Ministry of Science and Technology by interview.

¹ Biofuel Assessment Study in Lao PDR, Interim Report: Lao Institute for Renewable Energy (LIRE), for Department of Electricity, November 2009

² Status and Potential for the Development of BIOFUEL and Rural Renewable Energy, The Lao People's Democratic Republic, ADB

- Since the Vernicia Montana tree is suitable for planting in a steep slope of mountainous area where slash-and-burn farming method is mostly adopted, the Montana tree does not compete against rice field.
- Upland rice can be being planted for about 1 to 3 years after planting of Montana tree,
- Nuts of Montana tree can be harvested after 4 or 5 years of the planting, farmers who uses slash-and-burn farming can make a living.

(3) Camelina

Camelina is a fast growing, annual plant which produces nutritious oil for human consumption. One of the key advantages of this plant is its short vegetative period; the harvest of the oil seeds can be conducted after only 90 days of planting. Therefore this plant could be cultivated during the dry season on rice fields.

It is resistant to most parasites that affect the family of Brassicacea. Camelina is drought-resistant but needs more water during the end of its life cycle. For planting 1 ha of camellia, only 8 kg of seed material are necessary. The seed yield is 1.1 to 1.2 tons per ha and with an oil content of 29% to 39%, which gives an oil exploitation of 0.3 tons to 0.5 tons per ha.

(4) Oil Palm

Oil Palm is perennial tree suited to high temperature (20 - 35°C), high rainfall (1500 - 3000 mm/yr) regions, with deep and well - drained soil (> 1.5 m), and high nutrient content. Moreover, for optimal development, a certain concentration of salt in the air is needed.

Therefore, the cultivation in Lao PDR would to be limited to the Bolaven Plateau and Vientiane Plain.



Jatropa (Source: Ecocrop)



Vernicia Montana (Stone Jatropa)



Camelina (Source: Wikipedia)



Palm Oil (Source: Ecocrop)



Sweet Sorghum

3.4 Biofuel Assessment Study in Lao PDR

The Report³ describes the following study result.

Note that the evaluation was designed to identify the most feasible crops likely to be developed in the next 10 years, rather than selecting the most favorable crops in terms of NGPES goals (socio economic and environmental impact). The results of this evaluation are present in table below where for each parameter a rating of good (G), moderate (M), or poor (P), or in some cases, not available N/A.

According to this assessment, one oil, one sugar and one starch crop were identified as ‘good’ potential: jatropha curcas, sugarcane and cassava respectively have been identified as the most promising feedstock crops to be used considered for biofuel development in the next 10 years. Insufficient locally relevant data were available to evaluate stone jatropha and camelina, however anecdotal evidence suggests that stone jatropha is considered more favorably than jatropha curcas by people local to some northern areas, and this should be further explored. Similarly, research into other alternative feedstock should be encouraged, for the benefit of a longer - term biofuel industry.

Table A3.4-1 Biofuel Assessment Study in Lao PDR

Feedstock	Crop demand ¹³	Suitable area	Land use and biodiversity ¹⁴	Energy balance and GHG ¹⁴	Labour force	Employment generation ¹⁵	Biofuel Yield ¹⁶	Yield improvement potential	Investment ¹⁷	Biofuel price ¹⁸	Overall National Potential
Oil crops reviewed for biofuel production											
Jatropha	G	G	M	G	G	G	M	G	M	G	G
Castor oil	G	M	M	N/A	M	G	P	G	G	P	M
Soybean	M	G	P	N/A	G	P	P	G	M	P	P
Palm oil	P	P	P	G	M	M	G	M	P	M	P
Coconut oil	G	G	M	G	M	G	G	M	P	M	M
Sunflower	M	M	P	N/A	M	G	P	G	M	M	M
Stone Jatropha	G	M	G	N/A	M	M	M	N/A	P	N/A	N/A
Camelina	G	G	M	N/A	P	G	P	N/A	G	N/A	N/A
Sugar and Starch crops reviewed for bioethanol production											
Sugarcane	P	G	P	G	G	M	G	G	M	P	G
Cassava	M	G	M	G	G	M	G	M	G	G	G
Corn	P	M	P	M	G	P	G	M	M	G	P
Sweet Sorghum	M	M	M	G	M	M	M	G	G	G	M
Sugar beet	P	M	M	M	P	P	G	M	M	M	P
Rice	P	G	P	P	G	M	G	M	M	G	P

Source: Lao Institute for Renewable Energy (LIRE)

³ Biofuel Assessment Study in Lao PDR, Interim Report: Lao Institute for Renewable Energy (LIRE), for Department of Electricity, November 2009

3.5 Private Sector Biofuel Actors

Table A3.5-1 Name of Private companies

	Companies	Province	Feedstock	Scale	Objective
1	KOLAO farm and Bio-Energy Co., Ltd	Several	Jatropha	Large	Biodiesel
2	LFS Lao Fuel Company	Vientane	Jatropha	Trial	Research
3	Mekong Agro-Industry Co., Ltd	Several	Jatropha	Large	Biodiesel
4	Bio-Energy Lao Co., Ltd	Vientane	Animal fat	Medium	Biodiesel
5	Italian-Lao Group Co., Ltd	Borikhamaxay Champasack	Cassava	Medium	Biodiesel
6	Xayasomboun Agriculture Development Co., Ltd	Vientane	Jatropha	Medium	Biodiesel
7	Y&P Company	Xayaboury Xienghuang	Jatropha	Medium	Biodiesel
8	Lao Agro-tech Co., Ltd	Vientane	Jatropha	Medium	Biodiesel
9	Agricultural Products Promotion Co., Ltd (APPC)	Xienghuang Luang Prabang	Jatropha	Large	Oil
10	Lao Agricultural Promotion Co., Ltd	Mekong Agro-Industry Partner			
11	Vienghoukha Coal Mine Co., Ltd	LuangNamtha	Jatropha	Medium	Biodiesel
12	Phetdalah Agricultural Company	Saravane	Jatropha	Medium	Oil
13	Lao Techno Engineering Co., Ltd	Partner of Tree Plantation and Livestock Promotion Association			
14	Lao Indochina Tapioca Factory Co., Ltd	Vientiane	Cassava	Medium	fodder
15	MITR Lao Sugar Co., LTD	Savanakhet	Sugarcane	Medium	Sugar
16	Savanakhet Sugar Cooperation	Savanakhet	Sugarcane	Medium	Uncertain (Bioethanol)
17	Luangprabang Teak Tree Import-Export Co, Ltd	Luangprabang	Vernicia Montana	Medium	Biodiesel

Source: LIRE

Note: No17 (Luangprabang Teak Tree Import-Export Co, Ltd) is added by JICA Study Team

3.6 Information on Renewable Energy Development of Thailand 2012/5

(Information by interview to official of GoT, May 28,2012)

(1) Target of renewable energy (electricity + bio fuel) development

- Ratio of renewable energy (RE) to total energy in 2021 : 25% (Target)
Ratio in 2011: 12%
- Power plant less than 1MW is categorized into “power plant for local community base” owned by the community. The Government guarantees the financing for the communities.
- Target is as follows.

Electricity

Solar 2000MW, Wind 1200MW; 100ktoe

Biomass 3630MW, Biogas 600MW, Municipal Solid Waste 160MW; 9235ktoe

Fuel

Ethanol 9Ml/day, Biodiesel 6Ml/day, Ethanol Diesel (*) 25Ml/day

(*)Light Diesel: Swedish technology: Ethanol 95%+fossil 5%

(2) Adder and Feed in Tariff

- Thai government (GoT) schedules to change the system of Adder to Feed in Tariff (FIT).
- New projects are not accepted in case getting approval from GoT yet.
- GoT takes a method to collect RE cost as electricity tariff and to pass through it to RE development, regardless of Adder or FIT.
- Government makes policy, and EGAT, MEA and PEA have authority to give permission to investors and buy electricity from them.

(3) Development target and constraints of each RE

Small hydropower :

- Definition of Small hydropower : 10MW
- Target: 1600MW(95MW at present)
- Development is utilizing existing public facility, so developer is governmental organization.

Wind

- Turgent: 1200MW(7MW at present)
- Private companies are developing 1153MW , however followings are problem to develop.
Wind potential exists in mostly mountain area.
As the area belongs to National park, agreement between Ministry of Forestry and developer are necessary to make a development plan , and also the sites are far from transmission lines.
- Potential study was conducted by the Government. Investors have to conduct investigation of wind condition by themselves.

Solar (PV)

- Target 2000MW(79MW at present)

- Tariff of Adder is 8B/kWh for Phase 1, 6.5B/kWh for phase 2 and the period is 10years.
- As FIT adopts 20 year period, the tariff is lower level than 8B/kWh and 6.5B/kWh. Private investors prefer Adder to FIT because payout time of Adder is shorter than that of FIT.
- Construction cost of PV was 180MB/MW (5.7M\$) ,but is now 60MB (1.9M\$) . This is because PV panel faces price collapse. Chinese firm, Suntec which has maximum share, is active in Thailand. PV of Suntec is is monocrystal silicon. Feedstock of silicon accounts for 90% of PV production cost. Suntec's silicon is made in China, so reducing the cost has been realized. First Solar of US also can supply low cost panel, but it is not sold in Thailand because it uses cadmium.

Biomass

- Target: 3600 MW (1790MW at present)
- As stable fuel procurement is big issues, it might have to use coal or lignite as fuel in the future.

Biogas

- Target: 600 MW (160MW at present)
- Waste materials of tapioca, palm oil are used in these factories.

Municipal Solid Waste

- Target: 160 MW (25MW at present)

Bio Ethanol

- Target; 9Ml/day (1.2Ml/day at present)
- E10, E20, E85

(4) Issues for RE development

Followings are big issue for RE development.

- Biomass: Stable fuel supply
- Wind: Political solution is required for development in national park.
- Solar(PV) : Although it is a power source of the community base, solar(PV) needs a certain wide area to install. In case rice field and arable land are used, mega solar system is not possible to develop. GoT considers to develop 1MW plant for 1 village.
- Solar(PV) : As adder' tariff is collected by tacking on it for ordinary tariff, customers complains for the system.
- As community base project has a problem of bank loan, government guarantees for the loan. At present 20MWhas been developed by private investors.

3.7 Electric power generation technology from mixed combustion of jatropha oil and biogas from gasification of agricultural residues

NEDO and the Kingdom of Cambodia carried out a power generation experiment using Jatropha oil for diesel engine. A pilot experiment apparatus with a generator output of 40kW and a dummy load of 20kW was equipped with a biomass gasification unit. jatropha oil and biogas, derived by gasification of mixed briquettes of jatropha oil residues and rice husks, were mixed and fired. Scope of examination covered operation and combustion characteristics, and compatibility with the environment. A long-term experiment confirmed stable and environmentally compatible biomass generation technology. The outlines of the experiment are summarized hereunder.

(a) Improvements on fuel oil production from jatropha seeds

A simple dephosphorization method was developed and its applicability demonstrated. In the method oil squeezed from seeds is directly dephosphorized without the need of primary filtering or other similar processes.

(b) Biogas production from Jatropha oil and other residues

The gasification apparatus can use briquettes which contain 70% to 90% of jatropha oil residues. Biogas from a briquette of the oil residues and husks with a mixture ratio of 8 to 2 and 4 to 6 yielded 4.53MJ/m³ of calories (LHV) and a comparable cool gas efficiency.

(c) Development of power generation technology with mixed firing of Jatropha oil and biogas

Mixed firing of jatropha oil and biogas in diesel engine power generation has shown that an increase in fuel injection pressure results in an improved combustion characteristics. There was no unexpected carbon buildup or damage to the engine components.

(d) Evaluation of long-term experiment

Gasification of briquettes with higher oil content could lead to an abnormal temperature rise in the reactor. This could lead to clinker buildup and cracks of the weld joints of components. In addition, periodic maintenance has been found necessary for long-term operation. Scope and frequencies of maintenance have been prepared to assure stable and long term operation.

(e) Understanding of toxic materials behavior in jatropha handling processes

Toxic phorbol ester has been found to exist only in jatropha oil production and briquettes processes. Exhaust gas from the diesel was free from ester and can be treated as a regular diesel exhaust gas. It should be noted that derivatives of jatropha, such as the seeds, seed oil, residues, and the plant itself, contain toxic materials. Workers who handle any of these toxic materials need adequate training and supervision.

3.8 Preliminary study on model project

(1) Mega solar (PV):

Average solar irradiation is 3.6-5.5 kWh/m²/day according to REDS report (section 2.6.3), the value of 5 kWh/m²/day is used in this study.

- Rated capacity 100 W (0.1 kW) is used for study.
- Plant factor: $5 \text{ (kWh/m}^2\text{/day)} \times 365 \text{ (day)} \times 0.1 = 183 \text{ kWh /m}^2$ (Overall efficiency of PV :10%)
Plant factor: $183 \text{ kWh} / (0.1 \text{ kW} \times 8760 \text{ hr}) \times 100 \doteq 21\%$
- Annual energy production: $E = 1000 \text{ kW} \times 8760 \times 0.21 = 1.84 \times 10^6 \text{ kWh}$
- Construction cost:
 - Solar PV cost(C): $C = 3 \text{ MUSD/MW}$ (predicted unit cost in 2015-2025)
(Including installation, power conditioner, connecting line to grid, others)
- Operation and maintenance cost (O&M cost)
 - O&M ratio: 1% per annum is assumed.
 - O&M cost = $3 \text{ MUSD} \times 0.01 = 0.03 \text{ MUSD/year}$
- Levelized unit cost:
 - Service life: 20 years
 - Discount rate: 10% per annum is assumed.
 - Capital recovery factor: 0.12 for the service life and discount rate
 - O&M factor (α): $\alpha = (\text{Capital recovery factor}) + (\text{O\&M ratio}) = 0.12 + 0.01 = 0.13$
 - Levelized unit cost: $C/E \times \alpha = (3 \times 10^6) / (1.84 \times 10^6) \times 0.13 = \underline{0.21 \text{ USD/kWh}}$
- Assumed price level accepted by EdL: 0.07 USD/ kWh
- Economic of the project
 - Levelized unit cost 0.21 USD/kWh should be lowered to the assumed price level 0.07 USD/kWh by appropriate measure.

(2) Wind power project:

- Name: Lakan wind power project
- Installed capacity
 - Unit capacity is assumed to be 600kW.
 - Installed capacity $0.6 \times 2 \text{ unit} = 1.2 \text{ MW}$
- Average wind speed:
 - Value of 5.8 m/s (REDS information) is used in this study.
- Plant factor: Pf=20% is adopted for the average wind speed
 - Annual energy production: $E = 1200 \text{ kW} \times 8760 \times 0.2 = 2.1 \times 10^6 \text{ kWh}$
- Construction cost(C):
 - Wind power plant: $C = 2.0 \text{ MUSD}$ (including installation, power conditioner, connecting line to grid, others) for 600 kW unit (1700us\$/kW)
 - Land acquisition is ignored because of mountainous area
- Operation and maintenance cost (O&M cost)
 - O&M ratio: 2% per annum is assumed.

O&M cost = 2MUSD×0.01=0.02MUSD/year

- Levelized unit cost:

Service life: 15 years

Discount rate: 10% per annum is assumed.

Capital recovery factor: 0.13 for the service life and discount rate

O&M factor (α): $\alpha = (\text{Capital recovery factor}) + (\text{O\&M ratio}) = 0.13 + 0.02 = 0.15$

Levelized unit cost: $C/E \times \alpha = (2 \times 10^6 \text{USD}) / (2.1 \times 10^6 \text{kWh}) \times 0.15 = \underline{0.14 \text{ USD/kWh}}$

- Assumed price level accepted by EDL: 0.07USD/ kWh

- Economic of the project

Levelized unit cost 0.14USD/kWh should be lowered to the assumed price level

0.07USD/ kWh by appropriate measure.

(3) Biofuel production

Biodiesel model project using Kao oil tree (Vernicia Montana /stone jatropha) is roughly studied .

Project condition is as follows.

- Name: Kao oil tree Project

- Biodiesel (B10) production per year: 30,000 ton/year ($37.2 \times 10^6 \text{ l}$)

Biofuel 3,000 ton ($3.38 \times 10^6 \text{ l}$)

Diesel 27,000 ton ($33.8 \times 10^6 \text{ l}$)

- Location: Luang pravang Province

- Local condition:

Land acquisition is unnecessary because the land is owned by farmers and nuts of Kao oil tree are collected by farmers.

- Plantation of Kao oil trees

Plantation area: about 4500 ha (oil production ; 750l/ha)

Production of feedstock (Montana): $14.2 \times 10^6 \text{kg/year}$

- Business model

Collection method of Montana nuts; the company purchases all Kao oil nuts from the farmers based on market prices

The company builds a plant to press nuts and produce feedstock

B100 of 3,000 ton is produced by adding methanol to crude oil.

B10 of 30,000 ton is produced by mixing B100 with diesel oil

- Project schedule and period of analysis

Preparation of plantation: 3 years

Period of analysis: 15 years from start of business operation

Yieldability: small yieldability at the beginning of plantation is ignored.

- Annual Cost

Production cost of B100

Preparation period of plantation: $45 \times 10^9 \text{kip}$ for planting of 3years

Amortization : $45 \times 0.13 = 5.9 \times 10^9$ kip (discount rate:10%)

Maintenance cost of plantation: 0.6×10^9 kip

Production cost of B100: 34.1×10^9 kip (feedstock14.3, methanol 11.9, others7.9)

Production cost of B100 : 40.6×10^9 kip (5.9+0.6+34.1=40.6)

Total Production cost of B10

Purchase of diesel oil: $33.8 \times 10^6 \times 7137$ kip/l= 241×10^6 kip

Total production cost of : $40.6 + 241 = 282 \times 10^9$ kip (35MUSD)

(Note): Unit purchase price of diesel oil: 7137 kip/l

Unit selling price of diesel oil: 7137 – 9650 kip/l

(Note): Conversion rate; 1US\$=8000 Kip.)

- Annual Revenue

In case diesel oil price is 9650kip/l: $37.2 \times 10^6 \times 9650$ kip/l= 359×10^9 kip (45MUSD)

In case diesel oil price is 7137kip/l: $37.2 \times 10^6 \times 7137$ kip/l= 265×10^9 kip (33MUSD)

- Evaluation of the project

Compared with annual cost 282×10^9 kip (35MUSD) and annual revenue from 265 to 359×10^9 kip (33 - 45MUSD), the benefit of the project depends on B10 price which is affected by diesel oil price.

As additional benefit selling by-product such as electricity, fertilizer, activated carbon is not considered in this study, the benefit could affect the project more beneficial and make the project viable.

4. Investment Plan

4.1 Cost and Benefit Analysis Result

Coal Thermal Power Plant

Cost and Benefit Analysis : Coal Thermal Power Plant

● Currency	USD
● Plant Factor	75.0%
● Electricity production	3,942,000,000 kWh/year
● Electricity Tariff	7.9 US¢/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	1,200,000,000 USD
● Capacity	600 MW
● Construction Cost per kW	2,000 USD/kW
● Operation & Maintenance Cost (%/year)	5.0% of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0% Annual Rate
● Financial Cost (%/year)	12.0% Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation Tax (%/year)	10.0%
● Discount Rate (%/year)	10.0%
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]		←-Construction		Commissioning-->															
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Cost	Details	Unit Price (USD)	Quantity															Amount USD	
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost	60,000,000															900,000,000	
[Financial Cost]		←-Construction		Commissioning-->															
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Financial Cost	Principal	Repayment (10 years)	Balance																
Bank Loan	1,200,000,000.0	##### (June/Every year)	Loan Balance	1,080,000,000	960,000,000	840,000,000	720,000,000	600,000,000	480,000,000	360,000,000	240,000,000	120,000,000	0						
			Average Balance in a year	1,140,000,000	1,050,000,000	945,000,000	832,500,000	716,250,000	598,125,000	479,062,500	359,531,250	239,765,625	119,882,813						
[Income Statement]		←-Construction		Commissioning-->															
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Income	Electricity	CER (15 years)	Others	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	275,940,000	4,139,100,000	
				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)	Others	Financial Cost (5%/year)	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	900,000,000	
				80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	1,200,000,000	
Profit before Tax				136,800,000	126,000,000	113,400,000	99,900,000	85,950,000	71,775,000	57,487,500	43,143,750	28,771,875	14,385,938	0	0	0	0	777,614,063	
				(860,000)	9,940,000	22,540,000	36,040,000	49,990,000	64,165,000	78,452,500	92,736,250	107,168,125	121,554,063	135,940,000	135,940,000	135,940,000	135,940,000	1,261,485,938	
▲ Income Tax (Profit before Tax x Tax rate 10%)				0	994,000	2,254,000	3,604,000	4,999,000	6,416,500	7,845,250	9,279,625	10,716,813	12,155,406	13,594,000	13,594,000	13,594,000	13,594,000	126,234,594	
Profit After Tax				(860,000)	8,946,000	20,286,000	32,436,000	44,991,000	57,748,500	70,607,250	83,516,625	96,451,313	109,398,656	122,346,000	122,346,000	122,346,000	122,346,000	1,135,251,344	
				80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	1,200,000,000	
Initial Investment Cost				1,200,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free Cash Flow				(1,200,000,000)	79,140,000	88,946,000	100,286,000	112,436,000	124,991,000	137,748,500	150,607,250	163,516,625	176,451,313	189,398,656	202,346,000	202,346,000	202,346,000	2,335,251,344	
[Cash Flow]			(860,000)	8,946,000	20,286,000	32,436,000	44,991,000	57,748,500	70,607,250	83,516,625	96,451,313	109,398,656	122,346,000	122,346,000	122,346,000	122,346,000	122,346,000	1,135,251,344	
Profit After Tax				80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	80,000,000	1,200,000,000	
Depreciation				1,200,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Investment Cost				1,200,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free Cash Flow				(1,200,000,000)	79,140,000	88,946,000	100,286,000	112,436,000	124,991,000	137,748,500	150,607,250	163,516,625	176,451,313	189,398,656	202,346,000	202,346,000	202,346,000	2,335,251,344	
[Payback Time]		7.7 Years																	
Initial Cost / Profit		7.7 Years																	
[Internal Rate of Return]		8.11%																	
IRR (15 years)		8.11%																	
[Net Present Value]		149,886,587.4																	
NPV (15 years)		149,886,587.4																	
Discount Rate	10.00%																		
Discount Factor		a	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計	
		b	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
		c = 1/b	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177		
		d = 1/b ⁿ	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239		
NPV	Free Cash Flow (FCF) _{Jt}	d	79,140,000	88,946,000	100,286,000	112,436,000	124,991,000	137,748,500	150,607,250	163,516,625	176,451,313	189,398,656	202,346,000	202,346,000	202,346,000	202,346,000	202,346,000	2,335,251,344	
	NPV=FCF/Factor	d/c	71,945,455	73,509,091	75,346,356	76,795,301	77,609,577	77,755,437	77,285,333	76,281,712	74,832,581	73,021,381	70,921,039	64,473,671	58,612,429	53,284,026	48,440,024	1,050,113,413	
	NPV Accumulation	A	1,050,113,412.6																
	Initial Investment Cost	B	1,200,000,000.0																
	NPV (15 years)	A-B	-149,886,587.4																

Source: JICA Study Team

Small Hydro Power plant: Baseline

Cost and Benefit Analysis : Small Hydro Power Plant

● Currency	USD
● Plant Factor	75.0 %
● Electricity production	65,700,000 kWh/year
● Electricity Tariff	7.0 US\$/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	25,000,000 USD
● Capacity	10 MW
● Construction Cost per kW	2,500 USD/kW
● Operation & Maintenance Cost (%/year)	1.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	12.0 % Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation Tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]				←-Construction Commissioning--→															
				Year in A.D. 2014															合計
				Business Year															
Cost	Details	Unit Price (USD)	Quantity	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost	Amount USD	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000

[Financial Cost]				←-Construction Commissioning--→															
				Year in A.D. 2014															合計
				Business Year															
Financial Cost	Principal	Repayment (10 years)	Balance	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
Bank Loan	25,000,000.0	##### (June/every year)	Loan Balance Average Balance in a year	22,500,000	20,000,000	17,500,000	15,000,000	12,500,000	10,000,000	7,500,000	5,000,000	2,500,000	0						2,497,559

[Income Statement]				←-Construction Commissioning--→															
				Year in A.D. 2014															合計
				Business Year															
Income	Electricity CER (15 years)	Others	Balance	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
	4,599,000	0.0	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	68,985,000
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)	Others	Balance	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000
	1,666,667	0.0	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000
	2,850,000	2,625,000	2,362,500	2,081,250	1,790,625	1,495,313	1,197,656	898,828	599,414	299,707	0	0	0	0	0	0	0	0	16,200,233
Profit before Tax				(167,667)	67,333	319,833	601,083	891,708	1,187,021	1,484,677	1,783,505	2,082,919	2,382,626	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	2,420,237
▲ Income Tax (Profit before Tax x Tax rate 10%)				0	5,733	31,983	60,108	89,171	118,702	148,468	178,351	208,292	238,263	268,233	268,233	268,233	268,233	268,233	2,420,237
Profit After Tax				(167,667)	61,600	287,850	540,975	802,538	1,068,319	1,336,209	1,605,155	1,874,627	2,144,364	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	21,614,470

[Cash Flow]				←-Construction Commissioning--→															
				Year in A.D. 2014															合計
				Business Year															
Profit After Tax	Depreciation	Initial Investment Cost	Free Cash Flow	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
(167,667)	1,666,667	25,000,000	(25,000,000)	1,499,000	1,718,267	1,954,517	2,207,642	2,469,204	2,734,985	3,002,876	3,271,821	3,541,294	3,811,030	4,080,767	4,080,767	4,080,767	4,080,767	4,080,767	46,614,470

[Payback Time]
Initial Cost / Profit 8.0 Years

[Internal Rate of Return]
IRR (15 years) 7.47%

[Net Present Value]				←-Construction Commissioning--→															
NPV (15 years)				-4,161,360.2															
Discount Rate				10.00 %															
Discount Factor	Discount Rate	a	b	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計
				Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Discount Factor (Reciprocal Factor)	c = a^-b	1/a^b	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	
	Free Cash Flow (FCF)=J54	d	d/c	1,499,000.0	1,718,266.7	1,954,516.7	2,207,641.7	2,469,204.2	2,734,985.4	3,002,876.0	3,271,821.4	3,541,294.0	3,811,030.3	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	46,614,469.7
	NPV=FCF/Factor	d/c	d/c	1,362,727.3	1,420,055.1	1,468,457.3	1,507,849.0	1,533,181.5	1,543,828.0	1,540,950.2	1,526,328.8	1,501,854.4	1,469,317.2	1,430,283.8	1,300,258.0	1,182,052.7	1,074,593.4	976,903.1	20,838,639.8
	NPV Accumulation	A	B	1,362,727.3	2,782,782.4	4,251,239.7	5,759,088.6	7,292,270.2	8,836,098.1	10,377,048.3	11,903,377.1	13,405,231.5	14,874,548.7	16,304,832.5	17,605,090.5	18,787,143.3	19,861,736.7	20,838,639.8	
	NPV Accumulation	A	B	20,838,639.8	25,000,000.0														
	NPV (15 years)	A-B																	-4,161,360.2

Source: JICA Study Team

Cost and Benefit Analysis : Mega Solar Power Plant

● Currency	USD
● Plant Factor	20.0 %
● Electricity production	1,752,000 kWh/year
● Electricity Tariff	7.0 US¢/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	2,500,000 USD
● Capacity	1 MW
● Construction Cost per kW	2,500 USD/kW
● Operation & Maintenance Cost(%/year)	1.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	12.0 % Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]		<--Construction		Commissioning-->																
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Cost	Details	Unit Price (USD)	Quantity	Amount USD																
Operation & Maintenance Cost	Labor & Maintenance	(1.0% of Initial Investment Cost)	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	375,000

[Financial Cost]		<--Construction		Commissioning-->															
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Financial Cost	Principal	Repayment (10 years)	Balance	Amount USD															
Bank Loan	2,500,000.0	250,000.0 (June/every year)	Loan Balance	2,250,000	2,000,000	1,750,000	1,500,000	1,250,000	1,000,000	750,000	500,000	250,000	0						
			Average Balance in a year	2,375,000	2,187,500	1,968,750	1,734,375	1,492,188	1,246,094	998,047	749,023	499,512	249,756						

[Income Statement]		<--Construction		Commissioning-->																
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Income	Electricity	CER (15 years)	Others	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	1,839,600	
				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)	Depreciation(15years)	Financial Cost (5%/year)	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	375,000
				166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	2,500,000
				285,000	262,500	236,250	208,125	179,063	149,531	119,766	89,883	59,941	29,971	0	0	0	0	0	0	1,620,029
Profit before Tax				(354,027)	(331,527)	(305,277)	(277,152)	(248,089)	(218,558)	(188,792)	(158,909)	(128,968)	(98,997)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(2,655,429)
▲ Income Tax (Profit before Tax x Tax rate 10%)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit After Tax				(354,027)	(331,527)	(305,277)	(277,152)	(248,089)	(218,558)	(188,792)	(158,909)	(128,968)	(98,997)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(2,655,429)

[Cash Flow]		<--Construction		Commissioning-->																
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Profit After Tax				(354,027)	(331,527)	(305,277)	(277,152)	(248,089)	(218,558)	(188,792)	(158,909)	(128,968)	(98,997)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(69,027)	(2,655,429)
Depreciation				166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	166,667	2,500,000
Initial Investment Cost				2,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Free Cash Flow				(2,500,000)	(167,860)	(164,860)	(138,610)	(110,485)	(81,423)	(51,891)	(22,126)	7,757	37,699	67,669	97,640	97,640	97,640	97,640	97,640	(155,429)

[Payback Time] Initial Cost / Profit 241.3 Years

[Internal Rate of Return] IRR (15 years) 10.00 %

[Net Present Value] NPV (15 years) -2,888,981.7

[Net Present Value]		NPV (15 years)		-2,888,981.7																
		Discount Rate		10.00 %																
		Discount Factor		1.1																
		Years		a	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	合計
		Discount Factor		b	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		Discount Factor		c=a*b	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	
		(Reciprocal Factor)		1/a*b	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.238	
		Free Cash Flow (FCF)=J54		d	-187,360.0	-164,860.0	-138,610.0	-110,485.0	-81,422.5	-51,891.3	-22,126.6	7,757.2	37,698.6	67,669.3	97,640.0	97,640.0	97,640.0	97,640.0	97,640.0	-155,429.9
		NPV=FCF/Factor		d/c	-170,327.3	-196,247.9	-104,139.7	-75,462.7	-50,557.0	-29,291.3	-11,353.9	3,618.8	15,997.9	26,089.4	34,222.2	31,111.1	28,282.8	25,711.7	23,374.2	-388,981.7
		NPV Accumulation		e	-170,327.3	-366,575.2	-410,715.0	-488,177.7	-536,734.7	-566,023.9	-577,378.9	-573,761.1	-557,773.2	-531,693.7	-497,461.5	-458,350.4	-418,067.6	-372,355.9	-328,981.7	
		NPV Accumulation		A	-388,981.7															
		Initial Investment Cos		B	2,500,000.0															
		NPV(15years)		A-B	-2,888,981.7															

Source: JICA Study Team

Wind Power Plant: Baseline

Cost and Benefit Analysis : Wind Power Plant

● Currency	USD
● Plant Factor	20.0 %
● Electricity production	1,752,000 kWh/year
● Electricity tariff	7.0 US¢/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	1,500,000 USD
● Capacity	1 MW
● Construction Cost per kW	1,500 USD/kW
● Operation & Maintenance Cost (%/year)	2.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	12.0 % Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation Tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

【Operation & Maintenance Cost】		←-Construction		Commissioning→-															
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
		Business Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Cost	Details	Unit Price (USD)	Quantity	Amount USD															
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	450,000

【Financial Cost】		←-Construction		Commissioning→-															
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
		Business Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Financial Cost	Principal	Repayment (10 years)	Balance	Amount USD															
Bank Loan	1,500,000.0	150,000.0 (June/every year)	Loan Balance Average Balance in a year	1,350,000	1,200,000	1,050,000	900,000	750,000	600,000	450,000	300,000	150,000	0						
				1,425,000	1,312,500	1,181,250	1,040,625	895,313	747,656	598,828	449,414	299,707	149,854						

【Income Statement】		←-Construction		Commissioning→-															
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
		Business Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Income	Electricity CER (15 years)	Others		Amount USD															
				122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	122,640	1,839,600
				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)	Depreciation(15years)	Financial Cost (5%/year)	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	450,000
				100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,500,000
				171,000	157,500	141,750	124,875	107,438	89,719	71,859	53,930	35,965	17,982	0	0	0	0	0	972,018
Profit before Tax				(178,360)	(164,860)	(149,110)	(132,235)	(114,798)	(97,079)	(79,219)	(61,290)	(43,325)	(25,342)	(7,360)	(7,360)	(7,360)	(7,360)	(7,360)	
▲ Income Tax (Profit before Tax × Tax rate 10%)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit After Tax				(178,360)	(164,860)	(149,110)	(132,235)	(114,798)	(97,079)	(79,219)	(61,290)	(43,325)	(25,342)	(7,360)	(7,360)	(7,360)	(7,360)	(7,360)	(1,082,418)

【Cash Flow】		←-Construction		Commissioning→-															
		Year in A.D.		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
		Business Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Profit After Tax				(178,360)	(164,860)	(149,110)	(132,235)	(114,798)	(97,079)	(79,219)	(61,290)	(43,325)	(25,342)	(7,360)	(7,360)	(7,360)	(7,360)	(7,360)	(1,082,418)
Depreciation				100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,500,000
Initial Investment Cost				1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Free Cash Flow				(11,500,000)	(78,360)	(64,860)	(49,110)	(32,235)	(14,798)	2,921	20,781	38,710	56,675	74,658	92,640	92,640	92,640	92,640	417,582

【Payback Time】
Initial Cost / Profit 53.3 Years

【Internal Rate of Return】
IRR (15 years) #NOM!

【Net Present Value】		NPV (15 years)																	
		Discount Rate		10.00 %															
		Discount Rate		10.00 %															
		Discount Factor																	
				1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	合計
				1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	
				0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239	
NPV				-78,360.0	-64,860.0	-49,110.0	-32,235.0	-14,797.5	2,921.3	20,780.6	38,710.3	56,675.2	74,657.6	92,640.0	92,640.0	92,640.0	92,640.0	92,640.0	417,582.4
				-71,236.4	-53,603.3	-36,897.1	-22,016.9	-9,188.1	1,649.0	10,663.7	18,058.6	24,035.8	28,783.7	32,469.8	29,518.0	26,834.5	24,395.0	22,177.3	25,643.6
				-71,236.4	-124,839.7	-181,736.7	-233,753.7	-281,941.8	-327,292.8	-369,829.0	-409,570.4	-447,534.6	-483,750.9	-518,259.9	-551,103.2	-581,334.6	-608,928.8	-633,944.4	25,643.6
				25,643.6	1,500,000.0														
				-1,474,356.4															

Source: JICA Study Team

Wind Power Small: Baseline

Cost and Benefit Analysis : Small Wind Power Plant

● Currency	USD
● Plant Factor	60.0 %
● Electricity production	21,024 kWh/year
● Electricity Tariff	7.0 US¢/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	20,000 USD
● Capacity	4.0 kW
● Construction Cost per kW	5,000 USD/kW
● Operation & Maintenance Cost (%/year)	2.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	12.0 % Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation Tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]		<--Construction															Commissioning-->															合計
Cost	Details	Unit Price (USD)	Quantity	Year in A.D.															合計													
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		2029												
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	6,000										

[Financial Cost]		<--Construction															Commissioning-->															合計
Financial Cost	Principal	Repayment (10 years)	Balance	Year in A.D.															合計													
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		2029												
Bank Loan	2,000.0	(June/every year)	Loan Balance	18,000	16,000	14,000	12,000	10,000	8,000	6,000	4,000	2,000	0																			
			Average Balance in a year	19,000	17,500	15,750	13,875	11,938	9,969	7,984	5,992	3,996	1,998																			

[Income Statement]		<--Construction															Commissioning-->															合計
Income	Electricity CER (15 years)	Others	Year in A.D.															合計														
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		2029													
			1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	1,472	22,075										
			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0										
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	6,000										
	Depreciation (15 years)		1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	20,000										
	Financial Cost (5%/year)		2,280	2,100	1,890	1,665	1,433	1,196	958	719	480	240	0	0	0	0	0	0	0	0	0	12,960										
Profit before Tax			(2,542)	(2,362)	(2,152)	(1,927)	(1,694)	(1,458)	(1,220)	(981)	(741)	(501)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(16,885)										
▲ Income Tax (Profit before Tax x Tax rate 10%)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
Profit After Tax			(2,542)	(2,362)	(2,152)	(1,927)	(1,694)	(1,458)	(1,220)	(981)	(741)	(501)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(16,885)										

[Cash Flow]		<--Construction															Commissioning-->															合計
Profit After Tax	Depreciation	Initial Investment Cost	Year in A.D.															合計														
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		2029													
			(2,542)	(2,362)	(2,152)	(1,927)	(1,694)	(1,458)	(1,220)	(981)	(741)	(501)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(16,885)										
		20,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20,000										
Free Cash Flow		(20,000)	(2,542)	(2,362)	(2,152)	(1,927)	(1,694)	(1,458)	(1,220)	(981)	(741)	(501)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	3,115										

[Payback Time] Initial Cost / Profit = 96.3 Years

[Internal Rate of Return] IRR (15 years) = #DIV/0!

[Net Present Value]		NPV (15 years)															合計					
Discount Rate		10.00 %															合計					
Discount Factor	Years	Year in A.D.															合計					
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		2029				
		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	4.596	5.059	5.571	6.137	6.764	7.459
		0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239	0.216	0.194	0.174	0.156	0.140	0.125
NPV	Free Cash Flow (FCF)=J54	-1,208.3	-1,028.3	-818.3	-593.3	-360.8	-124.6	113.6	352.6	592.1	831.9	1,071.7	1,071.7	1,071.7	1,071.7	1,071.7	1,071.7	1,071.7	1,071.7	1,071.7	3,115.0	
	NPV=FCF/Factor	-1,098.5	-849.9	-614.8	-405.2	-224.0	-70.3	58.3	164.5	251.1	320.7	375.6	341.5	310.4	282.2	256.6	232.2	208.7	186.1	164.3	143.4	-901.8
	NPV Accumulation																					
	A	-901.8																				
	B	20,000.0																				
	A-B	-20,901.8																				

Source: JICA Study Team

Biogas Power Plant: Baseline

Cost and Benefit Analysis : Biogas Power Plant

●Currency	USD
●Plant Factor	70.0 %
●Electricity production	122,640 kWh/year
●Electricity Tariff	7.0 US¢/kWh
●Production of Organic fertilizer	74,095 kg
●Organic fertilizer Tariff	0.03 USD/kg
●CO2 Reduction (t/year)	0.00 t/year
●Certificate of Emission Reduction	0.0 USD/t
●Initial Investment Cost	64,000 USD
●Biogas Production Unit Size	500 m ²
●Capacity	0.02 MW
●Construction Cost per kW	3,200 USD/kW
●Operation & Maintenance Cost (%/year)	5.0 % of Initial Investment Cost
●Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
●Financial Cost (%/year)	12.0 % Loan Interest Rate
●Loan Term (year)	10.0 Years for Repayment
●Corporation tax (%/year)	10.0 %
●Discount Rate (%/year)	10.0 %
●Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]		<--Construction Commissioning-->																	
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Cost	Details	Unit Price (USD)	Quantity		Amount USD														
Operation & Maintenance Cost	Labor & Maintenance	(1.0% of Initial Investment Cost)	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	48,000	

[Financial Cost]		<--Construction Commissioning-->																	
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Financial Cost	Principal	Repayment (10 years)	Balance																
Bank Loan	64,000.0	6,400.0	57,600	51,200	44,800	38,400	32,000	25,600	19,200	12,800	6,400	0							
		(June/every year)	Average Balance in a year	60,900	56,000	50,400	44,400	38,200	31,900	25,550	19,175	12,788	6,394						

[Income Statement]		<--Construction Commissioning-->																
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Income	Electricity		8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	8,585	128,772
	CER (15 years)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Organic fertilizer		2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	2,222.9	33,343
▲Cost & Expense	Operation & Maintenance Cost (1.0%)		3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	48,000
	Depreciation (15 years)		4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	64,000
	Financial Cost (5%/year)		7,296	6,720	6,048	5,328	4,584	3,828	3,066	2,301	1,535	767	0	0	0	0	0	41,473
Profit before Tax			(3,955)	(3,379)	(2,707)	(1,987)	(1,243)	(487)	275	1,040	1,806	2,574	3,341	3,341	3,341	3,341	3,341	8,642
▲Income Tax (Profit before Tax x Tax rate 10%)			0	0	0	0	0	0	27	104	181	257	334	334	334	334	334	2,240
Profit After Tax			(3,955)	(3,379)	(2,707)	(1,987)	(1,243)	(487)	247	936	1,626	2,316	3,007	3,007	3,007	3,007	3,007	6,402

[Cash Flow]		<--Construction Commissioning-->																	
Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計	
Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Profit After Tax			(3,955)	(3,379)	(2,707)	(1,987)	(1,243)	(487)	247	936	1,626	2,316	3,007	3,007	3,007	3,007	3,007	6,402	
Depreciation			4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	4,267	64,000	
Initial Investment Cost			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free Cash Flow			(64,000)	312	888	1,560	2,280	3,024	3,780	4,514	5,203	5,893	6,583	7,274	7,274	7,274	7,274	7,274	70,402

[Payback Time]	Initial Cost / Profit	13.6	Years
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[Internal Rate of Return]	IRR (15 years)	0.94%
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[Net Present Value]	NPV (15 years)	-35,832.3
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Discount Rate		10.00 %																	
Discount Factor		1																	
Discount Rate		10.00 %																	
Discount Factor		1																	
NPV	Discount Factor	a	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計
	Years	b	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
	Discount Factor	c=a ^{-b}	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177		
	(Reciprocal Factor)	1/a ^b	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.289	0.263	0.238		
	Free Cash Flow (FCF)=J54	d	312	888	1,560	2,280	3,024	3,780	4,514	5,203	5,893	6,583	7,274	7,274	7,274	7,274	7,274	70,402	
	NPV=FCF/Factor	d/c	283	734	1,172	1,557	1,877	2,134	2,316	2,427	2,499	2,538	2,549	2,518	2,107	1,915	1,741	28,168	
	NPV Accumelation		283	1,017	2,189	3,746	5,623	7,757	10,073	12,500	14,999	17,537	20,087	22,404	24,511	26,426	28,168		
	NPV Accumelation	A	28,167.7																
	Initial Investment Cost	B	64,000.0																
	NPV (15 years)	A-B	-35,832.3																

Source: JICA Study Team

Loan Rate: 12%

Cost and Benefit Analysis : Small Hydro Power Plant

● Currency	USD
● Plant Factor	75.0 %
● Electricity production	65,700,000 kWh/year
● Electricity production	7.0 e/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	25,000,000 USD
● Capacity	10 MW
● Construction Cost per kW	2,500 USD/kW
● Operation & Maintenance Cost: (%/ye	1.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	12.0 % Loan Interest Rate
● Loan Term (year)	10.0 Years for Repayment
● Corporation Tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]				←-Construction-→															Commissioning-→
				Year in A.D.															合計
				Business Year															
Cost	Details	Unit Price (USD)	Quantity	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
Operation & Maintenance Cost	Labor & Maintenance	(1.0% of Initial Investment Cost)	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000

[Financial Cost]				←-Construction-→															Commissioning-→
				Year in A.D.															合計
				Business Year															
Financial Cost	Principal	Repayment (10 years)	Balance	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
Bank Loan	25,000,000.0	2,500,000.0	Loan Balance	22,500,000	20,000,000	17,500,000	15,000,000	12,500,000	10,000,000	7,500,000	5,000,000	2,500,000	0						68,985,000
		(June/every year)	Average Balance in a year	23,750,000	21,875,000	19,687,500	17,343,750	14,921,875	12,460,938	9,980,469	7,490,234	4,995,117	2,497,559						3,750,000

[Income Statement]				←-Construction-→															Commissioning-→
				Year in A.D.															合計
				Business Year															
Income	Electricity	CER (15 years)	Others	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
				4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	68,985,000
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)			250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000
	Depreciation(15years)			1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000
	Financial Cost			2,850,000	2,625,000	2,362,500	2,081,250	1,790,625	1,495,313	1,197,656	898,828	599,414	299,707	0	0	0	0	0	16,200,293
Profit before Tax				-167,667	57,333	319,833	601,083	891,708	1,187,021	1,484,677	1,783,505	2,082,919	2,382,626	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	24,034,707
▲ Income Tax (Profit before Tax x Tax rate 10%)				0	5,733	31,983	60,108	89,171	118,702	148,468	178,351	208,292	238,263	268,233	268,233	268,233	268,233	268,233	2,420,237
Profit After Tax				-167,667	51,600	287,850	540,975	802,538	1,068,319	1,336,209	1,605,155	1,874,627	2,144,364	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	21,614,470

[Cash Flow]				←-Construction-→															Commissioning-→
				Year in A.D.															合計
				Business Year															
Profit After Tax	Depreciation	Initial Investment Cost	Free Cash Flow	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
				-167,667	51,600	287,850	540,975	802,538	1,068,319	1,336,209	1,605,155	1,874,627	2,144,364	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	21,614,470
				1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000
				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				-25,000,000	1,499,000	1,718,267	1,954,517	2,207,642	2,469,204	2,734,985	3,002,876	3,271,821	3,541,294	3,811,030	4,080,767	4,080,767	4,080,767	4,080,767	46,814,470

[Payback Time] Initial Cost / Profit 8.0 Years

[Internal Rate of Return] IRR (15 years) 7.47%

[Net Present Value]				←-Construction-→															Commissioning-→
NPV (15 years)				Year in A.D.															合計
Discount Rate				Business Year															
Discount Factor	Discount Rate	Years	a	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計
				1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
				1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	4.599
				0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239	0.219
NPV	Free Cash Flow (FCF)=J54	NPV=FCF/Factor	d	1,499,000.0	1,718,266.7	1,954,516.7	2,207,641.7	2,469,204.2	2,734,985.4	3,002,876.0	3,271,821.4	3,541,294.0	3,811,030.3	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	46,814,469.7
	NPV Accumulation		d/c	1,362,727.3	1,420,055.1	1,488,457.3	1,507,849.0	1,533,181.5	1,543,828.0	1,549,950.2	1,526,328.8	1,501,854.4	1,469,317.2	1,430,283.8	1,300,258.0	1,182,052.7	1,074,593.4	976,903.1	20,838,639.8
				1,362,727.3	2,782,782.4	4,251,239.7	5,759,088.6	7,292,270.2	8,836,098.1	10,377,048.3	11,903,377.1	13,405,231.5	14,874,548.7	16,304,832.5	17,605,090.5	18,787,143.3	19,861,736.7	20,838,639.8	
	NPV Accumulation	A		20,838,639.8															
	Initial Investment Cost	B		25,000,000.0															
	NPV(15years)	A-B		-4,161,360.2															

Source: JICA Study Team

Loan Rate: 10%

Cost and Benefit Analysis : Small Hydro Power Plant

●Currency	USD
●Plant Factor	75.0 %
●Electricity production	65,700,000 kWh/year
●Electricity production	7.0 c/kWh
●CO2 Reduction (t/year)	0.00 t/year
●Certificate of Emission Reduction	0.0 USD/t
●Initial Investment Cost	25,000,000 USD
●Capacity	10 MW
●Construction Cost per kW	2,500 USD/kW
●Operation & Maintenance Cost: (%/year)	1.0 % of Initial Investment Cost
●Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
●Financial Cost (%/year)	10.0 % Loan Interest Rate
●Loan Term (year)	10.0 Years for Repayment
●Corporation Tax (%/year)	10.0 %
●Discount Rate (%/year)	10.0 %
●Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

【Operation & Maintenance Cost】				←-Construction-		Commissioning-->																	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Cost	Details	Unit Price (USD)	Quantity	Amount USD																			
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000		
【Financial Cost】				←-Construction-		Commissioning-->																	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Financial Cost	Principal	Repayment (10 years)	Balance	Loan Balance																			
Bank Loan	25,000,000.0	2,500,000.0		22,500,000	20,000,000	17,500,000	15,000,000	12,500,000	10,000,000	7,500,000	5,000,000	2,500,000	0										
				(June/every year)	Average Balance in a year	23,750,000	21,875,000	19,687,500	17,343,750	14,921,875	12,460,938	9,980,469	7,490,234	4,995,117									
【Income Statement】				←-Construction-		Commissioning-->																	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Income	Electricity CER (15 years)	Others		4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	68,985,000		
▲Cost & Expense	Operation & Maintenance Cost (1.0%)	Depreciation(15years)	Financial Cost	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000		
				1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000		
				2,375,000	2,187,500	1,968,750	1,734,375	1,492,188	1,246,094	998,047	749,023	499,512	249,756	0	0	0	0	0	0	0	13,500,244		
Profit before Tax				307,333	494,833	713,583	947,958	1,190,146	1,436,240	1,684,286	1,933,310	2,182,822	2,432,577	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	26,734,756		
▲Income Tax (Profit before Tax × Tax rate 10%)				30,733	49,483	71,358	94,796	119,015	143,624	168,429	193,331	218,282	243,258	268,233	268,233	268,233	268,233	268,233	268,233	268,233	2,673,476		
Profit After Tax				276,600	445,350	642,225	853,163	1,071,131	1,292,616	1,515,858	1,739,979	1,964,539	2,189,320	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	24,061,280		
【Cash Flow】				←-Construction-		Commissioning-->																	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Profit After Tax				276,600	445,350	642,225	853,163	1,071,131	1,292,616	1,515,858	1,739,979	1,964,539	2,189,320	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	24,061,280		
Depreciation				1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000		
Initial Investment Cost			25,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Free Cash Flow			-25,000,000	1,943,267	2,112,017	2,308,892	2,519,829	2,737,798	2,959,282	3,182,524	3,406,646	3,631,206	3,855,986	4,080,767	4,080,767	4,080,767	4,080,767	4,080,767	4,080,767	4,080,767	49,061,280		
【Payback Time】				←-Construction-		Commissioning-->																	
Initial Cost / Profit						7.8															Years		
【Internal Rate of Return】				←-Construction-		Commissioning-->																	
IRR (15 years)						8.49%																	
【Net Present Value】				←-Construction-		Commissioning-->																	
NPV (15 years)						-2,448,658.9																	
Discount Rate				10.00 %																			
Discount Factor	Discount Rate	a		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計		
	Years	b		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
	Discount Factor	c=a*b		1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177					
	(Reciprocal Factor)	1/a*b		0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239					
NPV	Free Cash Flow (FCF)=J54	d		1,943,266.7	2,112,016.7	2,308,891.7	2,519,829.2	2,737,797.9	2,959,282.3	3,182,524.5	3,406,645.6	3,631,206.1	3,855,986.4	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	49,061,280.3		
	NPV=FCF/Factor	d/c		1,766,606.1	1,745,468.3	1,734,704.5	1,721,077.2	1,699,957.1	1,670,437.7	1,633,138.3	1,589,225.3	1,539,985.9	1,486,649.7	1,430,283.8	1,300,258.0	1,182,052.7	1,074,593.4	976,903.1					
	NPV Accumulation	A		22,551,341.1																			
	Initial Investment Cost	B		25,000,000.0																			
	NPV(15years)	A-B		-2,448,658.9																			

Source: JICA Study Team

Loan Rate: 7%

Cost and Benefit Analysis : Small Hydro Power Plant

●Currency	USD
●Plant Factor	75.0 %
●Electricity production	65,700,000 kWh/year
●Electricity production	7.0 c/kWh
●CO2 Reduction (/year)	0.0 t/year
●Certificate of Emission Reduction	0.0 USD/t
●Initial Investment Cost	25,000,000 USD
●Capacity	10 MW
●Construction Cost per kW	2,500 USD/kW
●Operation & Maintenance Cost: (%/year)	1.0 % of Initial Investment Cost
●Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
●Financial Cost (%/year)	7.0 % Loan Interest Rate
●Loan Term (year)	10.0 Years for Repayment
●Corporation Tax (%/year)	10.0 %
●Discount Rate (%/year)	10.0 %
●Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

【Operation & Maintenance Cost】				←-Construction		Commissioning→-																
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Cost	Details	Unit Price (USD)	Quantity	Amount USD																		
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000		
【Financial Cost】				←-Construction		Commissioning→-																
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Financial Cost	Principal	Repayment (10 years)	Balance																			
Bank Loan	25,000,000.0	2,500,000.0	Loan Balance		22,500,000	20,000,000	17,500,000	15,000,000	12,500,000	10,000,000	7,500,000	5,000,000	2,500,000	0								
		(June/every year)	Average Balance in a year		23,750,000	21,875,000	19,687,500	17,343,750	14,921,875	12,460,938	9,980,469	7,490,234	4,995,117	2,497,559								
【Income Statement】				←-Construction		Commissioning→-																
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Income	Electricity CER (15 years)	Others			4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	4,599,000	68,985,000		
▲Cost & Expense	Operation & Maintenance Cost (1.0%)	Depreciation (15 years)	Financial Cost		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000		
					1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000		
					1,662,500	1,531,250	1,378,125	1,214,063	1,044,531	872,266	698,633	524,316	349,658	174,829	0	0	0	0	0	0	9,450,171	
Profit before Tax					1,019,833	1,151,083	1,304,208	1,466,271	1,637,802	1,810,068	1,983,701	2,158,017	2,332,675	2,507,504	2,682,333	2,682,333	2,682,333	2,682,333	2,682,333	30,784,829		
▲Income Tax (Profit before Tax × Tax rate 10%)					101,983	115,108	130,421	146,627	163,780	181,007	198,370	215,802	233,268	250,750	268,233	268,233	268,233	268,233	268,233	3,078,483		
Profit After Tax					917,850	1,035,975	1,173,788	1,321,444	1,474,022	1,629,061	1,785,330	1,942,215	2,099,408	2,256,754	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	27,706,346		
【Cash Flow】				←-Construction		Commissioning→-																
Profit After Tax					917,850	1,035,975	1,173,788	1,321,444	1,474,022	1,629,061	1,785,330	1,942,215	2,099,408	2,256,754	2,414,100	2,414,100	2,414,100	2,414,100	2,414,100	27,706,346		
Depreciation					1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000		
Initial Investment Cost				25,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Free Cash Flow				25,000,000	2,584,517	2,702,642	2,840,454	2,988,110	3,140,689	3,295,728	3,451,997	3,608,882	3,766,071	3,923,422	4,080,767	4,080,767	4,080,767	4,080,767	4,080,767	52,706,346		
【Payback Time】				7.1																		
Initial Cost / Profit				7.1																		
【Internal Rate of Return】				10.06%																		
IRR (15 years)				10.06%																		
【Net Present Value】				97,529.5																		
NPV (15 years)				97,529.5																		
Discount Rate				10.00 %																		
Discount Factor	Discount Rate Years	a	b	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計		
		c=a*b	d	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177	4.594			
	(Reciprocal Factor)	1/a*b	d	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.238	0.216			
NPV	Free Cash Flow (FCF)=J54	d	d/c	2,584,516.7	2,702,641.7	2,840,454.2	2,988,110.4	3,140,688.5	3,295,727.6	3,451,997.1	3,608,881.9	3,766,074.3	3,923,420.5	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	4,080,766.7	52,706,346.2		
	NPV=FCF/Factor	d/c	d/c	2,349,560.6	2,233,588.2	2,134,075.3	2,040,919.6	1,950,120.5	1,860,352.3	1,771,420.4	1,683,570.0	1,597,183.1	1,512,648.4	1,430,283.8	1,300,258.0	1,182,052.7	1,074,593.4	976,903.1	876,903.1	25,097,529.5		
	NPV Accumulation	A	A	25,097,529.5	4,583,148.8	6,717,224.0	8,758,143.6	10,708,264.1	12,568,616.4	14,340,036.8	16,023,606.8	17,620,790.0	19,133,438.4	20,563,722.2	21,863,980.2	23,046,033.0	24,120,626.4	25,097,529.5				
	Initial Investment Cost	B	B	25,000,000.0																		
	NPV(15years)	A-B	A-B	97,529.5																		

Source: JICA Study Team

Cost and Benefit Analysis : Small Hydro Power Plant

● Currency	Yen
● Plant Factor	75.0 %
● Electricity production	85,700,000 kWh/year
● Electricity production	5.7 Yen/kWh
● CO2 Reduction (t/year)	0.00 t/year
● Certificate of Emission Reduction	0.0 USD/t
● Initial Investment Cost	8,500,000,000 Yen
● Capacity	10 MW
● Construction Cost per kW	850,000 Yen/kW
● Operation & Maintenance Cost: (%/yr)	1.0 % of Initial Investment Cost
● Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
● Financial Cost (%/year)	0.55 % Loan Interest Rate
● Loan Term (year)	40 Years for Repayment (Grace period: 10 years)
● Corporation Tax (%/year)	10.0 %
● Discount Rate (%/year)	10.0 %
● Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cos]				←-Construction		Commissioning→-																合計	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Cost	Details	Unit Price (USD)	Quantity	Amount Yen																			
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost		85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	1,275,000,000		
[Financial Cost]				←-Construction		Commissioning→-																合計	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Financial Cost	Principal	Repayment (40 years)	Balance																				
Bank Loan	8,500,000,000	212,500,000	Loan Balance	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	
			Average Balance in a year	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	
				8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	
				8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	8,500,000,000	
[Income Statement]				←-Construction		Commissioning→-																合計	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Income	Electricity CER (15 years)		Others	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	372,519,000	5,587,785,000		
▲ Cost & Expense	Operation & Maintenance Cost (1.0%)		Depreciation (15years)	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	85,000,000	1,275,000,000		
	Financial Cost			566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	8,500,000,000		
				46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,750,000	46,165,625	45,289,063	44,266,406	43,170,703	42,038,477	688,430,273		
Profit before Tax				-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,313,292	-324,436,729	-323,414,073	-322,316,370	-321,186,143	-4,875,645,273		
▲ Income Tax (Profit before Tax x Tax rate 10%)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Profit After Tax				-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,313,292	-324,436,729	-323,414,073	-322,316,370	-321,186,143	-4,875,645,273		
[Cash Flow]				←-Construction		Commissioning→-																合計	
				Year in A.D.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
				Business Year	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Profit After Tax				-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-325,897,667	-4,875,645,273		
Depreciation				566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	566,666,667	8,500,000,000		
Initial Investment Cost				8,500,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Free Cash Flow				-8,500,000,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	241,353,376	242,229,938	243,252,594	244,348,297	245,480,523	3,624,354,727		
[Payback Time]				35.2 Years																			
Initial Cost / Profit				35.2 Years																			
Internal Rate of Return				-9.13%																			
IRR (5 years)				-9.13%																			
Net Present Value				-6,665,231.673																			
NPV (15 years)				-6,665,231.673																			
Discount Rate				10.00 %																			
Discount Factor	Discount Rate	a	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計		
	Years	b	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15						
	Discount Factor	c=a*b	1.000	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177						
	(Reciprocal Factor)	1/a^b	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.238						
NPV	Free Cash Flow (FCF)×J54	d	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	240,769,000	241,353,376	242,229,938	243,252,594	244,348,297	245,480,523				
	NPV×FCF Factor	e/c	218,880,909	198,982,645	180,893,313	164,448,467	149,498,606	135,907,824	123,552,567	112,320,515	102,109,559	92,826,872	84,592,886	77,181,923	70,461,612	64,344,544	58,766,068						
	NPV Accumulation	f	218,880,909	417,863,554	598,756,867	763,205,334	912,703,940	1,048,611,763	1,172,164,330	1,284,484,846	1,386,594,405	1,479,421,277	1,564,014,163	1,641,196,086	1,711,657,898	1,776,002,241	1,834,768,327						
NPV Accumulation	Initial Investment Cost	A	-8,500,000,000																				
	NPV (15years)	A-B	-6,665,231.673																				

Source: JICA Study Team

Cost and Benefit Analysis : Small Hydro Power Plant

●Currency	Yen
●Plant Factor	75.0%
●Electricity production	65,700,000 kWh/year
●Electricity production	5.6 Yen/kWh
●CO2 Reduction (t/year)	0.00 t/year
●Certificate of Emission Reduction	9.0 USD/t
●Initial Investment Cost	2,000,000,000 Yen
●Capacity	10 MW
●Construction Cost per kW	200,000 Yen/kW
●Operation & Maintenance Cost: (%/year)	1.0 % of Initial Investment Cost
●Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
●Financial Cost (%/year)	0.55 % Loan Interest Rate
●Loan Term (year)	40.0 Years for Repayment (Grace period: 10 years)
●Corporation Tax (%/year)	10.0 %
●Discount Rate (%/year)	10.0 %
●Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

【Operation & Maintenance Cost】				←-Construction Commissioning-->																		
		Year in A.D. Business Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
Cost	Details	Unit Price (USD)	Quantity	Amount USD																		
Operation & Maintenance Cost	Labor & Maintenance	1.0% of Initial Investment Cost	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	300,000,000	
【Financial Cost】				←-Construction Commissioning-->																		
		Year in A.D. Business Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
Financial Cost	Principal	Repayment (40 years)	Balance	Average Balance in a year																		
Bank Loan	2,000,000,000	50,000,000 (Une/every year)	Loan Balance	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	1,950,000,000	1,900,000,000	1,850,000,000	1,800,000,000	1,750,000,000	1,846,875,000	
			Average Balance in a year	20,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	2,000,000,000	1,975,000,000	1,937,500,000	1,893,750,000	1,846,875,000	1,798,437,500		
【Income Statement】				←-Construction Commissioning-->																		
		Year in A.D. Business Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	合計		
Income	Electricity			367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	367,920,000	5,518,800,000	
	DER (15 years)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Others			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
▲Cost & Expense	Operation & Maintenance Cost (1.0%)			20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	300,000,000	
	Depreciation(15years)			133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	2,000,000,000	
	Financial Cost			11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	11,000,000	10,862,500	10,656,250	10,415,625	10,157,813	9,891,406	9,625,394	161,983,594	
Profit before Tax				203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,586,667	203,724,167	203,930,417	204,171,042	204,428,854	204,695,260	3,056,816,406	
▲Income Tax (Profit before Tax x Tax rate 10%)				20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,358,667	20,372,417	20,393,042	20,417,104	20,442,885	20,469,526	20,495,681	305,681,641	
Profit After Tax				183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,351,750	183,537,375	183,753,938	183,965,969	184,225,734	2,751,134,765		
【Cash Flow】				←-Construction Commissioning-->																		
Profit After Tax				183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,228,000	183,351,750	183,537,375	183,753,938	183,965,969	184,225,734	2,751,134,765
Depreciation				133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	133,333,333	2,000,000,000	
Initial Investment Cost				-2,000,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free Cash Flow				-2,000,000,000	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,561,333	316,685,083	316,870,708	317,067,271	317,319,302	317,559,067	4,751,134,765	
【Payback Time】				6.3 Years																		
【Internal Rate of Return】				13.45%																		
【Net Present Value】				408,523,411.9																		
Discount Rate				10.00%																		
Discount Factor	Discount Rate	a		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	合計	
	Years	b		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
	Discount Factor	c=1/a^b		1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177				
	(Reciprocal Factor)	1/a^b		0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.290	0.263	0.236					
NPV	Free Cash Flow (FCF)=j54	d		316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,561,333.3	316,685,083.3	316,870,708.3	317,067,270.8	317,319,302.1	317,559,067.3	4,751,134,765.6		
	NPV=FCF/Factor	dic		287,783,030.3	261,620,936.6	237,837,215.1	216,215,650.1	196,558,681.9	178,680,619.9	162,446,016.1	147,678,198.3	134,252,907.5	122,048,097.8	110,996,199.8	100,964,772.9	91,848,887.6	83,560,089.6	76,021,116.0				
	NPV Accumulation			287,783,030.3	549,403,966.9	787,241,182.1	1,003,456,832.2	1,200,016,514.1	1,378,707,134.0	1,541,153,152.2	1,688,831,350.4	1,823,084,258.0	1,945,132,355.7	2,056,128,545.5	2,157,093,316.4	2,248,942,206.0	2,332,502,295.9	2,408,523,411.9				
	NPV Accumulation	A		2,408,523,411.9																		
	Initial Investment Cost	B		2,000,000,000.0																		
	NPV (15years)	A-B		408,523,411.9																		

Source: JICA Study Team

Price Slide: 4.77%/year up

Cost and Benefit Analysis : Small Hydro Power Plant

●Currency	USD
●Plant Factor	75.0 %
●Electricity production	65,700,000 kWh/year
●Electricity production	7.0 e/kWh
●CO2 Reduction (t/year)	0.00 t/year
●Certificate of Emission Reduction	0.0 USD/t
●Initial Investment Cost	25,000,000 USD
●Capacity	10 MW
●Construction Cost per kW	2,500 USD/kW
●Operation & Maintenance Cost: (%/year)	1.0 % of Initial Investment Cost
●Inflation for Energy Tariff (%/year)	0.0 % Annual Rate
●Financial Cost (%/year)	12.0 % Loan Interest Rate
●Loan Term (year)	10.0 Years for Repayment
●Corporation Tax (%/year)	10.0 %
●Discount Rate (%/year)	10.0 %
●Evaluation Duration (Year)	15.0 Years (Life Time of Facilities)

[Operation & Maintenance Cost]				←Construction→ Commissioning→															合計	
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Cost	Details	Unit Price (USD)	Quantity	Amount USD																
Operation & Maintenance Cost	Labor & Maintenance	(1.0% of Initial Investment Cost)	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000
[Financial Cost]				←Construction→ Commissioning→															合計	
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Financial Cost	Principal	Repayment (10 years)	Balance																	
Bank Loan	25,000,000.0	2,500,000.0	Loan Balance		22,500,000	20,000,000	17,500,000	15,000,000	12,500,000	10,000,000	7,500,000	5,000,000	2,500,000	0						
		(June/every year)	Average Balance in a year		23,750,000	21,875,000	19,687,500	17,343,750	14,921,875	12,460,938	9,980,469	7,490,234	4,995,117	2,497,559						
[Income Statement]				←Construction→ Commissioning→															合計	
		Year in A.D.		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
		Business Year		-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Income	Electricity				5,478,098	5,722,969	5,978,786	6,246,037	6,525,235	6,816,913	7,121,629	7,439,966	7,772,532	8,119,965	8,482,927	8,862,114	9,258,250	9,672,094	10,104,437	113,601,953
	CER (15 years)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Others				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
▲Cost & Expense	Operation & Maintenance Cost (1.0%)				250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	3,750,000
	Depreciation(15years)				1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000
	Financial Cost				2,850,000	2,625,000	2,362,500	2,081,250	1,790,625	1,495,313	1,197,656	898,828	599,414	299,707	0	0	0	0	0	16,200,293
Profit before Tax					711,431	1,181,302	1,699,619	2,248,121	2,817,943	3,404,934	4,007,306	4,624,471	5,256,452	5,903,591	6,566,260	7,241,584	7,935,428	8,646,551	9,365,659	68,651,666
▲Income Tax (Profit before Tax x Tax rate 10%)					71,143	118,130	169,962	224,812	281,794	340,493	400,731	462,447	525,645	590,359	656,626	724,158	793,543	864,655	936,566	6,865,166
Profit After Tax					640,288	1,063,172	1,529,657	2,023,309	2,536,149	3,064,441	3,606,576	4,162,024	4,730,807	5,313,232	5,909,634	6,500,903	7,141,885	7,781,903	8,429,093	61,786,494
[Cash Flow]				←Construction→ Commissioning→															合計	
Profit After Tax					640,288	1,063,172	1,529,657	2,023,309	2,536,149	3,064,441	3,606,576	4,162,024	4,730,807	5,313,232	5,909,634	6,500,903	7,141,885	7,781,903	8,429,093	61,786,494
Depreciation					1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	1,666,667	25,000,000
Initial Investment Cost					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Free Cash Flow					2,306,955	2,729,839	3,196,324	3,689,975	4,202,816	4,731,107	5,273,242	5,828,691	6,397,473	6,979,890	7,576,301	8,177,569	8,783,338	9,393,648	10,008,659	86,786,494
[Payback Time]				←Construction→ Commissioning→															合計	
Initial Cost / Profit																				4.3
[Internal Rate of Return]				←Construction→ Commissioning→															合計	
IRR (15 years)																				16.02%
[Net Present Value]				←Construction→ Commissioning→															合計	
NPV (15 years)																				12,399,500.8
Discount Rate				←Construction→ Commissioning→															合計	
Discount Rate																				10.00%
Discount Factor					1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
					a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	合計
					c=a/b	1.100	1.210	1.331	1.464	1.611	1.772	1.949	2.144	2.358	2.594	2.853	3.138	3.452	3.797	4.177
					1/a*b	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.350	0.319	0.290	0.263	0.239
NPV					d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	合計
					2,306,954.8	2,729,838.6	3,196,323.7	3,689,975.2	4,202,815.8	4,731,107.3	5,273,242.3	5,828,690.8	6,397,473.3	6,979,898.6	7,576,301.1	8,177,569.2	8,783,338.1	9,393,648.1	10,008,659.1	86,786,494.0
					2,097,231.6	2,256,065.0	2,401,445.3	2,520,302.7	2,609,618.0	2,670,586.7	2,706,007.1	2,719,127.3	2,713,153.2	2,691,053.1	2,655,447.3	2,622,781.6	2,596,709.7	2,576,907.2	2,563,065.1	37,399,500.8
					d*c	2,097,231.6	2,256,065.0	2,401,445.3	2,520,302.7	2,609,618.0	2,670,586.7	2,706,007.1	2,719,127.3	2,713,153.2	2,691,053.1	2,655,447.3	2,622,781.6	2,596,709.7	2,576,907.2	2,563,065.1
					NPV Accumulation	A	37,399,500.8													
					Initial Investment Cost	B	25,000,000.0													
					NPV (15years)	A-B	12,399,500.8													

Source: JICA Study Team

5. Law

5.1 Law on Electricity

Unofficial Translation



LAO PEOPLE'S DEMOCRATIC REPEOPLE
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

National Assembly

No. 03/NA

Vientiane Capital, 20 December 2011

LAW ON ELECTRICITY (Amended)

Chapter I General Provisions

Article 1 Objective

The Law on Electricity determines the principles, rules and measures on the organization, operation, management and inspection of electrical activities for the high effectiveness of electricity generation and business operation with the aims to use the natural resource potentials in economical and sustainable manner, to encourage the implementation of the national socio-economic development plan and to improve the living conditions of the multi-ethnic people.

Article 2 Electricity

Electricity is a type of energy which is comprised of electricity power, electricity current, voltage and frequency produced by the sources from natural resources, such as: hydropower, wind power, solar energy, fuel, lignite, biomass energy, thermal, gas, palm oils and nuclear energy and others.

Article 3 Definition of Terms

Terms used in this Law shall have the following meanings:

1. **Electricity activities** means activities of data collection survey, planning, designing, construction and installation, generation, transmission, distribution, export, import and other services of electricity;
2. **Electricity business** means business operation of electricity activities for commercial purposes;
3. **Electrical facilities** means dams and reservoirs, water ways, powerhouse, switching station, substation, electricity control center, transmission lines, distribution lines and user's site;
4. **Operator of electricity business** means any individual, legal entity or organization that is legally authorized to operate the electricity business;
5. **Memorandum of Understanding** means an initial document granted by the State to a person who wishes to invest in the development to conduct a feasibility study, such as: economical, technical and financial feasibility study, including social and environmental impact of project;
6. **Grant of electricity business concession** means a grant of land areas and period of time by the State to the investors for the generation and power transmission under the conditions specified in the contracts;
7. **Rural electricity** means electrical system which is connected to a common electrical system or is any area's separate electrical system which generated electricity by virtue of small scale hydropower by petroleum-operated machinery or by solar energy, or by wind energy or by other energies for use in rural areas;
8. **Biomass** means wastes from plants, human, animals and others;
9. **Biogas** means gas which is produced by biomass, especially the wastes from wood processing and others;
10. **Electricity energy** means multiple result between electrical potential and electrical current which is channeled by electrical conductor;
11. **Installed capacity** means the capacity of electrical production of power plants or electrical generator;
12. **Electricity current** means the movement of electron which is in the same direction of electrical conductor, including the amperage of electrical current;
13. **Voltage** means generated electrical power where the electrical current has channeled from a point to another one of the electrical conductor or the difference between a level of two points of electrical potentials where the electrical current has passed by two points of electrical conductor;
14. **Frequency** means number of cycles moving within one second;
15. **BOT** means build, operate and transfer;
16. **BT** means build and transfer;
17. **BOO** means build, own and operate;

18. **Royalty** means levy from natural resources of which the users who has the rights to uses shall pay to the State by calculating in percent of the total incomes received from the sale of electricity power;
19. **COD** means commercial operation date
20. **Force majeure** means event occurred without any expectation and beyond any control, such as: flood, thunderbolt, storm, earthquake and others.

Article 4 Ownership of Electricity Energy Source

Sources of electricity energy throughout the country are the property of the national community that the State centrally and unanimously manages and grants the right of use to individuals, legal entities and organizations.

Article 5 State Policy on Electricity

The State promotes all individuals, legal entities and organizations, both domestic and foreign, to invest in electricity activities, such as production, transmission, distribution and services, particularly the hydropower, in junction with the protection of forest-protected water sources and in remote areas where favorable conditions existed by granting appropriated policies, such as duty or tax policy, rights of use of natural resources in accordance with the laws and regulations.

The State protects the legitimate rights of all economic sectors which have invested and paid their contributions in electricity business operation in equal manner.

The State promotes the electricity activities development through the use of electricity energy in economical, effective and sustainable manner and through the use of modern technique and technology in electricity business with mitigation of social and environmental impacts.

The State develops all potentials to meet the electricity need for the national socio-economic development, contributing to national defense and public security and to improve the living conditions of the multi-ethnic people, including the development of electricity as export commodity.

Article 6 Principle of Electricity Activities

Operation of electricity activities and business shall comply with the following principles:

1. Conformity with the national economic and social development;
2. Productiveness, economization and endurance;
3. Protection of environment, society and nature (community, forest and water source);
4. Safety.

Article 7 Scope of Application

This law applies to all individuals, legal entities and organizations, both domestic and foreign, which operates the electricity business and activities, or manages related to the electrical facilities and user's site.

This law shall not cover the electricity energy from nuclear source.

Article 8 International Cooperation

State broadens the relation and foreign, regional and international cooperation by exchange experiences and information of electricity activities, such as: generation, transmission, distribution, export-import, transit, development and service of electricity business.

Chapter II Electricity Activities

Article 9 Electricity Activities

Electricity activities include electricity development plan, planning, data collection survey, design, construction and installation, generation, transmission, distribution, export-import, and services.

Article 10 Electricity Development Plan

The electricity development plan shall:

1. Ensure the principles of the use of natural resources source, energy source in appropriated, economical and highly effective manner;
2. Determine the targets, directions, mechanisms and methods in developing the technical and economical base for the electricity project; ensure the safe and regular supply of electricity, and mitigate social and environmental impacts in electricity business development;
3. Ensure the domestic consumption based on economic and social growth in each period and policy on national socio-economic development;
4. Determine the electricity export based on the priority of electricity consumption and needs in neighboring countries.

The electricity development plans consist of strategic plan and long, medium and short terms plans.

Ministry of Energy and Mines is the principal in coordination with the concerned organizations in setting up the electricity development plans and then, submit them to the Government for consideration.

Article 11 Planning

Planning is the research of the stages and steps of the development of electricity project prior to the conduct of data collection survey, design, construction and operation of

electricity project.

Article 12 Survey of Data Collection

The survey of collection of initial information on the socio-economy, environment, geology, hydrology and their impacts shall be the responsibility of the energy and mine sector in collaboration with other relevant sectors and local administrations in order to be served as the technical references for the calculation, design, construction and installation of electrical facilities and operation of electricity projects.

Article 13 Design

The design includes the placement of construction structure, electrical facilities installation.

The stages of design include the initial design, detailed and final design of project as provided for in a specific regulation.

Article 14 Construction and Installation of electricity

Construction and installation of electricity shall ensure the safety, restriction and reduction of harmful effects to the nature and people's property.

Construction and installation of electricity shall be conducted in accordance with the Lao Electric Power Technical Standards.

Article 15 Electricity Generation

The electricity generation is the process of the generation for electricity energy from generator by hydropower, wind power, solar power, biogas and other powers.

The electricity generation shall ensure to use of modern equipments with quality and international standards and shall restrict and mitigate the social and environmental impacts.

Article 16 Electricity Transmission

Electricity transmission is the process of transmission or conveying the electricity from the generation sites to electricity distribution stations, to cities and users or to abroad.

The transit of electricity through the Lao PDR is a transmission of electricity through Lao territory from other countries to the third countries by the decision of the Government of the Lao PDR. Electricity transit will be transmitted through the national electricity transmission grid with service charges. In the case that the national electricity transmission grid are not able to be transmitted through, the Government shall allow the transmitters to establish the transmission lines system by themselves, but such transmission lines shall be under the management and inspection of Ministry of Energy and Mines and other organizations concerned of the Lao PDR.

The establishment of the transmission line system through the Lao PDR shall ensure the reduction of the environmental impacts and harmful effects to the people and, shall pay

the fees for the transit through the Lao territory and other service fees, including the compensation for all damage resulting from the establishment of such transmission line system and shall allow the Lao PDR to use such transmission line system as needed and shall ensure the technical aspects.

Article 17(Amended) The National Electricity Transmission Grid system

The national electricity transmission grid is the high voltage transmission lines system which are connected from one region to other regions throughout the country and connected to the foreign transmission line system in order to ensure the management of generation, transmission and distribution, including the protection of the environment and property of the people.

All sources of electricity generation shall transmit the electricity into the national electricity transmission grid, except for the electricity distribution within precinct of power plant, electricity generation small scale or or where there is yet no the national electricity transmission grid

The investment in the development of the national electricity transmission grid systems shall comply with the Law on Enterprises, Law on Investment Promotion and other relevant Laws.

Besides the national electricity transmission grid there are other transmission lines systems of other economic sectors, both domestic and foreign sectors.

In the case that the national electricity transmission grid are of the ownership of other economic sectors, the Government shall have the rights to share such business as deemed appropriated or may buy such systems and include them into the State property.

Article 18 Electricity Distribution and Principles of Distribution

Electricity distribution is the distribution of electricity from distribution system or from the electricity generating equipment to various types of user's sites which are referred to as the electrical network by means of medium and low voltages

Electricity distribution shall be carried out based on the following principles:

1. Continuous and regular electricity distribution;
2. Broad-based, sufficient and economical distribution of electricity;
3. Safe distribution of electricity;
4. Distribution of electricity to ensure socio-economic development;
5. Distribution of electricity to ensure national defense and public security protection activities.

Article 19 Import and Export of Electricity

The electricity export of as exporting goods shall ensure sufficient supply priority for domestic use, including industrial expansion and national socio-economic development.

Electricity can be imported into the Lao People's Democratic Republic, provided that it

is necessary for the country's socio-economic development and with the approval of the government.

Article 20 Service

Service will be conducted by installation, maintenance, inspection, repairing, advice of electrical facilities which shall be given to the users and suppliers.

Article 21 Installation of Electrical Facilities

Individuals, legal entities or organizations undertaking the construction, installation, expansion, repair and maintenance of the electrical facilities shall strictly comply with the Lao Electric Power Technical Standards.

Article 22 Establishment and Compliance with Electricity Technical Standards

The Ministry of Energy and Mines is responsible to establish the Electricity technical standards in order to standardize the electrical tools, equipment, transmission lines and electrical appliances; and to ensure the safety and economization and to form of unanimous standards throughout the country to be able to control the quality of all electrical appliances domestically produced and imported from abroad.

Any new installation, expansion, repair, design, construction, operation and maintenance or management of electrical facilities shall be complied with the Lao Electric Power Technical Standards

Article 23 Remedy for conformance to Technical Standards

In the case that it is found that any electrical installation, expansion, repair, design, construction, electrical facilities has no quality, the Energy and Mines Sector or assigned sector has the right to order the electricity business operators to remedy, repair or rehabilitate to be in conformity with the Lao Electric Power Technical Standards ; or to order to suspend the use of such power facilities.

**Chapter II
Electricity Business**

Article 24 Electricity Business Operation

All electricity activities provided for in Article 9 of this Law can be operated in the form of electricity business. Electricity business is divided into two types i.e., general electricity business and electricity business in the form of concession.

General electricity business includes: planning, data collection survey, design, construction, installation, distribution and general services.

Electricity business in the form of concession includes: generation and electricity transmission by the public and private sectors.

Any individuals, legal entities or organizations wishing to operate the general electricity business shall ask for the authorization with industry and commerce sector and with the approval of the Energy and Mines Sector; and shall comply with the Enterprise Law.

Any individuals, legal entities or organizations wishing to operate the general electricity business, shall ask for the authorization with the planning and investment sector and with the approval of Energy and Mines Sector; and shall comply with the Law on Investment Promotion.

Article 25 Appointment of Chief Engineers

Individuals, legal entities or organizations operating the electricity business shall nominate chief engineers to be responsible for the technical matter in the field of design, construction, installation and operation concerning the power facilities respectively and submit a notice of such nomination to the Energy and Mines Sector. The Energy and Mines Sector is responsible for the determination of conditions and standards of the chief engineers.

Article 26(Amended) Investment in Electricity Business

Investment in electricity business may be operated in the following forms:

1. Build, operate and transfer (BOT);
2. Build and transfer (BT);
3. Build, own and operate (BOO);
4. State solely operates and represented by the State electricity company.

Individuals, legal entities or organizations wishing to invest in electricity business shall be registered as legal entity in the Lao PDR in accordance with the laws and regulations.

Article 27 Conditions for Establishment of Electricity Enterprise

The conditions for establishment of electricity enterprise are as follows:

1. Experiences in business operation;
2. Financial stability;
3. Sufficiency of electrical engineers and of other specialist concerned;
4. No subject to court sentences by any intentional offenses, especially by economic offenses.

Article 28 Modification of Electricity Business License

Any operator of electricity business who wishes to modify his/her business license shall submit to the Energy and Mines Sector for consideration an application together the reasons whereof.

Article 29(Amended) Concession Procedures

Procedures of the application for electricity business concession are as follows:

1. Signature of Memorandum of Understanding (MOU);
2. Signature of Project Development Agreement (PDA);
3. Signature of Concession Agreement (CA) and other agreements.

The detailed procedures, contents of each task components and authorization granting shall be complied with the specific regulation issued by the Energy and Mines Sector.

The memorandum of understanding or the project development agreements may be extended by decision of the Government. The request for extension of the memorandum of understanding or the project development agreements shall be made one month before their expiration.

The memorandum of understanding may be extended only if the project developers have shown that they have actively and completely discharged their obligations and have a progress in their activities, but in anyway such extension cannot be more than nine months.

The project development agreements may be extended only if the project developers have completed or have an actual progress in their activities as provided for in the project development agreements, provided that each extension cannot be more than six months. For the electricity export project, the extension cannot be made more than three times. The extension of the electricity projects for domestic use cannot be made more than two times.

In the event that the project developers are not able to comply with the conditions and terms as determined in the memoranda of understanding or the project development agreements, such memoranda of understanding or the project development agreements shall considered by the Government as deemed terminated and no any compensation shall be paid by the Government.

The main activities, such as dam construction, power plant or water diverse tunnels, including tree logging from the reservoir of the development project can be operate only when the concession agreement is effective.

Article 30 Technical, Economical and Financial feasibility Study

Technical, economical and financial feasibility study is consisted of the following contents:

1. Technical, economical and financial results;
2. Maximum producible electrical capacity;
3. Estimated project value;
4. Estimated project term and the life of the dam or estimated term and life of some other electrical system;
5. Estimated electricity price;
6. Plans and operation phases: construction, installation, and commencement date of electricity supply.

Article 31(Amended) Social, Environmental and Natural Assessment

The social, environmental and natural assessment consists of the following main contents:

1. Assessment of environmental impact in each case, together with proposals of methods and measures for solving or mitigating any adverse impacts on the environment, water sources, land surface or underground, ecology, biodiversity and aquatic and wildlife animals habitats;
2. An estimate of the damage and resettlement of peoples affected by the electricity project;
3. Means to mitigate the impacts to water volume, including the accumulate impacts in the downstream reservoir of the dam;
4. Expenses for restoration of the impacts provided for in paragraphs 1, 2 and 3 of this Article shall be incorporated into the project cost.

Beside of expenses as stipulated in above, the project developer shall be paid for environment duty comply with the Laws.

Article 32 Conditions of Concessionaire

The concessionaire shall have the following conditions:

1. Have financial and technical capacity;
2. Have a good and trustworthy business background.

Article 33(Amended) Concession Term

A concession term shall commence from the date of signature of the Concession Agreement and shall be ended in a period not exceeding thirty years from the commencement of operation date (COD).

After the expiration of the concession term, the concessionaire shall transfer the entire activities to the Government in good and operational conditions which are inspected and certified by an independent engineer.

The above mentioned activities shall be transferred without any compensation whatsoever.

Article 34 Approval of Project Size

Electricity projects in the Lao PDR are divided into four sizes as follows:

1. Electricity project with an installed capacity from one hundred kilowatts shall be approved by the district or municipal governor on the proposal of the district, municipality Office of Planning and Investment with technical consent of the provincial, city Division of Energy and Mines ;
2. Electricity project with an installed capacity more than one hundred kilowatts to fifteen megawatts shall be approved by provincial, city governor on the proposal of the district, municipal Office of Planning and Investment with technical consent of the provincial, city Division of Energy and Mines ;

3. Electricity project with an installed capacity more than fifteen megawatts to one hundred megawatts shall be approved by the government on the proposal of the Ministry of Planning and Investment with technical consent of the Ministry of Energy and Mines ;
4. Electricity project with an installed capacity more than one hundred megawatts or has a reservoir area with more than ten thousand hectares or has a severe socio-economic and natural impacts shall be approved by Standing Committee of the National Assembly the proposal of the Government.

Article 35 Safety of Operation and Maintenance

Individuals, legal entities organizations that operated the electricity business shall ensure the safety in operation and maintenance of the power facilities of engineering of power plant construction, such as: dam, reservoir, spillway, power hours, transmission line, substation, distribution lines and electrical facilities, including the user's site.

To ensure the above mentioned safety, individuals, legal entities organizations that operated the electricity business shall establish the safety rules for Operation and Maintenance in accordance with the Lao Electric Power Technical Standards and then, submit them to the Energy and Mines Sector for consideration.

Article 36 Rights of Concessionaire

The concessionaire of electricity business has the main rights as follows:

1. Lease or concede land necessary for electricity business operation;
2. Receive benefits from the concession;
3. Receive protection under the laws;
4. Receive technical and technological instructions on electricity;
5. Transfer or to assign the electricity business within the remaining period of concession to other persons with the consent of the Standing Committee of the National Assembly, Government or local administrations under the scope of responsibilities provided for in Article 34 of this Law.

Article 37(Amended) Obligations of Concessionaire

The concessionaire of electricity business has the main obligations as follows:

1. Strictly comply with the laws and regulations relating to labor and other relevant laws of the Lao PDR;
2. Operate the business in accordance with the concession agreement, technical, economical and financial feasibility study and socio-economical and natural impacts;
3. Deposit a guarantee with the banks in accordance with the laws and regulations of the Lao PDR;

4. Have money or assets in the amount equal to the registered capital; for foreign investors, import the registered capital as foreign currency accordingly to the laws and regulations or contracts;
5. Keep account as provided for in the Accounting Law, except for those projects using foreign loans which shall have to comply with the international accounting system;
6. Completely and timely pay royalty, duty and tax obligations and other obligations in accordance with the laws and regulations;
7. Pay compensation for damage in case of causing damages to life, health and property of the people, to environment and to resettlement of people;
8. Provide trainings and technical capacity building and ensure social welfare of the employees, technicians and workers;
9. Record and report results of the concession according to the period of time, including detailed expenses of the project;
10. Maintain and repair machinery and electrical equipment in order to maintain them in good condition according to the period of time and technical principles related to electricity;
11. Pay all debts and repair machinery and all components to be in good conditions ready for use before the handover of electricity business together with the technical, economical and financial feasibility study and project documents to the State without any compensation upon the expiration of concession or in the event that the concessionaire ceased to operate the electricity business;
12. Coordinate, cooperate and pay contribution in the socio-economic development of the locality where the project is situated.
13. Perform other obligations as provided by the laws and regulations.

Article 38 Expiration of Concession

The concession shall expire in the following cases:

1. End of the concession term;
2. Cessation of the concession before its term with the approval of the State;
3. Withdrawal of concession rights due to a serious violation of the laws and regulations or failure to comply with the contractual obligations or other obligations provided for in the laws and regulations;
4. Failure to repair or rehabilitate such activities due to the force majeure;
5. Termination of the concession agreement.

Before expiration of concession shall be evaluated the result of project implementation.

Article 39(Amended) Electricity Project with No Concession Agreement Requirement

The electricity projects with no concession agreement requirement are as follows:

1. Construction and installation of electrical facilities which are solely undertaken by the State;
2. Building of the hydropower project with an installed capacity of less than fifty megawatts and with no serious harmful effects to the environment, society and nature, provided such building shall comply with provisions of the relevant laws and regulations;
3. Building and installation of electrical machinery to generate electricity by means of a heating system of less than five hundred kilowatts and building and installation of renewable energy system, such as: underground heating source, solar energy, wind energy, biogas or biomass energy, vegetable oil, energy from water streams, wastes from wood processing, sugar or paper manufactories and others, with serious harmful effects to the environment, society and nature, provided such building shall comply with provisions of the relevant laws and regulations;

The procedures on granting of license, development, management, conditions and relevant obligations for the electricity projects with no need of concession agreement requirement are determined in specific regulations.

The investment in hydropower project building as provided in paragraph 2 of this Article shall be reserved for the Lao citizens only.

Article 40 Use of Land for Electricity Project

The use of land for electricity project shall be undertaken as follows:

1. The project developer shall clearly determine the limits of land use and methods of compensation for land use in the course of conducting the technical, economical and financial feasibility study, and the environmental, social and natural impacts from the project;
2. The Energy and Mines Sector shall coordinate and cooperate with the natural resources and environment sector and other relevant sectors and local administrations in the planning of land use within the concession areas;
3. The natural resources and environment sector shall provide the land areas for use to the investor in accordance with the Law on Land of the Lao PDR after the investor has obtained the approval.

Article 41(Amended) Contribution to the Fund

In addition to the payment of royalty, duty and tax, the project developer shall pay its contribution to the Fund for environment protection within the concession areas and surrounding areas, catchment reservoir protection, project downstream areas and socio-economic infrastructure development of the locality where the project is located.

Article 42 Report

Individuals, legal entities or organizations operating the electricity business shall

regularly submit their report on the design, construction, operation and safety relating to electricity to the Energy and Mines Sector and relevant local administrations.

Chapter IV

Development of Rural Electricity

Article 43 Promotion of Rural Electricity

Individuals, legal entities or organizations investing in electricity generation, distribution, electricity purchase and sale, investment in construction of electrical transmission lines and distribution line, electrical services or in electrical generation sources by new energy, renewable energy in order supply the electricity to the remote areas and upland areas, shall receive special promoted policies relating to investment, the same as of other investment promotion activities in accordance with other laws and regulations on investment.

Article 44 Investment in Rural Electricity Development

Parties who are allowed to invest in the development of rural electricity are as follows:

1. Province, Capital, or District, municipality which invest in the construction and installation of electrical facilities by oneself;
2. Individuals, legal entities or organizations, both domestic and foreign, that invest in construction and installation of electrical facilities by assigning the province, Capital, or District, municipality to manage and use;
3. Units of electrical enterprises which operate business on electrical distribution, construction, installation and services shall be in charge of investment in the construction and installation of medium Voltage, Electrical transformers, low Voltage to the power metering. With regard to the individuals, legal entities or organizations that use the electricity, they shall be responsible for the payment for such use from power metering to inside their houses or inside their offices;
4. The multi-ethnic people shall contribute their assets and labor force in the development of electricity in their own localities;
5. For the remote rural areas, focal areas or areas with exceptional economic difficulties and where nobody has invested in, the State shall have a promotion policy or shall provide the funds for the building of the medium Voltage distribution lines system, electrical transformer, and low Voltage down to the Power metering.

Article 45(Amended) Approval of Rural Electrification Project

The province, Capital, or District, municipality is responsible for the approval of the rural electrification projects which are under its responsibility in accordance with one-door mechanism depending on the size of installed capacity as determined in Article 34,

paragraphs 1 and 2 of this Law.

Article 46 The Fund for Rural Electricity Development

The State encourages the establishment of the Fund for Rural Electricity Development in order to contribute in the construction and installation to be gradually and thoroughly expanded aiming at poverty eradication and improvement of the living conditions of the multi-ethnic people.

Sources of the Fund for Rural Electricity Development come from the State budget, domestic and foreign assistance, loans, electricity service providers' contribution, people and other incomes for various activities.

The management and use of the Fund for Rural Electricity Development are determined in specific regulations.

Chapter V Electricity Prices

Article 47 Electricity Prices

The determination of electricity prices shall ensure the socio-economic conditions of the country and shall be suitable to the targets of use and types of the users.

The electricity prices shall be stable and ensure the electricity investment return and development.

The Ministry of Energy and Mines shall cooperate with other sectors and parties concerned to study the electricity price structure of each type to submit the Government for consideration in each period of time.

The electricity prices for the use targets and user's types shall be determined by the Government.

Article 48 Types of Electricity Price

The electricity prices are divided into the following types:

1. The prices of import purchase and export sale;
2. The prices of domestic purchase and sale.

The Government is responsible for the determination of prices for each electricity type.

Article 49(Amended) Rural Electricity Prices

The prices of rural electricity are as follows:

1. The electricity prices to be used in rural areas which are connected to the on-grid system in compliance with the Article 48 of this Law;
2. The purchase and sale of electricity from the projects invested by the State and which have not yet connected with the on-grid system shall be studied and

proposed the policy prices by the Energy and Mines Sector in collaboration with the local administrations concerned;

3. The purchase and sale of electricity from the projects invested by private sectors shall be proposed by the relevant investors in collaboration with the Energy and Mines Sector and other sectors concerned and then, submit to the local administrations concerned for consideration.

Chapter VI

Rights and Obligations of Electricity Producers, Distributors and Users

Article 50(Amended) Rights and Obligation of Producers

The electricity producers have the main rights as follows:

1. Conclude the electricity purchase and sale with the users in accordance with the laws and regulations;
2. Transfer or handover of electricity activities to other persons with the government's approval;
3. Receive the electricity service charges, and protection of their rights and benefits;
4. Request for cooperation from the Energy and Mines Sector and local administrations concerned in case of necessity.

The electricity producers have the main obligations as follows:

1. Strictly comply with the Safety Rules for Operation and Maintenance, and with the Lao Electric Power Technical Standards; Pay the royalty, duty and tax and other obligations in accordance with the laws and regulations and the concession agreement;
2. Continuously and regularly produce the electricity current;
3. Pay compensation for damage of land and crops, and for resettlement, allocation of residences and places of livelihoods to the people affected by the electricity generation.

Article 51 Rights and Obligations of Electricity Distributors

The electricity distributors have the main rights as follows:

1. Collect fees for electricity distribution and services;
2. Determine measures to ensure the safety of the people and the environment relating to electricity distribution;
3. Inspect the construction, installation and use of electricity of electricity users;
4. Warn and lodge a claim against the electricity users who seriously violate electrical regulations or caused or will cause damage to the electricity distribution;
5. Suspend electricity distribution to users who seriously violate regulations on the use of electricity;

6. Refuse the request of such individuals, legal entities or organizations wishing to use their distribution lines when deemed there is no technical safety.

Electricity distributors have the following obligations:

1. Timely, thoroughly and regularly provide electricity to the users with quality and conformity with the Lao Electric Power Technical Standards; Notify the electricity users in advance each time when electricity supply will be cut off, except for emergency case;
2. Establish and provide the instruction on regulations regarding the use of electricity, give necessary information on safety to the users and responsibly and timely provide service to electricity users;
3. Use modern and qualified electricity equipments;
4. Ensure the safety and social welfare of electricity staffs and social safety;
5. Pay duty and tax and other obligations in accordance with the laws and regulations;
6. Pay compensation for damage caused by electricity distributions which created harmful effects to the life, health and property of the people, and environment;
7. Authorize the individual, legal entities or organization to use their electricity distributions lines in accordance with the Lao Electric Power Technical Standards; Regularly summary and report the result of electricity distribution and management in accordance with the Lao Electric Power Technical Standards to the Energy and Mines Sector;
8. Perform other obligations as provided by the laws and regulations.

Article 52 Rights and Obligations of Electricity Users

The electricity users have the main rights as follows:

1. Have safety in using the electricity;
2. Obtaining the convenient service in installing and repairing the electricity in the house or office;
3. Obtaining instruction of electricity usage;
4. Propose the inspection and recalculation of electricity price when it is deemed incorrect;
5. Propose or claim the electricity business operator who has caused damage resulting from the uninsured service and electrical technique.

The electricity users have the main obligation as follows:

1. Be responsible for the maintenance and change of the electrical conductors and electrical appliances in their houses or offices;
2. Comply with the regulations and instructions on electricity usage ;
3. Economically and effectively use of electricity;
4. Regularly and fully pay the fees for electricity use and service;

5. Facilitate to the staff and electrical authority to install, repair, inspect and record of electricity usage figures Immediately notify electricity officials when an electricity-related irregularity is founded;
6. Contribute to the protection of electrical facilities

Chapter VII

Prohibitions

Article 53 Prohibitions for Electrical Staff and Authority

The electrical Staff and Authority are prohibited to take the following actions:

1. Opportunistically use of position and take bribes from electricity business for personal interests;
2. Abuse of powers which cause damage to the interests of the State or collectives or legitimate rights and benefits of the people;
3. Abandon one's duties and responsibilities relating to electricity business assigned by relevant organizations;
4. Disclose of the State or official secrets on electricity business;
5. Falsify electricity business-related documents;
6. Operate or enter in operation of electricity business in all forms;
7. Use of violence, menace, threat and use of illegal measures;
8. Illegal purchase and sale of electrical facilities
9. Take other actions which are contradicted with the laws and regulations.

Article 54 Prohibitions for Business Operators

The domestic and foreign business operators are prohibited to take the following actions:

1. Conduct the survey and develop electricity business without authorization;
2. Undertake the construction and installation and put in operation of the non-standardized electrical facilities and without authorization;
3. Create the obstruction or delay the implementation of the electricity development projects of which they have obtained authorization;
4. Use or give incorrect information on survey, design, construction and operation of electricity business;
5. Pay or give the bribes to the staff, authority and the people;
6. Use of violence and refer to the names of other persons to threaten the staff, authority and the people;
7. Purchase and sale of electrical equipments illegally and non-standardized;
8. Violate the rights and duties of the local administrations relating to electricity business;
9. Take other actions which are contradicted with the laws and regulations.

Article 55 Prohibitions for the People

The people are prohibited to take the following actions:

1. Trespass or destroy, mainly, the protected forests, water source forests reserved for the electricity production in order to ensure that the water shall not drawn down;
2. Trespass the premises, steal or destroy the electrical equipment and components;
3. Undertake the construction, resettlement or production nearby the surrounding areas of the location of the electrical facilities without authorization;
4. Associate with the business operators, staff or authority to trespass into the premises and steal or destroy the electrical facilities ;
5. Obstruct the performance of duties of the electrical staff and authority ;
6. Use of violence and refer to the names of other persons to threaten the staff and authority for personal interests;
7. Illegal purchase and sale of electrical facilities take other actions which are contradicted with the laws and regulations.

Article 56 Prohibitions for Organizations and Other Persons

The organizations and other persons are prohibited to take the following actions:

1. Abuse of power, use of violence and refer to the names of other persons to threaten the electrical staff and authority for illegitimate interests;
2. Opportunistically use of position to seek for personal or group interests from electricity business;
3. Operate electricity business by oneself or have partnership without authorization;
4. Authorize, survey, design, undertake the construct or operation relating to electrical facilities in contradiction with the procedure and laws and regulations;
5. Delay the case proceedings of the disputes relating to electricity business;
6. Obstruct the performance of duties of the electricity officers;
7. Operate electricity business without authorization in accordance with the laws;
8. Produce, assembly, purchase, sell, distribute, import electrical facilities which are not standardized or with low quality;
9. Take other actions which are contradicted with the laws and regulations.

Chapter VIII

Dispute Resolution

Article 57 Forms of Dispute Resolution

The resolution of disputes may be conducted in the following forms:

1. Mediation or conciliation;
2. Administrative resolution;

3. Resolution by arbitration panel;
4. Court decision;
5. Resolution of international characteristic.

Article 58 Mediation and Conciliation

In the event that the dispute on electricity business has arisen, the litigants may negotiate, mediate or conciliate between themselves.

Article 59 Administrative Resolution

In case of failure to resolve the dispute by mean of mediation, the litigants may propose the energy and mine sector from which they have obtained the authorization to resolve the dispute.

Article 60 Resolution by arbitration panel

In case of failure to mediate or resolve the dispute by the energy and mine sector, the litigants may submit such dispute to the arbitration panel for consideration and resolution in accordance with the laws and regulations.

Article 61 Court Decision

In the case that the dispute relating to electricity business cannot reach an agreement between the litigants, any of them have the rights to request the people court to consider and decide such dispute in accordance with the laws and regulations.

Article 62 Resolution of International Characteristic

The resolution of disputes relating to electricity business between the domestic investors and foreign investors or between foreign investors themselves in the Lao PDR or between foreign investors and the Lao Government shall be referred to the domestic or foreign or international arbitration bodies as may be agreed by the litigants.

Chapter IX

Management and Inspection

Article 63 Management Organizations

The Government centrally and unanimously manages the electrical activities throughout the country by assigning the Energy and Mines Sector to be the principal in coordinating with other relevant sectors, such as the sectors of planning and investment, water resources and environment, national defense, public security, finance, local administrations and other sectors concerned.

The electricity activities management organizations are comprised of:

1. Ministry of Energy and Mines ;

2. Provincial, City Divisions of Energy and Mines ;
3. District, Municipality Offices of Energy and Mines.

Article 64 Rights and Duties of the Ministry of Energy and Mines

To manage the electricity activities, the Ministry of Energy and Mines has the following rights and duties:

1. Be the secretarial headquarter in elaborating the strategic plans, electricity development plans, laws and regulations on electricity activities to submit the Government for consideration;
2. Disseminate and publish the laws and regulations on electricity activities and development plans;
3. Direct and monitor the implementation of electricity activities throughout the country;
4. Direct the data collection survey and statistic registration on electricity activities throughout the country;
5. Technically manage and monitor the electricity business of both public and private sectors;
6. Direct the environmental protection and electrical energy source preservation;
7. Study and research and give technical advice on the investment in electricity activities within the scope of its responsibility;
8. Study on the extension, suspension or withdrawal of the electricity business licenses of the investors;
9. Give instructions to the electricity business operators on the import of electricity, electrical facilities ;
10. Build, improve and upgrade the knowledge capacity of technical and managerial staffs on electricity development activities;
11. Recognize the appointment of the Chief Engineers under its responsibility on the proposal of the electricity business operators;
12. Study and research the electricity prices and submit them to the Government for consideration;
13. Coordinate with other sectors and relevant local administrations in management of electricity business;
14. Contact and cooperate with international organizations relating to electricity activities and seeking sources of funds for electricity development;
15. Regularly summarize and report the result of electricity activities performance to the Government;
16. Exercise other rights and perform other duties on electricity activities as provided for in the laws and regulations.

Article 65 Rights and Duties of the Provincial, City Divisions of Energy and Mines

To manage the electricity activities, the Provincial, City Divisions of Energy and Mines has the following rights and duties:

1. Organize and develop strategic plans, electricity development plans, direct and manage electricity activities within the scope of their responsibilities;
2. Disseminate and publish the laws and regulations on electricity activities and electricity development plans in their locality;
3. Technically manage and monitor the electricity business of both public and private sectors;
4. Organize the data collection survey, collect the statistics and protect electricity energy sources;
5. Study and give instructions on the operation of electricity business of installed capacity of less than fifteen megawatts relating to the electrical facilities;
6. Study and research and give technical advice on the investment in electricity activities within the scope of their responsibility;
7. Recognize the appointment of the Chief Engineers under their responsibility on the proposal of the electricity business operators;
8. Protect environment and preserve electrical energy sources;
9. Coordinate with other sectors and relevant local administrations in management of electricity business;
10. Contact and cooperate with international organizations as assigned by Ministry of Energy and Mines or Provincial, City Administrations;
11. Regularly summarize and report the result of electricity activities performance to their higher level organization;
12. Exercise other rights and perform other duties on electricity activities as assigned by Ministry of Energy and Mines or Provincial, City Administrations.

Article 66 Rights and Duties of District, Municipality Offices of Energy and Mines

To manage the electricity activities, the District, Municipality Offices of Energy and Mines has the following rights and duties:

1. Organize the implementation of plans, projects, laws and regulations, and instructions of the Ministry of Energy and Mines relating to electricity activities;
2. Disseminate laws and regulations on electricity and regulations of safety rules for operation and maintenance to the electricity business operation in accordance with their responsibilities;
3. Give instructions on the operation of electricity business of installed capacity of less than one hundred kilowatts relating to the electrical facilities ;
4. Give instructions on the operation relating to the electrical facilities and collect statistics of electrical-related serious accidents;
5. Coordinate with other sectors and relevant local administrations in management of electricity business;

6. Regularly summarize and report the result of electricity activities performance to their higher level organization;
7. Exercise other rights and perform other duties on electricity activities as assigned by Provincial, City Divisions of Energy and Mines or District, municipality Administrations.

Article 67 Rights and Duties of Other Sectors and Parties

In electricity activity management, other relevant sectors and local administrations shall have the rights and duties to coordinate with the Energy and Mines Sector in accordance with their roles.

Article 68(Amended) Inspection Organizations

The Inspection organizations are comprised with the internal inspection organizations which are the same organizations as of the electricity activity management organizations as provided for in Article 63 of this Law; and external organizations.

In addition, there is also technical inspection committee.

All expenses in the conduct of technical inspection and audit relating to electricity business shall be calculated and included in the projects costs.

Article 69 Technical Inspection Committee

The technical inspection committee is comprised of the Energy and Mines Sector and other concerned sectors and is appointed by the Minister of Energy and Mine in order to ensure that the construction, installation, and operations of an electricity business are technically sound, ensure safety, and protect the environment, society and nature.

The technical inspection committee shall be automatically terminated after having completed its duties as assigned.

Article 70 External Inspection

The objective of the external inspection is to inspect the performance of duties of the management and inspection organizations in order to make them strengthened, transparent and fair.

The external inspections are as follows:

1. Inspection of the National Assembly as provided for in the Law on Monitor and Inspection of the National Assembly;
2. Inspection of the Government inspection organizations and the anti-corruption as provided for in the Law on State Inspection;
3. Audit of the State audit organizations as provided for in the Law on the State Audit;
4. People monitor and inspection.

Article 71 Contents of Inspection

The inspection has its aims to render the electricity activities effective, to ensure the technique, safety and environmental protection and to ensure that the electricity business is operated in accordance with the laws and regulations.

The electricity activity inspection has the following contents:

1. Compliance with the procedures of electricity business operation;
2. Compliance with the time schedule of electricity business operation;
3. Compliance with the economical, technical and financial feasibility study on electricity business;
4. Compliance with the action plans on electricity business;
5. Compliance with technical safety standards;
6. Compliance with laws and regulations and agreements on electricity business;
7. Compliance with the standards for electrical equipment;
8. Design, construction, installation and management of electrical facilities ;
9. Application of measures to mitigate the environmental impacts;
10. Compensation for damage against the life, health, property of the people and environment;
11. Financial, policy and social welfare systems;
12. Registration and records of the electricity consumption figures.

Article 72 Forms of Inspection

The inspection of electricity activities has three forms as follows:

1. Regular inspection;
2. Inspection with prior notification;
3. Emergency inspection.

Regular inspection is an inspection carried out in regular manner in accordance with the fixed time.

Inspection with prior notification is an inspection conducted out the plans when deemed necessary and with an advance notice to the targets to be inspected.

Emergency inspection is an urgent inspection without any prior notification to the targets to be inspected.

In the course of inspection of medicines and medical products, the inspection authorities shall be duly and strictly complied with the laws and regulations.

Chapter X

Policies towards Persons with Outstanding Achievements and Measures against Violators

Article 73 Policies towards Persons with Outstanding Achievements

Individuals, legal entities or organizations with outstanding achievement in implementing this Law, such as in carrying out electricity activities and environment protection shall receive rewards and other policies in accordance with the laws and regulations.

Article 74 Measures against Violators

Individual, legal entities or organizations that violated this Law shall be educated, warned, disciplined, fined, paid the compensation for damage or criminally punished depending on the gravity of their acts.

Article 75 Re-educational Measures

Individuals, legal entities or organizations that have violated the laws and regulations on electricity, prohibitions or failed to comply with electricity technical standards causing not serious damages or failed to timely report the result of electricity business operation shall be re-educated and warned.

Article 76 Disciplinary Measures

Electricity officers or staffs who have violated the laws and regulation and prohibitions on electricity by committing not a serious offense and not a criminal offense that cause damage amounted less than one million kips, and have involuntarily reported on their own acts and run away from their wrong doings shall be subjected to the disciplinary measures as follows:

1. Warning on the committed wrong doings and record them into the biography;
2. Suspension of upgrade, salary levels and rewards;
3. Removal of position to another lower position;
4. Dismissal without giving any policies.

The disciplined person shall return such property which has been illegally acquired back to the State.

Article 77 Fines

Individuals, legal entities or organizations that have violated electricity laws and regulations by which a damage has caused, but such violation has no components of criminal offense, shall be fined by any one of the following acts:

1. Operating an electricity business without approval;
2. Constructing, installing electrical facilities without approval;
3. Installing electricity into one's home without a power metering ;
4. Allowing others to draw electricity from one's home without approval;
5. Modifying power metering ;
6. Failing to adhere to Electric Power Technical Standards and safety standards;

7. Failing to adhere to standards to limit adverse environmental impact;
8. Failing to pay taxes and duties and other obligations in accordance with the laws and regulations;
9. Failing to pay compensation for damage caused to the environment, and to people's lives and property.

The fining rates are determined in specific regulations.

Article 78 Civil Measures

Individuals, legal entities or organizations that have violated electricity laws and regulations and have caused damage to other persons shall pay compensation for damages caused.

Article 79 Penal Measures

Any individual committing a violation of this law which constitutes an offence shall be prosecuted and punished accordingly to the Penal Law.

Chapter 12 Final Provisions

Article 80 Implementation

The government of the Lao People's Democratic Republic shall implement this law.

Article 81(Amended) Effectiveness

This Law shall enter into force sixty days from the date of the promulgating Decree issued by the President of the Lao People's Democratic Republic.

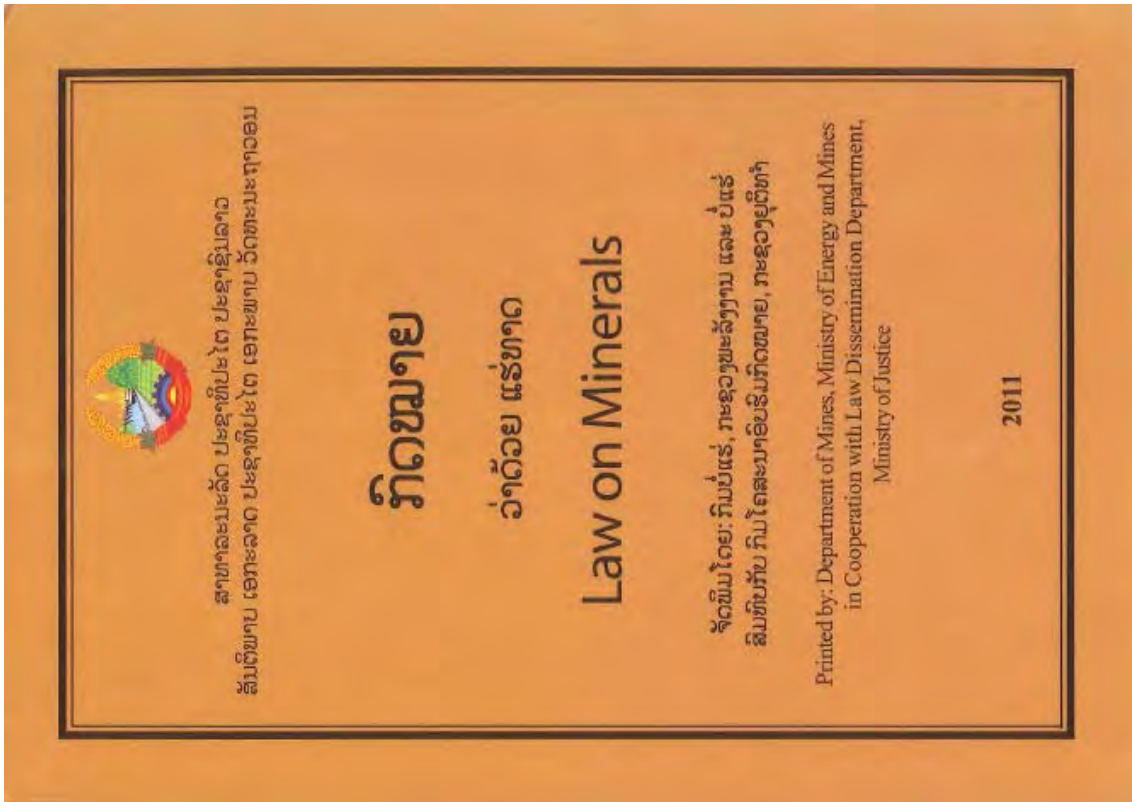
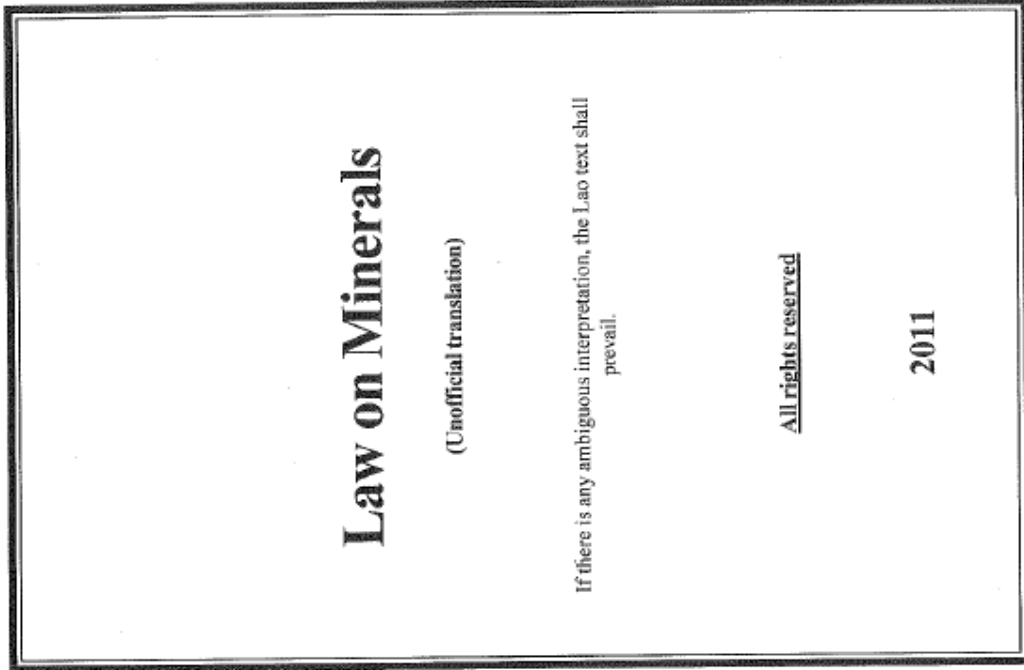
This Law replaces the Law on Electricity, No. 03/NA, dated 8 December 2008.

This Law has no retroactive effects for such electricity projects which have been approved before this Law takes effects.

Any provisions contradicted with this Law shall be cancelled.

President of National Assembly

5.2 Law on Minerals



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Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

National Assembly
No. 04/NA
Vientiane, dated 8 December 2008

LAW ON MINERALS
PART I

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Article 1. Purpose

The Law on minerals defines the principles, regulations and measures regarding the management, protection, utilization of minerals and mineral resources and the inspection of minerals activities , with the aim of ensuring prospecting, exploration, mining and processing of minerals to have high efficiency in conjunction with environmental protection, and consistent with the national socio-economic development plan in order to create conditions for gradual economic growth, industrialization, and progressive modernization, sustainable mineral development, improving the standard of living of all ethnic groups.

Article 2. Minerals

Minerals are naturally occurring inorganic elements, non-renewable, having an characteristic chemical composition and physical properties, which exist in solids, liquids, gases forms: such as gold,

silver, copper, iron, tin, precious stones, rock containing minerals, coal, oil and natural gas, mineral water, hot spring and geothermal waters and others.

Article 3. Interpretation of Terms

Defined terms used in this law shall be interpreted as follows:

1. "Mineral deposit" means a natural accumulation of mineral material which has been certified about the quantity and grade of the minerals;
2. "Mine area" means mining areas, processing factory areas, storage area for mineral or warehouse, wastewater ponds, hauling road, settlement areas, office buildings, workshop areas, warehouses for storage of explosive and chemical substances used for mining and production;
3. "Mines" means minerals bearing areas where exploration have been conducted such as : gold mine, silver mine, copper mine, tin mine, coal mine;
4. "Mineral Concentrates" means minerals which have been treated through crushing, milling, washing, sorting and processing ;
5. "Rock containing minerals" means rock which bears some minerals;
6. "Tailing" means any amount of remaining minerals, mixed with waste material which could not be recovered during the extraction, production and washing process.
7. "Placer or Alluvial concentrates" means mechanical weathered mineral which have flown and accumulated in some location naturally;
8. "Sustainable development of minerals areas" means comprehensive development in the mining area or the development of the mining area after mine closure by coordination

with other concerned sectors aiming to ensure job creation and to improve living conditions of the in situ ethnic community gradually, to contribute to the effectiveness of socio-economic development and continuous expansion;

9. "Mineral Activity" means various activities related with prospecting, exploration, mining and mineral processing works;
10. "Radioactive minerals" means mineral/element which can be used in various scientific matters but which affects to the health, the life of human and animal and the environment such as uranium and thorium;
11. "Sam Nui [Mouse substance]" means arsenic mineral;
12. "Force majeure" means unexpected events such as: flooding, erosion, storm, lightning, epidemic, earthquake.

Article 4. Ownership of Minerals

All minerals that occur at the surface or under land or water, are the property of the national community and are subject to the centralized and unified management of the State throughout the country.

Article 5. State Policy on Minerals

The State encourages individual/persons and legal entities, whether domestic and foreign, to invest into mineral activity, especially in remote areas that are targets for rural development and poverty eradication by establishing strategy, policies, regulations and measures such as: policies on customs and tax in accordance with regulations, providing of information and other facilitation.

The State encourages mineral prospecting and exploration in order to have basic geological and mineral data and information that can support scientific study and research regarding minerals and the transformation into capital;

Article 8. Obligation on Minerals Protection

The Government shall take measures to protect minerals and mineral resources within the territory throughout the country.

The protection of minerals and mineral resources shall be the obligation of individuals, and organizations of all sector in Lao PDR

Article 9. International Cooperation

The State supports and promotes regional and international cooperation concerning mineral activities in varied forms such as: sharing experiences, lessons learned, information, technique-technology, marketing, training and upgrading technical levels for staff, seeking technical assistance and financial support, and to comply with international Conventions and Agreements that Lao PDR is a party to.

Article 10. Scope of Application

This law applies to individuals or legal entities, both domestic and foreign, who are undertaking mineral activities and mineral business, except operations related to oil and natural gas, soil, rock, gravel, sand and other construction material that are not under the management of this law.

**PART II
MINERALS**

**Chapter I
Categories of Minerals**

Article 11. Basic Geological Surveys

Basic geological surveys refer to the initial investigation and reconnaissance regarding the occurrence of mineralization, study of geological structures, and production of basic geological maps to be

The State encourages mining operation that is linked with in country mineral processing by using advanced and modern techniques and technologies for domestic use and as commodities for export.
The State reserves and protects some mineral resources areas for specific mining operation for the national interest and sustainability of natural resources.

Article 6. Principles concerning Mineral Activities

Mineral activities shall be carried out in accordance with the following principles:

1. The creation of strategic plan concerning mineral activities shall be in consistent with the national socio-economic development plan in each period and the real capability of the state for monitoring/management;
2. Mining, use of minerals and mineral resources shall be rational, efficient, ensure the sustainable development of mineral area, and balance with environmental protection;
3. Mineral works shall be done in conjunction with the development of infrastructure aimed to support economic-social development, improvement of the livelihood of all ethnic communities and also to ensure public order and social security;
4. The protection of minerals and mineral resources should be done by the participation of people, families, organizations, local administrative authorities, legal entities both domestic and foreign.

Article 7. Protection of the Rights and Benefits regarding

Minerals

The State protects the right and highest benefits of the Nation and rights and benefits of persons undertaking mineral business under the law and all ethnic communities in accordance with the laws and regulations.

references for the classifications of minerals categories and mineral resources areas.

The Ministry of Energy and Mines is the conductor of basic geological surveys over the whole territory of the country upon the assignment of the government in coordination with the other concerned sectors and local administrative authorities.

Article 12. Mineral Classification

Minerals are classified into the following four categories:

1. Metallic Minerals include: Gold, silver, copper, zinc, iron, lead, tin and others;
2. Non-Metallic Minerals include: Diamond, precious stone, emerald, limestone, rock containing mineral, gypsum, decoration stone, radioactive and other minerals;
3. Hydrocarbon Minerals include: Coal, crude oil, natural gas and other minerals.
4. Liquid Minerals include: Underground water in any form such as [Geothermal]? Hot spring sources, mineral waters sources, and others.

In these four categories of Minerals there exist Reserved and Restricted Minerals which the Government shall determine based on the proposals of the Ministry of Energy and Mines.

Chapter 2

Mineral Resources

Article 13. Mineral Resources

Mineral resources are natural accumulation or occurrences of minerals in the global crust in various forms, have specific properties and which can be prospected or explored.

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Article 14. Mineral Resources Areas

Mineral resource areas are divided into four areas as follows:

1. Areas licensed for mineral activities;
2. Reserved areas;
3. Restricted areas;
4. Toxic areas

The State will agree concerning the determination of areas allowed for mineral activities, reserved areas, restricted areas, and toxic areas, including the reclassification of such areas based on the proposals of the Ministry of Energy and Mines.

Article 15. Areas licensed for mineral activities

Areas licensed for mineral activities are mineral resource areas defined as priority areas for mineral activities business in accordance with defined conditions and standards.

If different sectors need to use the same area but have different objectives, the Government shall agree based upon a comparative study of the socio-economic benefits, socio-environmental impacts, and consistency with long term socio-economic development.

Article 16. Reserved Areas

Reserved areas, are Mineral Resources Areas reserved for extraction of a specific mineral(s) or reserved for the development of an area of abundance of natural resources related to tourism.

Article 17. Restricted Areas

Restricted Areas are areas where no mineral activities are allowed including the following:

1. Dangerous areas such as: areas where unexploded ordinances exists or areas with severe pollution;

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2. Areas near or under buildings or public areas that have national importance such as : archaeological and historic sites, areas with basic infrastructure, areas that are important for national defense and security and areas that are not appropriate for mineral activities ;
3. Forest conservation areas, biodiversity conservation areas, aquiferous animal sanctuaries, wildlife and upstream forest areas.

Article 18. Toxic Area

A toxic area is a mineral resource area where there is poisonous or toxic contamination in the whole territory of the country such as: areas with arsenic mineral, mercury mineral and other.

PART III

MINERAL ACTIVITIES

Article 19. Mineral Activities

Activities concerning minerals are as follow:

1. Prospecting
2. Exploration;
3. Feasibility study;
4. Mining;
5. Processing;
6. Selling and Buying;
7. Removal;
8. Rehabilitation and Mine Closure; and
9. Transfer of Mining Activities

Article 20. Prospecting

Mineral prospecting refers to the study of data and information and field work to determine geological conditions of the

area and occurrences of mineralization including evaluation to identify feasible areas for exploration.

Article 21. Exploration

Mineral exploration refers to the study and evaluation of geological structures and mineral deposits, within the determined area, that can include geological work, geophysics, drilling, tunneling and adit, trenching, pitting, sampling, analysis and assay and other activities to learn about the quantity and grade of any mineral deposits and to assess the economic feasibility and technical conditions for mining.

Article 22. Feasibility Study

A feasibility study is an assessment of developing a mineral deposit concerning economic feasibility, environmental and social impact, study of the technique and technology for mining, processing, market and sale and justification for financing.

The term of the feasibility study shall not exceed one year and may be extended only one time not more than one year based on the approval of the Ministry of Energy and Mines.

Article 23. Mining

Mining is the extraction of minerals from the surface and underground by any process of topsoil and overburden stripping, excavating, digging, drilling, pumping, blasting, concentrating, removing, and storing of minerals.

For mining operations, techniques and technology shall be used that are highly effective and meet modern standards and reduce the adverse impacts to the environment and society.

Article 24. Mineral Processing

Mineral processing is the procedure or stage of production to upgrade

the quality of minerals and create economic value for example by separating, refining, smelting, changing of form, cutting and polishing or to provide additional processing to produce or become a commodity.

Article 25. Selling and Buying of Concentrate

Selling and buying of concentrate is an agreement between the mining enterprise with individuals or legal entities, both domestic and foreign, who desire to take the concentrate to process into products or commodities.

The form and method of selling and buying of concentrate shall be provided in accordance with the Contract Law and Tort Law.

Article 26. Removal of Concentrates and Minerals

Removal of concentrates and minerals means the transportation of concentrates and minerals from one location to another location within the country or to overseas.

Removal of concentrates and minerals shall be done in accordance with the laws and regulations such as: payment of any obligations and taxes, obtaining documents for removal, transportation along roads where there is a scale for weight measurement and properly declaring to determined check points.

Article 27. Rehabilitation and Mine Closure

After the completion of exploitation activities, areas mined should be improved and rehabilitated to a condition that can be used for particular purposes or activities.

When the mining operations are terminated the mine should be closed and the licensed areas including the exploitation activities/operation should be returned [to the Government] as provided in Article 28 of this law.

Article 28. Handing over/Transfer the Mining Operation

After the completion of the rehabilitation and mine closure, the mining investor shall transfer the mining enterprise in principle including data and information concerning geology and mineral deposits, equipment, vehicles and machinery and other properties to the State in accordance to regulation without any compensation.

In the case that the State does not want to take such property, the investor shall have the responsibility to dismantle and remove the operation.

PART IV

MINERAL BUSINESS

Article 29. Forms of Investment in Mineral Business

Forms of investment in mineral business include individual enterprise, partnership and company as provided in article 10 of the Enterprise Law

Article 30. Reconnaissance

Legal entity who has the objective to undertake mineral business shall apply for a reconnaissance permit for any specific mineral from the designated Energy and Mines sector.

Work under the reconnaissance permit may undertake by desk study in the office and site visit in order to study outcrops and possible mineralization, environmental circumstance and to sample from the surface for analysis.

Article 31. Investment Application

After reconnaissance work, if there is sufficient data, domestic and foreign investors who wish to invest in minerals activities shall

submit investment application to concerned sector for consideration in accordance to the process as provided in the Enterprise Law.

Article 32 . Scales of Mineral Business

Mineral Businesses are divided into three scales:

- Large scale;
- Medium scale;
- Small scale.

The Government shall agree on the scale of mineral business based on the reserves estimated and importance of minerals based on the proposal of the Ministry of Energy and Mines.

Article 33. Types of Mineral Business

Mineral Business includes the following three types:

1. Business concerning the study of geology and mineral deposits data ;
2. Mining Business;
3. Business on Specific Categories of Mineral.

Chapter 1

Business on the Study of Geology and Mineral Deposit Data

Article 34 . Business concerning the Study of Geology and Mineral Deposit Data

Business concerning the study of geology and mineral deposit data consist of prospecting and mineral exploration works.

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Article 35. Conditions for Investors on Prospecting and Mineral Exploration

Basic conditions for investors concerning prospecting and mineral exploration are as follow:

1. Shall be Enterprise or Company that is established and registered to undertake mineral business correctly;
2. Shall have good financial status and have other sufficient financial sources, and have secured property in accordance to the regulations;
3. Shall have a good sound and reliable background related to mineral business;
4. Shall have technical staff and experience concerning prospecting and mineral exploration.

In addition, the investor shall determine the proposed area, submit a prospecting and mineral exploration work program, minimum expenditure cost, and a preliminary environmental and social impact assessment report.

In addition, for the investor on mineral exploration, the investor should have a report on the results of the mineral prospecting in the area proposed for mineral exploration.

Article 36 . Time for Considering of Application and Term of License concerning Mineral Prospecting and Exploration

The application for mineral prospecting or exploration shall be considered within ninety days from the date the application is received. The applicant shall be notified of the result of consideration in writing.

The term for a mineral prospecting license shall not exceed **two years** from the date the prospecting contract is signed, and it can be extended for additional term of **one year**.

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The term for a mineral exploration license shall not exceed **three years** from the date the exploration contract is signed, and can be extended for additional term not to exceed **two years**.

Conditions for extension of the term of the licenses for mineral prospecting and exploration shall be subject to specific regulations and Law.

Article 37. Area granted for Mineral Prospecting and Exploration

An Enterprise or a Company may undertake mineral prospecting in one to two blocks and each block shall not exceed **five hundreds square kilometres**. Subsequently an area granted for mineral exploration shall be based on the results of the undertaken mineral prospecting work.

For an area where prospecting work already has been done and mineral prospecting work and geological data already exist, an Enterprise or Company may directly apply to undertake mineral exploration.

Conditions, standards and systems for licensing of mineral prospecting and exploration shall be subject to specific regulations.

Article 38. Relinquishment of Mineral Prospecting and Exploration Area

After the completion of mineral prospecting and exploration, the investors shall relinquish uneconomic concession areas to the Government together with geological and mineral deposit data.

The relinquishment of a mineral prospecting and exploration area may also occur under the following conditions:

1. The license is revoked due to the severe material breach of contract or severe violation of laws and regulations;

2. Expiration of the license for mineral prospecting and/or exploration;

3. The license holder no longer needs to use the mineral prospecting and/or exploration areas;

4. When there are severe negative impacts to the environment or no benefit for society.

The relinquishment of a mineral prospecting and exploration area will not receive any compensation.

Article 39. Sending Samples for Analysis

An investor for mineral prospecting and exploration who has the intention to send mineral samples for analysis within the country or overseas shall have authorization from the Ministry of Energy and Mines.

The investor shall split the mineral samples which will be sent for analysis to the Ministry

of Energy and Mines for storage. After the completion of the analysis, the investor shall submit a summary report on the result of analysis to the Ministry of Energy and Mines for compiling and inspecting.

Chapter 2

Mining Business

Article 40. Mining Business

"Mining business" includes activities as stipulated in Article 19 of this law, except prospecting and exploration activity.

After the end of mineral prospecting and exploration, if the investor intends to undertake mining business, a feasibility study must be undertaken to, provide the calculation of economic effectiveness, assessment on the impact to environment, biodiversity and the effect upon society in order to apply for a mining license from the government based on the proposal of concerned sectors. For Large Scale Mining,

the National Assembly will consider the project based on the proposal of the government.

In the case that the investor does not intend to continue to mining business, it must notify the government in writing within two years from the date of the completion of the mineral exploration and has to submit all data which the investor has gathered while understanding prospecting and exploration work to government without any compensation.

Article 41. Conditions of Investor in Mining Business

In addition to the basic conditions as stipulated in Article 35 (1)(2) and (3) of this law, the investor in mining business shall have technical staff and experience in exploitation.

Moreover, the investor shall have:

1. Data related to the results of the prospecting, exploration and the feasibility study;
2. Efficient Mining Work Program and Feasibility Study that are approved by the Ministry of Energy and Mines;
3. Uses modern and advanced technique and technology in mining;
4. Management plans for mitigation of environment and social impacts that are approved by concerned sector;
5. For entities both domestic and foreign that intend to undertake a feasibility study and mining operations in an area that has been previously explored, reports on the data and results of the mineral exploration of the proposed area.

Article 42. Acceptance of Feasibility Study Report

The Ministry of Energy and Mines shall consider for the acceptance or refusal of the report on the feasibility study in writing not later than one hundred and twenty days from the date when it received such report.

In the case that the report is accepted, the Ministry of Energy and Mines shall propose to the concerned sectors for consideration.

Article 43. Sending Mineral Samples to Select Technology for Designing Plant

Investor in mining sector can send mineral samples within the country or overseas for testing in order to select technology in designing a plant with the approval from the Ministry of Energy and Mines under the control and inspection of concerned Government staffs and officers.

The products received from the testing of mineral samples may be sold with the consent of the Ministry of Energy and Mines, and after performance of fiscal obligations in accordance to laws and regulations.

Article 44. Mining

Undertaking of mining business shall be carried out as provided in Article 23 of this law.

The term of the mining license shall not exceed **twenty years** from the date of obtaining the mining license and can be extended not to exceed five years as agreed by the state on a case by case basis depending on the scale of the mine.

Article 45. Mineral Processing

A Mining operation shall be related with mineral processing in country in principal to upgrade mineral values by using modern and advanced techniques and technology to produce semi finished or finished product depending on the type of mineral in order to supply commodity within the country and for the export in accordance with mineral policy of each period.

Article 46. Another Business related to Mining

Undertaking of processing business, buying and selling, removal, rehabilitation and mine closure shall be carried out as provided in Articles 24, 25, 26 and 27 of this law.

Article 47. Transformation of Enterprise or Investment Company

In the case that the investor in Mining Business intends or it becomes necessary to transform the Enterprise or Company to be another type of enterprise or company, it may apply to the Government for consideration, and shall be done in accordance with article 211 and 220 of the Enterprise Law.

Acceptance or refusal of the transformation of the enterprise or investment company related to mining business shall be given by the government. It will notify the Enterprise in writing within ninety days from the date of receipt of such proposal.

Article 48. Steering Committee on Large Scale Project

The Steering Committee on Large Scale Project is established to ensure the implementation of the contract to ensure correct and effective compliance. The Government shall appoint a steering committee, which consists of:

1. Vice Minister of Energy and Mines Ministry as Chairman;
2. Concerned Vice Governor or Vice Mayor as vice Chairman; and
3. Representatives of concerned sector as members.

The organization and activities, including the rights and duties of the steering committee, for Large Scale Projects shall be provided in specific regulations.

Chapter 3

Business related to Special Categories of Minerals

Article 49. Business related to Special Categories of Minerals

Business related to special categories of minerals does not have to follow the steps of prospecting and exploration in the operation of its mining business.

Article 50. Types of Business related to Special Categories of Minerals

Types of business related to special categories of minerals are as follows:

1. Artisanal mining;
2. Small-scale mining; and
3. Extraction of industrial minerals and stone.

Article 51. Artisanal Mining

Artisanal mining operated as a business means mineral extraction activity by using primitive tools, mechanized equipment with fewer than five horse power and no more than ten laborers.

For an Artisanal mining operation that is a non-permanent type of operation, done seasonally, only by using primitive tools for excavation and no mechanized equipment and shall be allowed and shall not be regarded as a business.

Artisanal mining shall be permitted only for Lao citizens residing in the concerned community.

Minerals allowed for artisanal mining are alluvial gold, alluvial tin and tailing.

Article 52. Small-scale Mining

Small-scale mining means stripping of top soil and overburden, digging, drilling, blasting, and sorting of mineral from the surface, underground and under water where it is not appropriate for industrial mining within an area not to exceed ten hectares.

Small-scale mining shall be permitted only for Lao entities.

Types of minerals and mineral reserves which are permitted for small-scale mining shall be provided in specific regulations.

Article 53. Extraction of Industrial Minerals and Stones

Industrial minerals and stones are non-metallic minerals including limestone, marble, silicate sand, sulphur, phosphates, basalt, granite, kaolin, barite, laterite, andesite, adobe, gabbro, serpentine, alunite, dolomite, feldspar, graphite, mica and pagodite.

Industrial minerals and stones exploitation is the extraction, excavation, drilling, cutting, and blasting in order to take such non-metallic minerals.

Article 54. Granting of Industrial Minerals and Stones Exploitation Permit

After coordination with other concerned sectors, the Energy and Mines sector has authority to grant the area for the exploitation of industrial minerals and stones for an area not more than **five hectares for one block** and has the term of **five years**.

An investor in the extraction of industrial minerals and stones must contribute to the repair, infrastructure construction, establishment of weighing scale and other.

The exploitation of industrial minerals and stones is permitted only by Lao entity.

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Article 55. Extraction of Precious Stone as Artisanal Mining Type

The extraction of precious stones as an artisanal mining type shall be carried out in accordance with artisanal mining provided in Article 52 of this law.

Article 56. Extraction of Precious Stone as Small-scale Mining

Small-scale mining for precious stones means stripping of topsoil and overburden, excavating and sorting of precious stones from the surface, underground or underwater by using mechanized equipment in compliance with regulations, using not more than ten laborers, within an area of not more than **half hectare** and with the term of **one year**, and can be renewable on a **yearly basis** subject to the decision of Energy and Mines sector.

The extraction of precious stones as Small-scale mining shall be permitted only by a Lao entity.

PART V

SAFETY AND ENVIRONMENT

Chapter 1

Safety

Article 57. Labor Health and Safety

The investor in mining business shall be required to develop a system to ensure safety and to protect the health of labor by identifying measures and establishing a warning system to prevent, control, eliminate, or minimize the impacts and risks that are dangerous to mining labor in the mines area.

All activity concerning minerals shall institute a mine safety and labor health committee which consists of the participation of employees' representative in accordance with the Labor Law.

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The investor in mining business shall cooperate and facilitate the committee operations and duties.

Article 58. Measures ensuring Labor Health and Safety

In order to ensure the safety and health of labor, investors concerned with mineral business shall implement measures as follows:

- 1) establish rules and measures for labor health and safety;
- 2) design exploitation operations, construct and install adequate machinery and equipment to meet relevant technical standards;
- 3) use techniques and technology which is effective to protect against pollution, and to supply equipment and uniforms to provide safety for labor;
- 4) have a safe place or warehouse for the storage of explosive and chemical substances;
- 5) regularly report on safety and health of labor including related statistics regularly.

Article 59. Report of Accident

For any accident or other occurrence happening from activity related to mineral business that has or might have unfavorable impact on the environment or health of people or the community, investor must report, within twenty four hours, to local authorities, surrounding people, and other relevant agencies and provide timely protection remedy measures.

Chapter 2

Environment and Sustainable Development

Article 60. Environmental and Social Protection

In order to avoid or minimize negative environmental and social impacts, investors in mineral activities must perform measures as follows:

- 1) create a plan for the management of the environment and a plan of resettlement for people who are impacted from such business related to minerals in accordance with regulations;
- 2) establish a plan for rehabilitation of the mined out area and for mine closure to allow for other uses;
- 3) be liable to pay compensation for damages incurred from the impact of the business operation related to minerals subject to relevant regulation;
- 4) To contribute to an Environmental Protection Fund for the project;
- 5) Treat waste water before discharge from the project in order to ensure the health and life of the people, animals and the environment;
- 6) To regularly summarize and report on assessment of social and environmental impacts to the concerned mineral management/ monitoring and inspection organization.

Article 61. Sustainable Development

In order to assure sustainable mining and/mineral development, investors related to mineral business must comply with following practices:

- 1) To mine in consistence with the National Socio-Economic Development Plan and in consistence with the government Strategy Plan for the Development of the Mining Industry and Development Plan, and plan for integrated land use;
- 2) Assure a balance between mining and socio-economic development activities, as well as natural resource conservation and environmental protection;
- 3) Remedy any negative impacts that occur during mining and after mine closure and provide community development depending on the scale of the operation focusing on creation of jobs for local people and aiming to create gradual economic development.

PART VI

**RIGHTS, DUTIES AND OBLIGATIONS OF THE
MINERALS BUSINESS OPERATORS**

Chapter 1

**Rights, Duties and Obligations of the Business Operators
related to the Study of Geology and Mineral Deposit Data**

**Article 62. Rights, and Duties of the Business Operators related
to the Study of Geology and Mineral Deposit Data**

A business operator undertaking activities related to the study of geology and mineral deposit data has the following rights and duties:

1. To start their business operation within sixty days after the date of receiving a mineral prospecting or exploration license;
2. To report relevant information to the Energy and Mines sector within thirty days after the discovery of minerals other than those that are indicated in their prospecting or exploration license and such information must be kept confidential;
3. To ensure safety during the operation of mineral prospecting or exploration;
4. To report any situation, such as an accident or event that is considered a threat or a threat of damage to individuals, organizations, environment and society;
5. To obtain relevant facilitation such as to obtain access or pass-through the land area of individuals or organizations, to their concession area through coordination with local administration and the owners of the land use rights;

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6. To transform the initial form enterprise or company to new form according to the form according to regulations;
7. To summarize and report progress on the prospecting or exploration work program to the Energy and Mines sector and other concerned sector on quarterly and annually basis.

**Article 63. Obligations of the Business Operators related to the
Study of Geology and Mineral Deposit Data**

A business operator undertaking activities related to the study of geology and mineral deposit data have the following obligations:

1. To cooperate with the local authority where the operation is located and to undertake the prospecting and exploration in accordance with the approved prospecting and exploration plans, environmental management plan and the socio-economic development plan;
2. To maintain documents related to the prospecting and exploration work. For instance, fieldwork records/notebook, sampling, testing/assaying, analysis, and measures undertaken for environmental protection and social development;
3. To remove structures, temporary fixtures, camp and equipment used for prospecting and exploration within thirty days after the license is terminated, except when the State wishes to use such things;
4. To rehabilitate the land which has been affected from the prospecting and exploration work into usable conditions such as: restoration, rehabilitation, filling, covering, improving of land and cleaning up chemical wastes and replanting of trees in accordance with the concerned laws and regulations;
5. To pay land rent concession fee, personal income tax, export and import duty, fee on the buying and sale of share, license fee and technical service fee, contribute to various funds such as :

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Environmental Protection Fund, Community Development Fund, Human Resources Development Fund, Sustainable Development Fund and Project Management Fund in accordance with the concerned laws and regulations.

Chapter 2

Rights, Duties and Obligations of Mining Business Operator

Article 64. Rights and Duties of Mining Business Operator

A mining business operator has the following rights and duties:

1. To construct or install necessary fixtures, equipment, plant and buildings for the purposes of mining, transporting, processing, analyzing, washing, smelting and storing;
2. To have ownership of assets obtained from mining business operations;
3. To dispose of any mineral product from mining activities in compliance with regulations;
4. To receive the protection of his own right and fair benefit in compliance with the law;
5. Protection against disclosure of his own confidential data and technology concerning the operation of business or scientific information to other individuals or entities, except only the disclosure to the State;
6. To transfer his initial form of the enterprise or company to another form in accordance to the regulations;
7. Conduct such other activities which are reasonably related to the mining operations with consent from the government;
8. Propose to suspend the operation temporarily to the Energy and Mines sector when there is a force majeure causing the failure of the operation;

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9. To obtain relevant facilitation such as to obtain: access or pass-through the land area of individuals or organizations to their concession area through coordination with local administration and the owners of land use rights.

Article 65. Obligations of Mining Business Operator

Obligations of the mining business operator are:

1. To undertake mining in accordance with the approved plan, to provide cooperation and to facilitate the concerned state officer for the inspection of mining work;
2. To use, local or domestic goods as much as possible, transportation service of domestic transportation enterprises or companies, local labors who are Lao citizens in all areas of works based on their capacity and take care on the social welfare and other policy to labor, effective anti-pollution technology, to supply tools, equipment and facilities to ensure safety and health to the workers;
3. To transfer skills and technology to Lao technical staff both in the short term and long term;
4. To compensate for removal, land and agricultural products cost, management of resettlement, and to provide an appropriate place for livelihood of the affected people from the mining operation ;
5. To maintain records on technical data with regards to samples, drawings, maps, as well as data on mining operation, interpretations, accounting system and assets in the field; to store and put in landfill wastes in conformity to environmental protection plan;
6. To timely report, to the relevant Energy and Mines sector, on serious accident or events that happened or would happen; to summarize and report on information to the Energy and Mines sector on the results from exploration, mining and processing, including operation performance as well as the accounting records on monthly, quarterly, and annual basis;

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7. To pay land rent concession fee, royalty, income tax, turnover tax, personal income tax, dividend tax, export and import duty, fee on the buying-sale of share, license fee and technical service fee, contribute to various funds such as: Environmental Protection Fund, Community Development Fund, Human Resources Management Fund, Sustainable Development Fund and Project Management Fund in accordance with the concerned laws and regulations.

Chapter 3

Rights, Duties and Obligations of the Business Operator related with the Special Categories of Mineral

Article 66. Rights and Duties of the of the Business Operator related with the Special Categories of Mineral

The business operator related with the Special Categories of mineral has the following rights and duties:

1. To conduct mining activity for special categories of mineral within the permitted area in conformity with sound practice for mining, socio-economic development and environmental protection;
2. To process, buy and sell special categories of minerals in compliance with regulations;
3. To obtain relevant facilitation such as to obtain access or pass-through the land area of individuals or organizations to their concession area through coordination with local administration and the owners of land use rights.
4. To submit summary reports to the relevant Energy and Mines sector, on monthly, quarterly, semi-annual, and annual basis concerning mineral production, costs, the disposal of product and the number of permanent workers.

Article 67. Obligations of the Business Operator related to Special Categories of Mineral

Obligations of the business operator related to special categories of mineral are:

1. To undertake mining in accordance with the approved plan; to provide cooperation and to facilitate the concerned state officer for the inspection of mining work;
2. To use effective anti-pollution technology; to provide tools, equipment and facilities to ensure safety and health to the workers;
3. To compensate for removal, land and agricultural products cost, management of resettlement, and to provide an appropriate place for the livelihood of affected people from the business operation related to special categories of minerals;
4. To cleanup various roads where transportation existed of industrial minerals and soil-rock for construction, to store and dispose of wastes into landfill in conformity with the environmental protection plan;
5. To timely report, to the relevant Energy and Mines sector, on accident/incident or event that happened or would happen; to summarize and report on various information to the Energy and Mines sector on the results from exploration, mining and processing, including operation performance as well as the accounting records on monthly, quarterly, and annual basis;
6. To pay land rent concession fee, royalty, income tax, turnover tax, personal income tax, dividend tax, export and import duty, fee on the buying-sale of shares, license fee and technical service fee, contribute to various funds such as: Environmental Protection Fund, Community Development Fund, Human Resources Management Fund, Sustainable Development Fund and Project Management Fund in accordance with the concerned laws and regulations.

Article 68. Fiscal Obligations of Mineral Business Service Providers

Mineral business service providers have fiscal obligations as follow:

1. Services for mapping survey;
2. Services for geophysical survey;
3. Services for drilling;
4. Services for mining;
5. Services for analysis;
6. Services for mining consulting;
7. Services for processing or buying-selling and other services related to mineral.

Fulfillment of fiscal obligations for mineral business services providers shall be based on relevant laws and regulations.

**PART VII
GOVERNMENT'S SHARE**

Article 69. Equity Participation by the Government

After the investor has completely implemented and presented the report on the feasibility study, Government has the right to undertake the share in such mineral business.

Article 70. Notice of Equity Participation by the Government

Government shall notify the mining business investor on its intent to participate or not to participate in the equity no later than one hundred and twenty days after the date received of feasibility study report from the investor.

Article 71. Payment of Share by Government

After the government notifies the mining business investor on its intent to participate in the equity, it shall pay the corresponding amount in

the following forms: in-cash method or in deducting from the dividend payable to the government by investor or in other form according to the agreement. Government can turn minerals into capital to use in its equity participation.

Article 72. Representative of the Government

Government has the right to appoint its representative to sit on the board of directors of the enterprise or company in which it holds the share according to regulations.

**PART VIII
PROHIBITIONS**

Article 73. Prohibitions for Staff and Mining Inspector

The following conduct is prohibited for staff and mining inspector:

1. To abuse duties and position and to receive bribes for their own benefit;
2. To over use the rights and duties that cause loss to the benefits of the State, collectives, or people's fair rights and benefits;
3. To abandon their duty and lack of responsibility for the assigned tasks;
4. To disclose State and Government secret or confidential business trade-techniques related to mining;
5. To falsify documents such as signature, seal and account and data of activity related to minerals;
6. To participate in mineral business operations or to allow a family member to take an operation or to participate in such business;
7. To move, change or destroy boundary markers of concession area without permission;

8. To use violence, intimidation, threats or other illegal measures.
9. Other prohibited behaviors as provided in laws and regulations.

Article 74. Prohibitions for Investors

It is prohibited that domestic and foreign investors conduct followings activities:

1. To carry out prospecting, exploration, mining, processing or selling and buying of minerals without licenses;
2. To undertake prospecting, exploration, mining and processing out of the approved work program, or to undertake mineral business operation outside the licensed areas;
3. To encroach and create damage to mineral deposit and mines;
4. To move, change or destroy boundary marking signs/stakes of licensed areas;
5. To import expatriate labor, vehicles, machinery and equipment for a mineral business operation without permission;
6. To undertake mining, selling and buying, moving and transporting of restricted minerals;
7. To remove minerals exceeding weight, quantity, size, or not in compliance with the document;
8. To use a license as security or share contribution as in kind investment, loan, lease, transfer, pledge or sale of the license without approval;
9. To offer commission, bribe a government officer, mining inspector or local people, to offer bribes to the public to encroach, mine or pan for minerals by using different methods;
10. To destroy, defraud, conceal or sell mineral samples, or to sample without approval;
11. To use violence or to refer to an official's name to intimidate mining staff, mining inspectors or local people;

12. False reporting or to falsify documents, and seal related to minerals;
13. Other prohibited behaviors as provided in laws and regulations.

Article 75. Prohibitions for People

It is prohibited for people to conduct the following activities:

1. To destroy a mineral deposit by encroachment, mining, mineral panning or undertaking other illegal actions without license or permission;
2. To undertake mining, trading, removing or recovering mineral without approval;
3. To collude with an investor, staff or mining inspector in undertaking illegal mining, encroachment and destroying mineral resources or mine;
4. To falsify documents or seal related to minerals;
5. To use violence or to refer to other person's name to intimidate staff, mining inspector and investor;
6. To conceal, destroy minerals or illegally sell mineral samples;
7. Have other prohibited behaviors as provided in laws and regulations.

PART IX

DISPUTE SETTLEMENT

Article 76. Forms of Dispute Settlement

Dispute settlement may be conducted in the following forms:

1. Mediation or Conciliation;
2. Administrative settlement;
3. Settlement by Committee for Economic Settlement;
4. Judgment of People's Court.

Article 77. Mediation or Conciliation

When a dispute occurs between a business operation and a mineral business operation, the concerned parties may negotiate or conciliate their dispute to reach amicable agreement.

Article 78. Administrative Settlement

The mineral management and inspection organizations, in coordination with concerned sectors and local administration at the same levels, shall settle disputes related to administrative matters such as undertaking of a mineral business operation without a license, undertaking a mineral business operation that is not consistent with the objective, non fulfillment of tax and fee obligations in accordance with the law. If the mineral business operators are not satisfied with the decision, such persons may propose the dispute to the next higher level for settlement.

Article 79. Settlement by the Committee for Economic Settlement

If the dispute cannot be settled by administrative settlement, a mineral business operator may present the dispute to the Committee for Economic Settlement for mediation or arbitration in accordance with laws.

Article 80. Judgment by People's Court

A dispute related to a business operation and a mineral business operation that cannot be settled by mediation and remedy, the disputants may submit the dispute to the People's Court for judgment in accordance with laws and regulations.

Article 81. Dispute Settlement that has International Component

The dispute settlement related to a business operation and a mineral business between domestic and foreign investors or between foreign investors themselves in Lao PDR or between a foreign investor with the Government shall use domestic dispute resolution methods, or international methods based on the agreement of the parties.

**PART X
MANAGEMENT, MONITORING AND
INSPECTION OF MINERALS ACTIVITIES**

**Chapter 1
Management of Minerals Activities**

Article 82. Mining Management Organization

The Government centrally and uniformly manages minerals activities nationwide and designates the Ministry of Energy and Mines to act as a focal agency to coordinate with other relevant agencies such as: the Planning and Investment sector, Industry and Trade sector and concerned local authorities.

Mining management organization/authorities shall include:

1. Ministry of Energy and Mines
2. Provincial and Capital City Energy and Mines Department; and
3. District, Municipality Energy and Mines Office.

Article 83. Rights and Duties of the Ministry of Energy and Mines

In the management of minerals operations and work, the Ministry of Energy and Mines has the following rights and duties:

1. To act as the secretariat of the government to undertake study-research and to develop the strategy plan, policy plan, laws and

- regulation and to elaborate the policy directions pertaining to minerals into work programs and plans and the detail of projects for the protection, mining and use of minerals nationwide;
2. To draft ordinances, decrees, regulations and others legislation concerning minerals;
 3. To disseminate, provide guidelines and monitor the implementation of law and regulation related to minerals activities;
 4. To conduct scientific, technical, technological research ; to establish a network of statistics and information centers concerning minerals and minerals activities;
 5. To establish the Committee for the Evaluation and Approval of Minerals Reserves;
 6. To study benefit sharing from the revenue of mineral business operations with the cooperation and coordination of concerned authorities to propose to the Government for consideration;
 7. To participate in the negotiation and signing of investment agreements in mining sector as assigned by the Government;
 8. To issue and extend licenses for prospecting, exploration, mining, establishment of processing or smelting plant, issue certificate for the feasibility study to the investors;
 9. To propose to the Government for consideration of suspension or cancellation of mineral business operations which violate agreements in compliance with regulation;
 10. To manage and monitor prospecting, exploration, mining, processing, smelting of mineral products and trading of minerals;
 11. To build, train and upgrade geological-mining skills among Lao personnel and workers;
 12. To provide technical certificates for the export and import of minerals, vehicles, machines, and equipment for the use in mining operations, including the issuing of permits for the sending of samples for analysis in accordance with regulation;

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13. To issue mineral bulletins and administer minerals registration works;

14. To coordinate with other concerned sectors and concerned local authorities to protect, promote, monitor mineral operations and deal with mineral dispute settlement;
15. To relate and cooperate with foreign countries and international organizations in mineral activities in compliance with the assignment of the government;
16. To regularly summarize and report on the result of the implementation of mineral activities to the Government;
17. To exercise the rights and perform other duties as provided in the laws and regulations.

Article 84. Rights and Duties of the Provincial/Capital Level Department of Energy and Mines

For the monitoring of mineral business operations, the provincial, capital department of Energy and Mines shall have the following rights and duties:

1. To elaborate and implement the strategic plan, resolutions, orders, notices, advice and regulations on the management, protection, and utilization of minerals by the Ministry of Energy and Mines, Provincial and Capital authority;
2. To disseminate laws and regulations related to minerals;
3. To register minerals under its responsibility and to give guidelines, support and to, monitor and evaluate the performance of the district and municipality office on energy and mines;
4. To study and provide technical comments on mineral activities and then to propose to the Ministry of Energy and Mines and Provincial Authority, Capital Department for consideration;
5. To issue and extend licenses on Special Categories of Mineral business in accordance with regulation;

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6. To propose to the Ministry of Energy and Mines for consideration on the suspension or cancellation of business operations of Special Categories of Minerals;
7. To monitor and assess the mineral operation activities and businesses including the use of Community Development Fund under its responsibility;
8. To coordinate with other relevant sectors and concerned local administrative authorities and to monitor mineral business operations;
9. To certify the implementation of works related to mineral business then report to the Ministry of Energy and Mines and Provincial, Capital Administration Authority;
10. To regularly summarize and report the result of the implementation of mineral activities to the Ministry of Energy and Mines and Provincial, Capital Administration Authority;
11. To exercise the rights and perform other duties as provided in the laws and regulations.

Article 85. Duties of the District and Municipality Level Energy and Mines Office

For the monitoring of mineral business operations, the District and Municipality Energy and Mines Office, shall have the following rights and duties:

1. To implement programs, plans, projects, decisions, orders, notification, and guidelines related to minerals;
2. To disseminate mineral laws and regulations;
3. To issue permits and register artisanal mining and precious stone extraction for artisanal mining which is not business based on the approval from the District and Municipality Energy and Mines Department;
4. To coordinate with other relevant sectors and concerned local administrative authorities in order to facilitate mineral business operations, including to monitor the activities related to minerals under its responsibility ;

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5. To regularly summarize and report the implementation of mineral activities under its responsibility to the District and Municipality Energy and Mines Department and District and Municipality Administration Authority;
6. To exercise the rights and perform other duties as provided in the laws and regulations.

Article 86. Rights and Duties of other Sectors and Organizations

The relevant sectors and organizations shall have the right and duty to manage, protect minerals and mineral resources in accordance with their roles.

Local administrative authorities shall have responsibilities to manage, monitor activities and mineral business operation, to ensure rights and benefit of all ethnic communities who reside in the minerals areas, to protect and consolidate and report mineral occurrences to Energy and Mines sector, to provide facilitations for mineral business operation, including social security and public order within their area.

Chapter 2

Inspection of Mineral Activity

Article 87. Inspection Organization

The Inspection Organization is the same organization as the Mineral activity Management Organization as stated in Article 82 of this law.

Article 88. Forms of Inspection

An inspection has two forms as follows:

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1. Internal inspection;
2. External inspection.

An internal inspection is the inspection carried out by the Energy and Mines sector.

External inspection is monitoring carried out by the National Assembly, the State Inspection Organization and audits by the State Auditing Organization on the implementation of mineral activities in the exercise of their rights, duties and roles as provided in the laws and regulations.

In addition, if it is found that there is a violation of the laws and regulations by the Energy and Mines sector, government officials or mining inspectors, citizens, organizations, enterprises or investment companies may require concerned authorities to take action against such violation.

Article 89 . Content of the Inspection

Inspection of mineral operations means an undertaking to ensure that mineral activities and operations are carried out in accordance with the laws and regulations, are effective, and to ensure technical standards, in order to protect mineral resources, environment, safety and labor health.

An inspection of mineral operations has the following content:

1. The implementation of the mineral operations in each step;
2. The compliance with the timeframe of prospecting, exploration, feasibility study and mining plans;
3. The implementation of safety standards and measures for mitigation of environmental impacts;
4. The implementation of obligations pursuant to agreements and according to laws and regulations;
5. The monitoring of the activities of the organizations, government officers, mining inspectors and the peoples concerning the

- management, protection, mining, and use of minerals including the inspection of activities and mineral business operation ;
6. The compensation for negative impacts to the environment, life, health and property of the people; and
7. The financial system, social welfare and other policy.

Article 90. Rights and Duties of the Inspection Organization

The Inspection Organization on mining and mineral activities has the following rights and duties:

1. To inspect implementation of laws and regulations related to minerals;
2. To inspect activities and businesses related to minerals such as: prospecting, exploration and mining including service businesses related to minerals;
3. To propose to concerned organizations to issue an order to suspend or cancel activity related to minerals or to revoke or sanction staff and mining inspection officers who violate the laws and regulations;
4. To compile and inspect reports on the result of the analysis of various mineral samples;
5. To cooperate and coordinate with other concerned sectors for the implementation of other concerned sectors rights and duties;
6. To periodically summarize and report on the implementation of inspection work to the immediate higher level regularly; and
7. To exercise the rights and perform other duties as provided in the laws and regulations.

Article 91. Mining Inspection Officers [Mining Inspector]

Mining inspection officers [Mining inspector] are the government officials of the Energy and Mines sector which has the principal rights and duties as follows:

1. To conduct patrols and on-site inspections of the following targets, including mining sites, mineral transport routes, storage, stockpiles, warehouses for minerals, processing plants and other places as deemed necessary;
2. To receive and record reported violation cases and to request and check documents related to any violation of minerals related laws and regulations;
3. To contact and coordinate with other organizations concerning local administrative authority regarding the implementation of their duties;
4. To conduct inspections in accordance with article 89 of this law; and
5. To summarize and report on activities related to mining inspection to Central and Provincial Energy and Mines sectors and local administrative authorities.

Article 92. Inspection Forms

There are three types of inspections as follows:

1. Regular inspection;
2. Inspection with advance notice;
3. Impromptu inspection.

Regular inspections are carried out at fixed intervals and must be performed at least twice per year.

Inspections with advance notice are inspections carried out, when deemed necessary, by sending advance notice to investors at least 24 hours before the inspection.

Impromptu inspections are the inspection carried out, when deemed necessary, in an urgent situation and without sending any advance notice to the investor.

The inspections could be carried out through both document check and on-site inspection.

**PART XI
AWARDS AND SANCTION**

Article 93. Awards

Persons or organizations with outstanding performance in the implementation of this law mainly in the management, protection of mineral resources and efficient mineral business operations and in compliance with the laws of the Lao PDR will receive awards and other policies in accordance with regulations.

Article 94. Sanction against Violators

Persons or organizations violating this law shall be subject to measures such as re-education, fines or criminal penalties depending on the seriousness of the violation.

Article 95. Re-Education Measures

Persons or organizations violating this law in minor cases or for the first time, such as: failure to submit a mineral business report within the timeframe, working too slowly, not in accordance with the technical plan, carrying out artisanal mining activities without a permit which caused damages with the cost less than one million kips but has been reported in good faith, shall be warned and re-educated.

Article 96. Disciplinary Sanction

A government official or mining inspector who violates regulations and laws related to mineral and prohibition provisions that are not severe and cannot be constituted as a criminal offense and have cost

damages with the cost less than one million kips, but have not reported in good faith, to escape from the offense shall be subject to the following disciplinary measures:

1. Being warned or criticized for the offense by recording such offense in the CV file of such persons;
2. Being suspended of level promotion, level of salary and other rewards;
3. Being removed from position or transferred to other duty with lower position;
4. Being removed from official authority without any compensation policy.

The persons who are put under disciplinary measures shall return all property illegally obtained to concerned organizations.

Article 97. Fines

Persons or organizations violating this Law on Minerals and prohibitions provided in this law that does not constitute criminal offense and cause damages with a cost more than one million kips shall be fined at the amount of the damages to minerals, mineral product in accordance with the market price.

If it is a second time violation or offense such as a serial offence, such person shall be fined double the cost of the damage to minerals, mineral product in accordance with the market price.

Article 98. Civil Measures

Persons, organizations, enterprises or companies violating this Law on Minerals which caused damages or to another individual concerning minerals activity must also recompense the damage which he has created.

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Article 99. Penal Measures

A person, who violates this Law which constitutes a penal offence such as: falsification of mining licenses, the destruction of a mineral deposit, illegally mining, failure to apply technical safety and environmental measures causing death or injury, receiving bribes, abuse of power, forging various documents related with mineral activities, abusing their duty and obtaining personal gain from mining business operations, shall be punished as provided in the Penal Law including to recompense the damage which he/she created.

Article 100. Additional Measures

Apart from the measures mentioned above in Article 99, additional sanctions may be imposed on the offender such as: suspension of mining business operations, withdrawal of license, and confiscation of the offender's vehicles and equipment by the State.

PART XII FINAL PROVISIONS

Article 101. Implementation

The government of the Lao People's Democratic Republic shall implement this law.

Article 102. Effectiveness

This law shall enter into force ninety days from the date of the promulgating decree issued by the President of the Lao People's Democratic Republic.

This law repeals the Mining Law No. 04/97/NA, dated 12 April 1997.

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Persons and organizations that have received mining licenses pursuant to the Mining Law 1997 or in accordance with valid contracts prior to the date this law comes into force shall be entitled to continue their mining business operations in accordance to the terms and conditions of such contracts.

In the case that the license holder of mineral business by contract in the past wishes to implement under this revised Law can propose to the concerned agencies within one hundred and twenty days from the date this law comes into force.

All regulations and provisions that conflict with this law are null and void.

President of the National Assembly

[Sealed and Signature]

Thongsing Thammavong

ພິມທີ່ ທະວີໄຊ ການພິມ
ໃນອະນຸຍາດເລກທີ 185 ທາ 16062011
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Supported by: Technical Assistance for Capacity Building in the Hydropower and
Mining Sectors Project, IDA H539 (World Bank and AusAID)

5.3 Mining Law



LAO PEOPLE'S DEMOCRATIC REPUBLIC PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

President's Office

No.36/PO

DECREE *of the* **PRESIDENT** *of the* **LAO PEOPLE'S DEMOCRATIC REPUBLIC** **On the Promulgation of the Mining Law**

Pursuant to Chapter 5, Article 53, point 1 of the Constitution of the Lao People's Democratic Republic;

Pursuant to Resolution No. 04-97/NA, dated 12 April 1997, of the 10th Session of the third legislature of the National Assembly regarding the adoption of the Mining Law; and

Pursuant to Proposal No. 17/SC, dated 7 May 1997, of the National Assembly Standing Committee.

The President of the Lao People's Democratic Republic
Decrees That:

Article 1. The Mining Law is hereby promulgated.

Article 2. This decree shall enter into force on the date it is signed.

Vientiane, 31 May 1997

The President of the Lao People's
Democratic Republic

[Seal and Signature]

Nouhak PHOUMSAVANH



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

National Assembly

No. 04-97/NA
12 April 1997

MINING LAW

Chapter 1 General Provisions

Article 1. Function of the Mining Law

The Mining Law has the function to determine the system of management, preservation, exploration, exploitation and processing of minerals into goods for local consumption and export by using the potential of natural resources, in order to contribute to the industrialisation process and to improve the people's living conditions.

Article 2. Minerals

Minerals refer to non-renewable natural resources at specific locations, [and] are chemical and physical substances in the form of solids, liquids or gas, [such as]: gold, silver, copper, iron, precious stones, sand, construction soil, construction stones, coal, gas and natural oil, including mineral water, and water from natural warm and hot springs.

Article 3. Ownership of Mineral Resources

All mineral resources on the surface of the land, underground, or under water within the territory of the Lao PDR are the property of the national community and are under centralised and unified management by the State.

Article 4. Promotion, Preservation and Development of Mineral Resources

The State has policies to promote the efficient preservation and development of mineral resources by persons and organisations, both domestic and foreign.¹

Article 5. Environmental Protection

Persons with the right to conduct mining² business shall adopt procedures and measures to limit loss of natural resources and adverse³ impact on the environment.

Article 6. Protection of the Rights and Interests of Persons Conducting Mining Business and the Interests of Local People

The State protects the rights and the interests of persons conducting mining business and the interests of the local people in compliance with the laws and regulations of the Lao PDR.

¹ For readability, the structure of this sentence has been modified.

² In Lao, "mineral" and "mining" are the same word.

³ The literal translation is "non-positive". This word is sometimes translated as "negative".

Article 7. Scope of Application of Law

This law applies to the management and exploitation of minerals, starting from prospecting [and] basic geological survey of natural resources to mineral extraction and processing of minerals in the Lao PDR, except for gas and natural oil which will be governed by separate regulations.

Chapter 2

Basic Geological Survey and Preservation of Mineral Resources

Article 8. Basic Geological Survey

Basic geological survey refers to the initial gathering of information on mineral outcrops and geological structures for the production of basic geological maps.

The government assigns the Ministry of Industry and Handicrafts⁴ to conduct nationwide basic geological surveys in coordination with the concerned⁵ agencies⁶ and local administrative authorities⁷.

Article 9. Categories of Minerals

To promote the development of the mining industry, the government has classified minerals into 4 categories as follows:

1. Metallic minerals;
2. Non-metallic minerals;
3. Combustible minerals;
4. Liquid minerals.

Metallic minerals include:

- Gold, silver, copper, zinc, iron, lead, tin and others⁸.

Non-metallic minerals include:

- Diamonds, rubies, emeralds, limestone, gravel, sand, gypsum, construction soil, construction stones and others.

Combustible minerals include:

- Coal, natural gas and natural oil.

Liquid minerals include:

- Mineral water, and water from natural warm and hot springs.

The government shall provide details on each category of minerals.

⁴ As of December 2006, the Ministry of Industry and Handicrafts has been re-organised into two ministries: the Ministry of Industry and Commerce and the Ministry of Energy and Mining.

⁵ The term “concerned” is used in the sense of “relevant”.

⁶ In the Lao language, the word roughly meaning “the entire organisation of responsible governmental agencies” is capable of being translated as any one of the following English words: “organisation”, “agency”, or “authority”. In choosing which English word to use, the translators have adopted the following convention. Where the governmental agencies in question have in practice adopted an English term for themselves (e.g., the Tax Authority), the translators have used that term. Otherwise, the translators have used the generic term “organisation” or, as in this law, “agency”.

⁷ The same Lao term may be translated as both “local administrations” and “local administrative authorities”. The translators have generally applied the following convention: (i) if the term is used in a sentence in juxtaposition to a reference to some specific agency within the line ministries, the term has been translated as “local administrations”, referring only to the bodies responsible for local administration discussed in the Law on Local Administration; and (ii) if the term is used alone in a sentence, it has been translated as “local administrative authorities” to indicate that it may be wide enough to cover local administrations as well as local divisions, offices or units of line ministries. However, readers should note the alternative meaning that may have been intended.

⁸ The term “and others” is a literal translation and is not subject to further specificity.

Article 10. Protected or Restricted Minerals

For efficient and sustainable use, the government will⁹ issue a periodic list of minerals that are protected or restricted from export [and] import, or export of which in the form of raw materials is limited.

Article 11. Safeguarding and Use of Information on Mineral Resources

Data and information¹⁰ on, and samples of, mineral resources must be safeguarded and used in conformity with specific regulations on minerals.

Persons [and]¹¹ organisations shall report to the concerned agencies any data and information on, [or]¹² samples of, mineral resources that have scientific significance or high value [or]¹³ are rare.

Persons [and] organisations are forbidden to illegally conceal, reduce the value of or trade¹⁴ in such samples, and only the State is entitled to purchase samples of [mineral resources] that have scientific significance or high value or that are rare.

The government establishes a list with the names and characteristics of the above samples of natural resources.

Article 12. Preservation of Sources of Mineral Resources

The government assigns the Ministry of Industry and Handicrafts to preserve sources of mineral resources nationwide in coordination with the concerned agencies by stipulating specific regulations.¹⁵

Chapter 3 Classification of Mineral Resource Areas

Article 13. Mineral Resource Areas

Mineral resource areas refer to areas where basic geological reconnaissance surveys have been conducted and where commercial mineral deposits have been identified for further detailed investigation.

There are four [kinds of] mineral resource areas:

1. Areas licensed for mining business;
2. Reserved areas;
3. Prohibited areas;
4. Poisonous areas.

Article 14. Areas Licensed for Mining Business

Areas licensed for mining business are mineral resource areas determined by the government as areas where mining business can be conducted.

Article 15. Reserved Areas

Reserved areas are mineral resource areas designated for the extraction of a specific mineral.

⁹ The word “will” has deliberately been used because the Lao text is ambiguous as to whether there is an obligation.

¹⁰ The Lao word is a compound word: “data-information”.

¹¹ Here, the literal translation is “or”, but it is clear that the intended meaning is “and”.

¹² Here, the literal translation is “and”, but it is clear that the disjunctive “or” meaning is intended.

¹³ Here, the literal translation is “and”, but it is clear that the disjunctive “or” meaning is intended.

¹⁴ The literal translation is “buy-sell”.

¹⁵ I.e., the Ministry is empowered to stipulate regulations.

Article 16. Prohibited Areas

Prohibited areas are mineral resource areas where mining business is forbidden [such as]: areas with cultural significance, protected forest areas, areas with importance for national defense and security, and others.

Article 17. Poisonous Areas

Poisonous areas are mineral resource areas containing poisonous substances or other poisonous minerals, which shall be notified by the Ministry of Industry and Handicrafts to the local administrative authorities for the application of safety and health measures for the population in coordination with the concerned agencies.

Chapter 4 Mining Business¹⁶ Operations

Article 18. Mining Exploitation

Mining exploitation refers to activities comprising prospecting, exploration, extraction, processing and trading in minerals.

Mining activities take place in the following two forms:

1. Mechanised mining business operations;
2. Mining activities using manual¹⁷ tools, [whether] as a profession or not.

Article 19. Mines

Mines are natural mineral reserves with economic importance and located on the surface of the land, underground or under water.

Article 20. Forms of Mechanized Mining Business Operations

Forms of mechanized mining business operations are divided into three scales, as follows:

1. Large-scale mining business operations;
2. Medium-scale mining business operations;
3. Small-scale mining business operations.

Each scale of mining operations shall be determined in detail by the government based on the capital involved, the type of minerals, [and the] area¹⁸ and volume of mineral reserves.

Article 21. Investment in Mining Operations

Investment in mining operations in the Lao PDR shall take the following forms:

1. Sole investment by the State;
2. Joint investment between the State and domestic or foreign parties;
3. Collective or private investment from domestic parties.

Article 22. Processes in Mining Business Operations

Processes in mining business operations include the stages of prospecting, exploration, exploitation, processing and trading in minerals.

Prospecting, exploration and exploitation shall be authorised specifically in areas where

¹⁶ In Lao, the same word may be translated as “business” or “commercial”. The translators have chosen “business” because in Laos, mining is often carried out with State involvement and may not therefore be strictly considered “commercial”. Readers should note that an alternative translation may have been “commercial mining operations”.

¹⁷ The literal translation is “handicraft tools”. In practice, this term refers to tools that are used manually, and are not mechanized.

¹⁸ The reference is to the size of the physical area covered by the mineral reserves.

no other person has conducted mining activities for the same minerals.

Article 23. Methods of Mining Operations

Persons or organisations intending to conduct mining operations shall apply for licenses to conduct mineral prospecting and data gathering. When information is sufficient, exploration shall be authorised.

At the completion of exploration, if there is an intention to conduct exploitation, feasibility studies shall be required, economic cost-effectiveness computed, [and] environmental, ecological and social impacts assessed, to apply for the grant of a concession from the government.

Simultaneously with the grant of an exploitation concession, the government will¹⁹ jointly invest in the mining operations.

Mining operations licensees shall establish and register their enterprise in compliance with the laws of the Lao PDR.

Article 24. Mineral Prospecting

Mineral prospecting refers to field observations to determine the geological conditions of the area [and] mineral outcrops on the surface, in order to evaluate the quality of minerals distributed in nature.

Mineral prospecting shall require approval from the government.

The period of mineral prospecting shall not exceed two years, but may be extended two times, each time for no more than one year as approved by the government.

Article 25. Mineral Exploration

Mineral exploration refers to geological and geophysical studies within a determined area to acquire further detailed data on the geology and geological structures [in that area] through testing, trenching, exploration, drilling, analysis of the physical and chemical features of the minerals and assessment of [their] economic potential.

Mineral exploration shall require approval from the government.

The period of mineral exploration shall not exceed three years, but may be extended two times, each time for no more than two years as approved by the government.

Article 26. Assessment of Mineral Reserves

The assessment of mineral reserves refers to the evaluation of the scope and volume of each type of explored mineral reserves.

Article 27. Testing and Analysis of Samples

Mining operation licensees are entitled to send mineral samples and other items relating to minerals for testing and analysis, whether within or outside the country, in accordance with the regulations stipulated by the government.

Article 28. Relinquishing and Adding to Areas

After prospecting and exploration, the licensee shall relinquish, in whole or in part, the area that [it no longer] desires for prospecting or exploration, together with all data acquired from such prospecting or exploration.

If, based on the data collected, it is discovered that a mineral vein extends beyond the licensed area, the licensee is entitled to apply for such [extended] area to be added [to its license].

¹⁹ The word “will” has deliberately been used because the Lao text is ambiguous as to whether there is an obligation.

Article 29. Evaluation of Feasibility of Exploitation

Evaluation of the feasibility of exploitation refers to the evaluation of the socio-economic potential of the mineral reserves and the existence and scope²⁰ of any adverse impact on the environment.

Article 30. Feasibility Studies

The feasibility study for [obtaining] a license to conduct mining operations shall include the following main contents:

1. Plans and processes for mineral exploitation [such as]: technical exploitation system, exploitation volume;
2. Socio-economic effectiveness of mineral exploitation.

The timeframe for making the feasibility study shall not exceed one year but may be extended for no more than one year as approved by the government.

Article 31. Environmental Impact Assessment

Simultaneously with the feasibility study, investors shall undertake an environmental impact assessment which shall comprise the following main contents:

1. Projection of environmental impact in each case, together with proposals of methods and measures for solving or mitigating any adverse impact on the environment, ecology and society;
2. An estimate of the damage and [costs of] population resettlement, including assistance in upgrading the living conditions of the population affected by the mineral exploitation's impacts [such as]: provision of adequate settlements and livelihood.

Article 32. Criteria for Persons to Receive Mining Concessions

Persons applying for a mining concession shall meet the following criteria:

1. Financial and technical capacity;
2. Good and trustworthy background in mining business;
3. [The proposed] mining concession is efficient, complies with the national socio-economic development plan and does not create severe adverse impacts to the environment.

Where an applicant for a concession meets all the criteria, the government shall consider granting a mining concession.

Article 33. Mineral Exploitation

Mineral exploitation refers to clearing, extraction, removal, washing²¹, grinding, selection and storage of minerals.

The period of an exploitation concession shall not exceed thirty years from the grant of the concession, but may be extended two times, each time for no more than ten years as approved by the government on a case by case basis and based on the amount²² of the minerals.

Article 34. Handover of Mining Enterprises

At the expiration of the mineral exploitation concession, the mining business operator shall hand over the mining enterprise in full, including vehicles and equipment constituting the assets of such mining business, to the government of the Lao PDR without any

²⁰ The literal translation is “whether and scope of adverse impact”.

²¹ Readers should note that the Lao word here is simply “washing” and is not the more comprehensive word used in Article 36, which has been translated as “separating”.

²² The literal translation is “size” or “scale”.

compensation, unless the government refuses to accept them.

Article 35. Mining Activities Using Manual Tools, [whether] as a Profession or Not

“Mining activities using manual tools”²³ refers to mineral exploitation using archaic tools as a profession.²⁴

Persons who conduct mining activities using manual tools as a profession shall be Lao citizens and shall conduct the mining activities with their own funds.

Mining activities using manual tools as a profession shall require approval from the industry and handicrafts divisions at the provincial, municipal or special zone level²⁵, which shall report to the Ministry of Industry and Handicrafts.

In the event that mining activities using manual tools as a profession includes the use of machines or the employment of labour, such exploitation shall be considered as mechanised mining business operations.

“Mining activities using manual tools not as a profession”²⁶ refers to occasional exploitation.

Mining activities using manual tools not as a profession shall require approval from industry and handicrafts offices at the district level, which shall report to the industry and handicrafts divisions at the provincial, municipal or special zone levels.

Article 36. Processing of Minerals

Processing of minerals refers to upgrading the quality of minerals through industrial methods, or by additional processes such as separating²⁷, melting, transforming, cutting, polishing²⁸ and processing, to add economic value.

Processing to upgrade the quality of minerals shall require specific approval from concerned agencies.

Article 37. Trading in Aggregate²⁹ and Minerals

Mining business operators shall be entitled to sell extracted aggregate and minerals, provided that they obtain aggregate and mineral trading approvals. Persons operating solely in the trading of aggregate and minerals shall require specific aggregate and mineral trading licenses.

Aggregate in this law refers to minerals that have been separated, ground, selected and processed.

Chapter 5 Rights and Obligations of Mining Business Operators

Article 38. Rights and Obligations of Mining Business Operators

A mining business operator shall have the following rights:

1. To be protected under the laws;
2. To exclusively conduct mining business in accordance with approved processes

²³ The quotation marks have been added and are not in the original text.

²⁴ The translators are aware that this defined term is later used as if the qualification “as a profession” is not included in the definition.

²⁵ Readers should note that the organisation of local administration has undergone change over time and that the administrative divisions and titles used in this older law do not conform to those used in newer laws such as the Law on Local Administration.

²⁶ The quotation marks have been added and are not in the original text.

²⁷ The Lao word is a single word with the connotation of sorting, screening, separating and washing minerals after extraction.

²⁸ The Lao word is a single word with both the connotations of cutting and polishing - i.e., lapidary activities.

²⁹ The Lao word is a collective term for stones, gravel and sand.

- within the licensed area;
3. To receive priority in conducting further mining activities, based on the assessment performed by the mining business administration and inspection³⁰ agency³¹ and approval from the government;
 4. To own assets and returns from mining activities as provided by contract;
 5. To receive technical and technological recommendations from the government on the conduct of mining business;
 6. To apply for the extension of the mining license;
 7. To build structures and install equipment to conduct mining activities in compliance with the regulations stipulated by the concerned sectors³².

Person conducting mining activities using manual tools as a profession shall be entitled to [bequeath by] inheritance their operations to members of their families, but cannot transfer such operations to other persons.

Article 39. Scope of Rights of Persons Conducting Mining Business

A person conducting mining business shall be entitled to transfer his rights or to [bequeath by] inheritance the mining business as approved by the government, except if such mining business is in the stage of prospecting.

Article 40. Rights in the Mining Business Area³³

In conducting mining business, the licensee shall be entitled to lease land from the government based on contracts, [and to] enter into contracts for the supply of electricity and water to process the minerals, provided that such water is treated and the discharge of waste water is [carried out in a manner that] ensures the health of the population and the environment. For certain types of minerals containing poisonous substances, the State will declare specific mining areas.³⁴

The use of wood in mining business areas shall require approval and compensation for such wood.

In the event that a mining business area covers land, construction, crops and others belonging to persons or organisations, the licensee shall make appropriate compensation for their removal and [for any] damage [caused to them].

Article 41. Priority in Mining Business Area

In the event that a mining concessionaire³⁵ discovers other minerals in the mining business area in addition to the authorised minerals, such concessionaire shall have priority in applying for an additional mining business license from the government in relation to the discovered minerals, except if such minerals belong in the category of reserved or prohibited minerals.

³⁰ In the Lao language, the same word is used to represent all of the following related (but slightly different) concepts: “control”, “inspection”, “supervision”, “audit” and “monitoring”. The translators have chosen “inspection” (and its variants) as the most appropriate English equivalent but readers should note and bear in mind the other meanings that might have been intended.

³¹ See footnote 6.

³² The term “sector” is used in many Lao laws to refer to the cluster of government ministries or agencies engaged in a particular activity.

³³ This refers to the area where mining business is carried out.

³⁴ The translators are aware that this sentence deals with matters that do not appear to be related to the matters covered in the rest of the paragraph.

³⁵ Literally, “the person who has received a concession to operate mining business”. Here, there is a specific reference to “a concession” whereas in other provisions, translated as “mining business operators”, there is no reference to the concession.

Article 42. Obligations of Mining Business Operators

A mining business operator shall have the following obligations:

1. To conduct mining business in compliance with any or all³⁶ [authorised] processes and within the authorised timeframe;
2. To deposit a guarantee with the Bank of the Lao PDR, in accordance with regulations;
3. To conduct its mining business as licensed, based on its feasibility study and mineral exploitation plan;
4. To protect and restore the environment during exploitation and after the end of exploitation, in order to ensure that there is no severe adverse impact to national security and the public, and to make appropriate compensation in the event that the lives and assets of people [or]³⁷ public assets³⁸ are affected;
5. To record and report the results of its mining business at each stage, including expenses at each stage, in detail and within the timeframe;
6. To ensure training and development of skills for Lao workers, including to ensure their welfare, health and security;
7. To keep accounts as provided by the Enterprise Accounting Law;
8. To properly and completely perform customs, tax and other obligations relating to mining business within the timeframe;
9. In the event that roads are constructed for mining business, such roads shall be open for use by others;
10. To strictly abide by the laws and regulations of the Lao PDR.

Persons conducting mining activities using manual tools, [whether] as a profession or not, shall have the obligation to pay custom duties and taxes in compliance with regulations, and the obligation to protect the environment and to strictly abide by the laws and regulations of the Lao PDR.

Article 43. Relationship with Local Administrative Authorities

At every stage of conducting mining business, mining operators shall contact the local administrative authorities in their area for facilitation in the conduct of mining business.

Article 44. Termination of Mining Business

Mining business shall terminate under the following conditions:

1. Expiration of the term of the mining business at any stage³⁹;
2. Voluntary termination of the mining business before the [expiration of the] term;
3. Withdrawal of mining license due to severe breach of contract or [severe violation of] the laws and regulations of the Lao PDR.

Article 45. Technical and Technological Standards

In the performance of mining business, the mining concessionaire shall apply techniques and use technologies with international standards recognized by the Ministry of Industry and Handicrafts and other concerned agencies, with a view to ensuring efficiency, safety and environmental protection.

³⁶ This is a literal translation.

³⁷ Here, the literal translation is “and”, but it is clear that the disjunctive “or” meaning is intended.

³⁸ The literal translation is “life and assets of the people and the public”.

³⁹ The literal translation is “at any or all stages”. This refers to the fact that a license may be given for one or more stages of exploitation.

Article 46. Relinquishing and Restoring the Exploitation Area

A mining concessionaire shall relinquish the mining area to the government, including leased land, in the following cases:

1. The use of such land is no longer required;
2. Withdrawal of mining license due to the non-performance of contracts or severe violations of the laws and regulations of the Lao PDR;
3. Expiration of the term of the mining license.

The concerned agencies shall be notified in advance, in accordance with the determined timeframe, when a mining area is to be relinquished.⁴⁰

If changes have been made to the ground, then prior to relinquishing such area, it shall be restored and rehabilitated, [such as]: filled, leveled, cleaned up [to remove] chemical substances and planted with trees in compensation.

Article 47. Compensation Fund

Mining operators shall set aside a fund for necessary expenses, as follows:

1. For the resettlement of the population from the mining area, and for finding a place where the population can be resettled and where they can practice their [means of] livelihood;
2. Compensation for damage to land, construction and crops;
3. Rental of land;
4. Environmental protection;
5. Restoration and rehabilitation of the mining area.

Such funds shall be included in the capital of the mining project.

Chapter 6 Administration and Inspection Agencies for Mining Business Operations

Article 48. Administration and Inspection Agencies for Mining Business Operations

Administration and inspection agencies for mining business operations include:

1. The Ministry of Industry and Handicrafts;
2. Industry and handicrafts divisions at the provincial, municipal or special zone level;
3. Industry and handicrafts offices at the district level;
4. Village administrations.

Article 49. Rights and Duties of the Ministry of Industry and Handicrafts

In the administration and inspection of mining business operations, the Ministry of Industry and Handicrafts has the following rights and duties:

1. To act as the secretariat of the government in elaborating strategic plans pertaining to minerals into detailed programmes and projects and into regulations for the administration and inspection of mining business operations;
2. To conduct scientific and technical research on geology and mining; to establish a network of national statistics and information centres relating to geology and mining;
3. To coordinate with other parties and with concerned local administrative authorities;
4. To study and present technical opinions on mining business;
5. To issue prospecting, exploration, exploitation or mineral processing licenses to persons who have received investment licenses from the government;

⁴⁰ For readability, the structure of this sentence has been modified.

6. To train⁴¹ and upgrade geological-mining skills among Lao personnel and workers;
7. To grant technical approval for the export or import of minerals in compliance with the regulations of the concerned ministries;
8. To control geological-mining activities;
9. To cooperate with foreign countries in geological-mining activities.

Article 50. Rights and Duties of the Industry and Handicrafts Divisions

In the administration and inspection of mining business operations, the industry and handicrafts divisions at the provincial, municipal and special zone levels have the following rights and duties:

1. To act as the direct secretariat of the Ministry of Industry and Handicrafts and of the provincial, municipal or special zone administrations⁴² in guiding and administering mining business operations within the scope of their responsibilities;
2. To coordinate with other sectors and concerned administrative authorities;
3. To study and present opinions on mining business within their area of administration;
4. To issue licenses to, and register, persons conducting mining activities using manual tools as a profession;
5. To inspect mining businesses within their area of administration;
6. To exercise such other rights and perform such other duties pertaining to mining business as assigned by the Ministry of Industry and Handicrafts.

Article 51. Rights and Duties of the District Industry and Handicrafts Offices

In the administration and inspection of mining business operations, the industry and handicrafts offices at the district level have the following rights and duties:

1. To act as the secretariat of the industry and handicrafts divisions at the provincial, municipal or special zone levels and of the district administrations⁴³ in the implementation of the plans, programmes, regulations and instructions pertaining to mining business of the industry and handicrafts divisions at the provincial, municipal or special zone levels;
2. To coordinate with other sectors and concerned administrative authorities;
3. To authorize and inspect persons conducting mining activities using manual tools not as a profession within their districts;
4. To facilitate mining operators, in accordance with the laws and regulations;
5. To exercise such other rights and perform such other duties pertaining to mining business as assigned by the industry and handicrafts divisions.

Article 52. Rights and Duties of the Village Administrations

In monitoring and inspecting mining business operations, the village administrations have the following rights and duties:

1. To monitor and inspect mining activities using manual tools, whether as a profession or not, within the village area;
2. To comment and report on mining activities affecting the rights and interests of the population, fine traditions⁴⁴ and laws and regulations;

⁴¹ This is a translation of two Lao words, the first referring to full professional training and the second referring to part-time or ad hoc training in specific skills, such as adult education or continuing education.

⁴² See footnote 7. Here, the reference is to the local administration.

⁴³ See footnote 7. Here, the reference is to the local administration.

⁴⁴ The Lao term connotes both customs and traditions.

3. To preserve and report mineral outcrops within the village area to the industry and handicrafts offices at the district level and to the district administrations;
4. To facilitate mining operations within the village area;
5. To coordinate with mining parties⁴⁵ in the preservation of order within the village area;
6. To inspect the performance of the obligations of persons conducting mining activities using manual tools, [whether] as a profession or not.

Article 53. Inspection of Mining Business Operations

The inspection of mining business operations refers to the monitoring of mining activities throughout the stages of prospecting, exploration, exploitation, processing, [and] trading, including after the termination of mining activities, to ensure the proper implementation by mining operators of contracts, this Mining Law and other laws and regulations of the Lao PDR.

The main contents of inspections shall include:

1. Implementation of mining processes;
2. Performance within the timeframe;
3. Implementation of feasibility studies;
4. Implementation of plans;
5. Implementation of occupational safety measures;
6. Implementation of environmental impact mitigation measures;
7. Necessary documents for the management of mining business operations;
8. Assets of the mining project;
9. Implementation of obligations and other regulations pertaining to mining business.

The inspection of mining business operations shall be coordinated with concerned agencies and the local administrative authorities.

Article 54. Methods of Inspection of Mining Business Operations

The inspection of mining business operations may be conducted by several methods, as follows: a system of regular inspections, inspections by advance notice, or surprise inspections⁴⁶.

Regular inspections refers to inspections performed regularly and at fixed times, which shall be at least once a year.

Inspections by advance notice refers to inspections deemed necessary, where the mining operator is given advance notification.

Surprise inspections refers to inspections performed without giving any advance notification.

Inspections may include both documentary inspection and field inspection.

Chapter 7

Dispute Settlement, Policies towards Persons with High Achievement and Measures against Violators⁴⁷

Article 55. Dispute Settlement

When disputes occur between mining contract parties, an amicable settlement shall be

⁴⁵ This term is more general than the terms translated as “mining business operator” and “mining concessionaire”. It is intended to refer to all persons involved in mining.

⁴⁶ The Lao word also connotes inspection in emergency cases.

⁴⁷ In this context, the term “policies” takes the meaning of “privileges” and the term “measures” takes the meaning of “sanctions”.

sought. Otherwise, the contract parties may submit the matter in dispute to the Office of Economic Dispute Resolution or the people’s courts of the Lao PDR for further proceedings.

In the case of disputes between employers and employees, the Labour Law of the Lao PDR shall apply.

In the case of disputes between foreign investors or between a foreign investor and a Lao investor, Article 21 of the Law on the Promotion and Management of Foreign Investment in the Lao PDR⁴⁸ shall apply.

Article 56. Policies towards Persons with High Achievement

Persons or organisations with outstanding performance in the management [and] preservation of mineral resources with efficiency and in compliance with the laws of the Lao PDR will receive awards and be granted policies as specified by the government: credit policy⁴⁹, extension of mining license and others.

Article 57. Measures

Persons or organisations breaching this law shall be subject to measures such as re-education, fines or criminal penalties depending on the nature of the offence⁵⁰. Furthermore, an additional penalty may be imposed.

Article 58. Re-Education⁵¹ Measures

Persons or organisations committing minor or first offences under this law, such as[:] failing to make reports or making reports outside the [authorised] timeframe, failing to meet technical requirements in operations, failing to obtain permission⁵² for the conduct of mining activities using manual tools, [whether] as a profession or not, shall be warned and re-educated.

Article 59. Fines

Persons or organisations breaching this Mining Law by committing any of the following acts:

1. Conducting mining business without a license or with an expired license;
2. Illegally trading in minerals;
3. Leasing, transferring or allowing the use⁵³ by another person of [one’s] mining license, in contravention of regulations;
4. Making untruthful reports;
5. Breaching mining exploitation principles;
6. Failing to apply environmental impact mitigation measures, discharging waste water and water containing poisonous substances affecting the population's health;
7. Failing to apply technical and labour safety measures;
8. Causing damage to mineral sources due to their own fault;

⁴⁸ This is a reference to an older law. The current law is titled “The Law on the Promotion of Foreign Investment in the Lao PDR” and the article reference is no longer be accurate.

⁴⁹ The term “credit” is used here in the sense of loans, and “policy” is used here in the sense of “privileges”.

⁵⁰ The term “offence” is used here, as in the Penal Law, to refer generally to criminal acts. There are three levels of such criminal acts as set out in Article 8 of the 2005 Amended Penal Law and Article of the 1989 Penal (translations of both these laws are available in this series).

⁵¹ Here, “re-education” does not mean the same as “re-education without deprivation of liberty” referred to in the Penal Law.

⁵² The term “permission” is used here as a general word that includes both the more formal license given to persons conducting mining activities using manual tools as a profession (see Article 50(4)) as well as the more informal authorisation for the conduct of such activities not as a profession (see Article 51((3)).

⁵³ For readability, the order of the verbs has been re-arranged.

9. Failing to extend cooperation to administration and inspection officers;
 - Shall be fined from Kip five hundred thousand to Kip three million in the case of a first offence;
 - From Kip three million one hundred thousand to Kip five million in the case of a second offence;
 - From Kip five million and one hundred thousand to Kip ten million in the case of a third offence.

If any of the offences mentioned in Article 58 above is committed three times or more, [the offender] shall be fined from Kip fifty thousand to Kip two hundred thousand.

In the case of mining activities using manual tools, [whether] as a profession or not, fines from Kip ten thousand to Kip twenty thousand shall be imposed.⁵⁴

Article 60. Penal Measures

In the case where a violation of this Mining Law constitutes an offence [such as]: falsification of mining licenses, [or] failure to apply technical safety measures causing death or injury, [such offence] shall be punished as provided in the Penal Law.

Civil servants committing offences [such as]: receiving bribes, abuse of power, forging documents, [or] abusing their duty [to obtain] personal gain from mining business operations, shall be punished as provided in the Penal Law.

Article 61. Additional Measures

Apart from the measures mentioned above in Articles 59 and 60, additional sanctions may be imposed on the offender [such as]: suspension of mining business operations, withdrawal of license, [and] confiscation of the offender's vehicles and equipment.

Chapter 8 Final Provisions

Article 62. Implementation

The government of the Lao People's Democratic Republic shall implement this law.

Article 63. Effectiveness

This law shall enter into force after ninety days from the date of the promulgating decree issued by the President of the Lao People's Democratic Republic.

Persons and organisations that have received mining licenses prior to the date this law comes into force shall be entitled to continue their mining business operations.

In the event that contracts have been signed that are not in conformity with this law, the concerned agencies shall be notified within one hundred and twenty days from the date this law comes into force, in order to deal with the matter.

All regulations and provisions that conflict with this law are null and void.

Vientiane, 12 April 1997
President of the National Assembly

[Seal and Signature]
Samane VIGNAKET

⁵⁴ It is likely that this paragraph, like the one immediately preceding it, refers to the repeated commission of minor offences rather than to the commission of the offences set out in this article 59, but this is not clear from the text.

5.4 Statistics Law

Lao People Democratic Republic
Peace Independent Democratic Unity and Prosperity

National Assembly Number Order 03 /NA
Vientiane Municipality 30June 2010

Statistics Law

Part I

General Provision

Article 1: Objectives

This statistics law defines rules, regulation, measures with regard to the organization, management, monitoring and inspection of the statistical activities in a systematic way, strength, effectiveness and efficiency to assure the full coverage, accuracy and consistency with fact in order to provide reference for policy direction, socio economic planning, and contribute to the country's development to achieve wealth, culture, well-being and equity.

Article 2: Statistics

Statistics means data or figure from the survey and administrative records thru the process of collection, collation, integration, compilation, processing, analysing and examining in accordance with statistical science.

Article 3: Interpretation of terms

In this Law, the terms underneath shall be understood as follows:

1. Official Statistics are data or figures from survey and administrative records thru the process of collection, integration, compilation, processing, analysis and interpretation in accordance with statistical science that are certified by the national statistics system;
2. Sectoral statistics are those data or figures from survey and administrative records thru the process of collection, collation, integration, compilation, procession, analysis and interpretation in accordance with statistical science that are certified by the line ministry, ministry –equivalent agency, institute according to their specific needs;
3. Professional independence is the right in producing and disseminating the official statistics in accordance with statistical science in a coherent and independent manner;
4. Statistics production is the process of data collection, integration / summarization / compilation, processing, analysis, interpretation from survey and administrative reporting methods in accordance with statistical science;
5. The statistics processing is one of the statistics production processes that consists and

- focuses on data consistency or any possibilities, classifications and nomenclatures, organize the order, group and subgroup in accordance with statistical science;
6. Statistics survey is a way of collecting statistics or figures through the survey design questionnaires by interview of respondents in direct and indirect ways in accordance with statistical science and specific timeframe as defined for each survey type;
 7. Statistics report is a way of collecting data or figures through regular reporting system of state authorities, economic units and other authorities on economic, socio, environment and natural resources and security statistics;
 8. Indicators are those that demonstrate through figures, reflecting the size and pace of the development, structure and proportional relationship of socio-economic environment and natural resources and security phenomena in specific conditions, places and time;
 9. Raw data are figures that are collected from survey and administrative reports but have not completely gone through the production process in accordance with statistical science;
 10. Registration of production /economic units is a way to collect the list of economic units in a regular and continuing basis by state authorities, economic/ business units and other authorities or organizations;
 11. System of Classification is a division of data by chapter, section, group, and subgroup defining the code / nomenclature in order to harmonize the statistics production and dissemination of the national statistics system;
 12. Production Unit /economic unit is an individual person, juridical person, state organization and non-state organization that do business, production services and other profit and non-profit institutions whose activities relate to socio and culture;
 13. Enumerators are those who are authorized and have the duty to be a data collector for any particular survey. They can be a government civil servant (staff) or non-government staff;
 14. Inspectors / Supervisors are those who are authorized and have the duty to collect /collate and integrate data from any particular survey;
 15. Data providers/ respondents are those individual persons, juridical persons, domestic and foreign organizations who reside in Lao PDR and who provide statistical data;
 16. Meta data are products of data documentation that describes the details about the statistics production;

Article 4: State Government on statistical work

State Government promotes statistics by defining policies, regulations, statistics organization system, human resources and competence development and staffing; and financing the SDNSS and action plan in each period to assure the sustainability of statistical work;

State Government promotes, motivates and encourages individual person, juridical person and organization, domestic and foreign, for support and contribution through supplying the data, intellectual /technical and financial support;

Article 5: Fundamental Principles of Statistical Activities

Statistical activities must follow the fundamental principles as follows:

1. Ensuring the centralization in the management and harmonization nationwide ;
2. Ensuring the accuracy in accordance with statistical science, manner and independence in statistical production, dissemination and provision of data which reflect the real situation, completeness, reliability and timeliness;
3. Ensuring and being consistent regarding indicators, compilation methods, data collection template system, tables, measurement units and time for reporting out statistical results and attention should be made for gender disaggregated statistics;
4. Ensuring transparency /disclosure on the production methodologies and data dissemination in order to achieve the credibility and trust of the statistics users;
5. Ensuring equal rights with regard to access and use of published and announced statistics data, enhance the relationship among statistical producers and users

Article 6: Scope of the use of Law / Applicability

This Statistics Law is used for individual person, juridical person and organization at home and abroad who live and perform any activity relating to production, supply and use of statistics in Lao PDR except dissemination of statistical data that relate to national security.

This law is also applicable for families as reporting units in the case of surveys related to sociology.

Article 7: International Cooperation

Government promotes regional and global cooperation thru the coordination, exchange of experiences, participation in international meetings, upgrading of technical competence and technology, cooperation in the area of research, and support mobilization in order to develop a strong and modern statistics system.

Part II

Type of Statistics

Article 8: Type of statistics

There are 4 types of statistics as follows:

- Economic statistics
- Socio statistics
- Environment and natural resources statistics
- Security and stability statistics

Article 9: Economic Statistics

Economic statistics are those data that reflect the activities of the development in the areas

of agriculture, forestry and fisheries, industry and handicraft, energy and mine, telecommunication and post, information technology, construction, commerce, monetary, banking and insurance, tourist, business registration and other statistics relating to economic subject matters.

Article 10: Socio statistics

Socio statistics are those data that reflect the activities of the development in the areas of the population, ethnicity, education, public health, labor, social welfare, information and culture, administrative unit registration, poverty, gender, social security, housing, sports and recreation, social organization, accident, crime and other statistics relating to socio subject matters.

Article 11: Environment and natural resources statistics

Environment and natural resources statistics are those data that reflect the activities of the development in the areas of environment and natural resources on country's geography, mine, hydrology, topology, disaster, pollution, wastage and waste management to balance environment, natural resources, human and human development and other statistics relating to environment and natural resources subject matters.

Article 12: Security statistics

Security statistics are those data that reflect the situation in the area of national security and defense which will be separately regulated and defined.

Part III

Statistics Production/Creation

Article 13: The importance and the need of statistics

Statistics is an important tool for monitoring and evaluating the implementation and achievement of economic and socio development plan targets, it is essential for the evidence-based formulation of policies, strategies, plan, programs and projects; it is a significant source in providing accurate statistics and yardstick for measuring the economic and socio fluctuation/variation in each period of time.

Article 14: Statistics data collection approaches

There are 2 data collection approaches underneath:

1. Survey
2. Administrative report

Chapter 1

Statistical Surveys

Article 15: Survey type

There are three type of survey as follows:

- Census
 - Sample survey
 - Specific survey / case study
1. Census is a type of statistical survey to collect data from all target units in accordance to the objectives of any particular survey without sample technique selection;
 2. Sample Survey is a type of statistical survey to collect data of some of target units in accordance to the objectives of any particular survey with use of sample technique and design. The sample could be drawn for national representative and sub-national representative (provincial, district and village);
 3. Specific survey/ case study is a type of statistical survey that can cover all units or partially from the sample coverage in respective areas in accordance to specific objectives of sample survey or nonsample survey and it is can be conducted at any time as necessitated in each period of time to the national statistics system or any economic /production unit.

Article 16: Statistical Survey Plan

Each statistics survey must have a plan which comprises 3 stages as follows:

1. Preparation stage includes defining the objectives, targets, scope, coverage, contents, reference period, time and duration of survey and overall output targets. It also includes preparation tools, equipments/supplies, budget and advocacy to urge all stakeholders for active participation;
2. Operation stage/field work includes training for enumerators and supervisors, the action of interview and recording by means of direct and indirect interview methods. It also includes primary data validation and justification with regard to consistency and completeness;
3. Evaluation stage includes data aggregating, processing, database constructing, statistical tabulating, reporting and disseminating survey results.

Article 17: Survey time frame

1. Census includes population and housing census, and agriculture census which are scheduled for every 10 year interval. Economic census is scheduled for every 5 year interval and other economic and socio census is conducted only when considered necessary;
2. National sample survey includes household consumption and expenditure survey, labor force survey, socio indicator survey which is scheduled for very five year interval; Other sample surveys are implemented according to the survey program defined in the Strategy for Development for the National Statistical System (SDNSS) as well as in the work program of vertical and horizontal statistics system in each period of time;

3. Specific survey/case study includes small surveys that focus on specific areas which may or may not be defined in the survey plan, can be conducted at any time as additionally needed, significant and in emergency circumstances;

Article 18: Authority to decide on statistical survey/ Survey Authorization

The authorization of each type of survey is as follows:

1. The Prime Minister approves the statistics census upon the request from Ministry of Planning and Investment;
2. The Minister of Ministry of Planning and Investment approves national sample survey upon request from Lao Statistics Bureau and after the consultation with line ministries, ministry-equivalent agencies or sector concerned.
3. The minister or head of agency, provincial and capital city's governors approve the sub-national sample survey in their own sector and province upon the request from their respective sectors concerned thru the certification and technical approval from Lao Statistics Bureau;
4. Apart from the surveys that are not defined in the SDNSS but are recognized as critically important and needed, within their authority those who as defined in provisions 1, 2 and 3 of this article decide and approve on statistical surveys in accordance with each survey type.

Article 19: Survey executing agencies

Survey executing agencies for each type of surveys are as follows:

1. Lao Statistics Bureau executes census and national sample surveys and other specific surveys that are defined in the SDNSS in each period of time.
2. Statistics Center based at line ministries, ministry equivalent agencies, province, municipality, districts and sub-districts execute sample surveys and specific surveys / case studies for the purpose of their respective sectors and local needs thru the certification and technical approval from Lao Statistics Bureau;
3. The economic units can carry out any sample surveys or case studies to produce statistics data for their own need but these are not considered as official statistics;

The international organizations, non-government organizations can carry out statistical surveys but it is required to get approval from line ministries, ministry-equivalent agencies or local authorities as defined in provision of article 18 of this law.

Article 20: Obligation in providing data for the statistical surveys

1. Households or individual persons who live in Lao PDR are obliged to collaborate and provide data during the execution of any survey and data collection activity according to the work programs of national statistics system. They have the right to participate or reject on voluntary basis in providing data to any survey and data collection activity that are not carried out by the National Statistics System's organization and not certified by

Lao Statistics Bureau.

2. Economic units operating in any activity in Lao PDR must report right, complete, accurate and on time statistics regarding to the status and performance according to the need of each statistics survey in accordance with statistics reporting procedures of the respective statistical organization in each period of time.

Owner and chief accountant are responsible for accountability, accuracy of the data that they report in accordance with accounting law and other laws of Lao PDR

Chapter 2 Administrative report

Article 21: Type of administrative report

There are two type of administrative reporting as follows:

- Statistics reporting from state-owned economic unit;
- Statistics reporting from non state-owned economic unit;

Two types of reporting are processed thru the data collection, aggregation and regular reporting in accordance with their mandate to provide statistics to the management organization and the national statistics system and in accordance with reporting procedure defined in article 22 of this law.

Article 22: Reporting procedure

Reporting procedure is based on the objective, targets and report coverage as follows:

- Table system (tabulation dummy);
- Measurement unit;
- Statistical concepts, standards and compilation methods in accordance with statistical science;
- Classification;
- Reference time period for reporting;
- Data sources.

The data reporting must be processed for signature and official certification stamp from data reporting organization or unit.

Article 23: Reporting compulsion /obligation

Reporting compulsion /obligation of National Statistics System are as follows:

- Village Statistics unit must generate documentation, metadata and archive the report of statistical data in accordance with reporting procedure in accordance with data collection table format of the national statistics system that are systematic to District statistics center, Sub-District statistics center in order to aggregate and report to the provincial horizontal and vertical statistics system for each reporting period as defined in the reporting procedure of the National Statistics System.

- Statistics center of district, city, province, municipality and the statistical system of sector at the province must generate documentation, metadata and archive statistics report in accordance with the reporting procedure, report to the statistics organization system above them as to define and harmonize the operation plan in each period of time;
- Statistics Center of line ministries and agencies must report to Lao Statistics Bureau (LSB) in accordance with the reporting procedure and application in each period of time.

The vertical and horizontal statistics system at all levels must be responsible for the accountability, and accuracy of the statistics report that report to respective statistics organization above them and to the LSB in accordance to law.

Article 24: Statistics confidentiality

There are three type of statistics confidentiality as follows:

1. State confidentiality with regard to stability, national defense, security and other secrets that are defined in a specific manner;
2. State confidentiality with importance to any specific sector;
3. Individual confidentiality of information from any individual, legal person or any organization that are gathered/collected from survey and administrative report

Part IV

Dissemination and Use of statistics

Article 25: Official statistics publication responsibilities

The responsible organizations according to their mandates with regard to publication as follows:

1. Lao Statistics Bureau;
2. Statistics Center at National Assembly, Ministries, Agencies, Supreme People's Court and Supreme People's Prosecutor Offices
3. Statistics Center of the provinces, municipalities, districts, sub-districts

Article 26: Official statistics' announcement and dissemination

The announcement and dissemination of the official statistics is as follows:

1. Lao Statistics Bureau announces and disseminates national official statistics and survey results in accordance to its mandate, rights and responsibility;
2. Statistics Center of National Assembly, line ministries, agencies, Supreme People's Court and Supreme People's Prosecutor Offices announce and disseminate official statistics in their respective sector in accordance with their mandate, rights and responsibility thru the technical certification and endorsement from Lao Statistics Bureau (LSB);
3. Statistics Center of Province, Municipality, District, Subdistrict announce and disseminate official statistics in their respective localities in accordance with their

mandate, right and responsibility thru the technical certification and endorsement from Lao Statistics Bureau (LSB);

The dissemination of official statistics is authorized by statistics system at each level thru various modalities which are separately defined in detail.

Article 27: Person with the right announcement of survey result

Person with the right to announcement of the survey result is as follows:

1. LSB Director General;
2. Director of Statistics Center of the National Assembly, line Ministries, Agencies, Supreme People's Court and Supreme People's Prosecutor Offices;
3. Director of Statistics Center of Province, Municipality, District, Sub-district;

Article 28: Person with the right announcement of result from administrative report

Person with the right to announcement of the results from the administrative report is as follows:

1. LSB Director General;
2. Director of Statistics Center of the National Assembly, line ministries, agencies, Supreme People's Court and Supreme People's Prosecutor Offices;
3. Director of Statistics Center of Province, Municipality, District, Sub-district.

Article 29: Access and use of statistics

Access and use of statistics must operate on the impartiality principles as follows:

1. Statistics users can access and use the official statistics that has been disseminated and announced by the national statistics system;
2. Statistics users who need raw data (primary data) must follow the data services procedures and rule of respective organization's concern;
3. Statistics users must clearly define in detail the data sources when they use any statistics data.

Part V

National Statistics Organization

Article 30: National Statistics Organization includes

1. Vertical System of the Statistics organization;
2. Horizontal System of the Statistics organization.

In case it is necessary the Statistics Council can be established by the agreement of the Lao Government.

Chapter 1

The Organization of Vertical Statistics System

Article 31: The Vertical statistics system

Vertical statistics system includes:

- Lao Statistics Bureau (LSB);
- Statistics Center at Province, Municipality,
- Statistics Center at District, Sub-district;
- Village statistics unit

Article 32: Rights and responsibilities of Lao Statistics Bureau (LSB)

Lao Statistics Bureau (LSB) has the status equal to subministry, under the Ministry of Planning and Investment. Rights and obligations Lao Statistics Bureau as follows:

1. Research on policies, legislation, strategy and generation of the action plan and budget with regard to the implementation of statistics activities;
2. Issue agreement, order, guideline and notification with regard to the implementation of statistics activities;
3. Advocate and disseminate policies, legislation, strategy and the action plan for the implementation of statistics activities;
4. Direct, manage and implement the statistics activities in the production, dissemination of official statistics of the National Statistics activities;
5. Upgrade, build up, train and raise the capacities and capabilities in the areas of statistics for the personnel in the national statistics system thru various methods.
6. Study and make the proposal for the nomination, shifting or termination of the post of director and deputy director of the Statistics Center at Province, and Municipality;
7. Appoint, reassign (shift) or terminate the post of director and deputy director of the Statistics Center at district, and sub-districts;
8. Study and request for the organization restructuring of the statistics personnel and examine and put forward the request for the implementation of incentive policy and punishment to statistics staff;
9. Conduct the research study and request for the incentive policy to individual, legal person and organization who fully cooperates in supplying quality data and punish individual and legal person and organization who do not practice/pursue the report procedures and compliance in reporting statistics which are defined in article 22 and 23 of this Law;
10. It is a Center for coordination with line ministries, agencies and provincial authorities in the management, investigation/inspection and execution of statistics activities ;
11. Monitor, examine and evaluate the use of sound statistical methodologies and the implementation of strategy for the development and action plan of National Statistics System in each period of time;
12. Cooperate/collaborate worldwide on statistics in accordance with its own roles, rights and responsibilities given by higher authorities:

13. Summarize and report the result of the implemented statistical activities to the higher authorities on regular basis;
14. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 33: Rights and responsibilities of Province Statistics Center and Municipality Statistics Center

Province and Municipality Statistics Centers have status equal to the Division of Lao Statistics Bureau (LSB). Rights and obligations of Province Statistics Center and Municipality Statistics Center underneath:

1. Consign the policies, legislation, strategy and the plan of action in to province, and municipality practices. Create implementation plan of statistics activities on their own areas of responsibility in each period of time;
2. Advocate and disseminate policies, legislation, strategy and the action plan for the implementation of statistics activities on their own areas of responsibility;
3. Direct, manage and implement the statistical production, dissemination of official statistics of the province, municipality and district and sub-district on their own areas of responsibility;
4. Collect data thru the administrative report system, census and sample survey and special case study on their own boundaries;
participate in the statistics technical discussion in accordance to their areas of responsibility;
5. Create data collection tabulation, data collection manual and inquiry for the statistics data. Aggregate, process, analyze, and publish the official statistics in accordance with their areas of responsibility; motivate the District and Sub-district Statistics Center in the implementation of the statistics activities thru an appropriate mechanism and approach of coordination;
6. Instruct, build up, train and upgrade the statistical capacity and professional capabilities to civil servants in the areas of their responsibilities;
7. Study and make the proposal for the position nomination, shift or terminate the post of director and deputy director of the Statistics Center at District and Sub-District in the areas of their responsibilities;
8. Personnel appointment for the statistics unit in the village in the areas of their responsibilities;
9. Study and request to Lao Bureau of Statistics for the organizational restructuring of the statistics personnel and examine and put forward the request for the implementation of incentive policy and punishment to statistics staff in the areas of their responsibilities;
10. Conduct the research study and request to Lao Bureau of Statistics for the incentive policy to individual, legal person and organization who fully cooperates in supplying quality data and punish individual and legal person and organization who do not

practice/pursue the report procedures and compliance in reporting statistics which are defined in article 22 and 23 of this Law;

11. Cooperate/collaborate with international organizations on statistics in accordance with those responsibilities given by higher authorities;
12. Monitor, inspect and evaluate on the use of sound statistical methodologies and the implementation of the action plans of District and Sub District Statistics Center and other sub division at provincial and district statistics organizations under the vertical statistics system at the province in each period of time;
13. Summarize and report the result of the statistical activities implementation to the Province Division of Planning and Investment and Province Administration Authority on regular basis;
14. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 34: Rights and responsibilities of Districts' Statistics Center and Sub-districts' Statistics Center

District and Sub-district Statistics Center has status equal to the Statistics Unit of Lao Statistics Bureau (LSB). Rights and obligations of Districts and Sub-district Statistics underneath:

1. Disseminate, consign the policies, legislation, strategy and the plan of action in regards to the local statistics practices.
2. Conduct data collection and inquire statistics data from related agencies, aggregate and report to Province Statistics center and Municipality Statistics Center ;
3. Collect data thru the survey and administrative report system in accordance with their areas of responsibility;
4. Monitor, inspect and evaluate the uses of statistics science and the implementation in accordance to the plan of operation of the Village statistics unit and other Statistical Units at the District and sub-district in each period of time ;
5. Extensively train the members of Village Statistics to the extent of their responsibilities;
6. Study and make the request to the Lao Statistics Bureau on the organizational restructuring, staff recruitment and alteration, propose the implementation of incentive policy and punishment to Village statistics staff in the areas of their responsibility
7. Conduct the research study and request to Lao Bureau Statistics for the policy implement to individual, legal person and organization who fully cooperate in supplying quality data and punish individual and legal person and organization who do not practice/pursue the report procedures and compliance in reporting statistics which are defined in article 22 and 23 of this Law;
8. Summarize and report the result of the statistical activities implementation to the Province Statistics Center, Municipality Statistics Center, District and Sub-district Statistics Center, District Planning Office, District Administration Authority on regular

basis;

9. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 35: Rights and responsibilities of Village Statistics Center

1. Collect and aggregate data from the production/economic unit within the boundaries of their village by the certification of village authority;
2. Participate in the survey in accordance with the duties given by higher authorities;
3. Receive extensive knowledge and technical training on statistics;
4. Summarize and report the result of the statistical activities implementation to the District and Sub-district Statistics Center, Village Administration Authority on regular basis;
5. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities

Chapter 2

The Organization of Horizontal Statistics System

Article 36: Horizontal Statistics Organization

The Horizontal Statistics System includes:

- The organization of sectors at the central and local levels
 - The organization of production units / economic units
1. The organization of sectors at the central and local level includes:
 - Statistics center at Line ministries and Agencies
 - Statistics Section at Provinces' and Municipality's Sectoral Divisions
 - Statistics Unit at Districts' and Sub-Districts' Sectoral offices
 2. The organization of production and economic unit include the statistics unit in a respective production unit / economic unit.

Article 37: Statistics Center at Line Ministries and Agencies

Rights and obligations Statistics center at Line Ministries and Agencies as follows:

1. Research on policies, create strategy for the development of sectoral statistics through the implementation of SDNSS; Generate the action plan and budget with regard to the implementation of statistics activities in their sectors;
2. Direct, manage and implement the statistics activities in their sectors, provide data to Lao Statistics Bureau and other users;
3. Advocate, disseminate and exchange official statistics with other sectors, using the statistics production methods, statistics procedure in accordance with the statistics science; coordinate with the Lao Statistics Bureau, other related sectors and local authorities in the implementation of statistics activities;

4. Upgrade, build up, train and raise the capacities and capabilities in the areas of statistics for the personnel in their own agencies using various approaches or methods.
5. Participate, provide technical comment on statistics and data exchange among the Statistics Center and agencies from central to the local level to assure harmonization and consensus;
6. Conduct the research study and request for the incentive policy to individual, legal person and organization who fully cooperate in supplying quality data and punish individual and legal person and organization who do not practice/pursue the report procedures and compliance in reporting statistics which defined in article 22 and 23 of this Law;
7. Monitor, examine and evaluate on the use of sound statistical methodologies and the implementations of the sectoral action plan of Statistics Section at the province and municipality in each period of time;
8. Cooperate /collaborate worldwide on statistics in accordance with responsibilities given by higher authorities:
9. Summarize and report the result of the statistical activities implementation to their respective Ministry and Agencies and Lao Statistics Bureau on a regular basis;
10. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 38: Rights and Responsibilities of the Statistics Section at the Province and Municipality

The Rights and Obligations of the Statistics Section at the Province and Municipality as follows:

1. Dispatch the policies, legislation, strategy and the plan of action into practices in their sector, create implementation plan for statistics activities in their areas of responsibility in each period of time;
2. Advocate and disseminate policies, legislation, strategy and the action plan for the implementation of statistics activities in their areas of responsibility;
3. Carry out the statistics production, dissemination of official statistics in the respective sector, direct and manage the Statistics Unit at District and Sub-District in their areas of responsibility;
4. Enhance and train the staff on statistics in their areas of responsibility;
5. Conduct the research study and request for the incentive policy to individual, legal person and organization who fully cooperate in supplying quality data and punish individual and legal person and organization who do not practice/pursue the report procedures and compliance in reporting statistics which defined in article 22 and 23 of this Law;
6. Monitor, inspect and evaluate on the use of sound statistical methodologies and the implementation of the action plan of District and Sub District Statistics Section and in

each period of time;

7. Summarize and report the result of the statistical activities implementation to the Province Statistics Center, Municipality, their Division and Province Administration Authority on regular basis;
8. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 39: Rights and Responsibilities of the District, Sub-District Statistics Unit

The rights and responsibilities of the District, Sub-District Statistics Unit is underneath:

1. Conduct data collection and inquiry on statistics data from related agencies,, aggregate and report to Province, and Municipality Statistics Section;
2. Participate in the implementation of surveys in accordance with the instruction of their Statistics Section;
3. Obtain knowledge in technical statistics training;
4. Coordinate with Province Statistics Center, Municipality and production's unit in their areas of responsibility;
5. Summarize and report the result of the statistical activities implementation to their Division and to the District, and Sub-District Statistics Center, on regular basis;
6. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authorities.

Article 40: Rights and Responsibilities of the Statistics Unit of the Economic/ Production

The statistics unit of the production unit has the rights and responsibilities in providing the statistics data on the status of business operation in accordance to the survey and administrative approaches to the National Statistics System.

Part VI

Disclosure Prohibition

Article 41: Restriction/Prohibition for the Statistics Organization and its Staffs

The statistics organizations and its staff are not allowed to take any action as follows:

1. Disclose and disseminate individual data, legal person or any organization which are defined in the article 24 of this law without the permission from respective concerned organization;
2. Do something fictional and counterfeit to the official statistics and individual and legal person or organization for the private benefits or create any losses for others intentionally;
3. Use the statistics data and report that are received from individual and legal person or any organization in country and abroad which operate any activity in Lao PDR as a reference for business inspection and auditing purpose or use for tax or duties

calculation;

4. Break statistics ethics/principles;
5. Other actions against the laws.

Article 42: Restriction/Prohibition for the Data Supply Organization and its Staff

The individual and organization who is the statistics data supplier is not allowed to take any action as follows

1. Report unrealistic statistics data;
2. Disseminate and provide data outside the extent of their responsibilities without the permission of concerned organizational authority;
3. Do something fictional and counterfeit to the official statistics and individual and legal person or organization intentionally;
4. Use the statistics data for other purposes other than statistics purposes; use statistics data for the purpose as to make losses for other.
5. Other actions against the laws.

Article 43: Restriction/Prohibition for the individual and organization using statistics

The individual and organization who is the user of statistics data supplier is not allowed to take any action underneath:

1. Use individual, legal person or any organization data in an inappropriate manner and for other purposes other than statistics purposes;
2. Use the statistics data with the intention of destruction of business operation of individual, legal person or any organization;
3. Provide raw database from the survey received from the Statistics Organizations to a third party for other purposes;
4. Force anyone to disclose, report and announce data that does not correspond with reality;
5. Other actions against the laws.

Part VII

Statistics Management and Inspection

Chapter 1

Statistics Management Organization

Article 44: Management Organization in Statistics

Ministry of Planning and Investment is authorized by the Government to act as the central coordination body working together with other line ministries, agencies and local authorities concerned to manage the statistics work nationwide.

Management organizations include:

- Ministry of Planning and Investment;
- Planning and Investment Division of provinces and municipality;
- Planning office of District and Sub-District;
- Line Ministries, Agencies, other sectors' Division at the provincial and municipality.

Article 45: Rights and Responsibilities of Ministry of Planning and Investment

The Ministry of Planning and Investment has the rights and responsibility in regards to the management of the statistical areas as follows:

1. Research, formulate policies, set strategic plan direction, legislation, in the area of statistics and propose for the Government consideration;
2. Advocate and disseminate policies, strategic plan, legislation and laws in the areas of statistics activities;
3. Direct, monitor and coordinate with other sectors and local authority in the implementation of the statistics law;
4. Examine and make the proposal for the nomination, shift or terminate the post of the director general and deputy director general of the Lao Bureau Statistics.
5. Appoint, reassign or terminate the post of director and deputy director of the Statistics Center of province, Municipality thru the coordination with local authorities;
6. Conduct appraisal on the request from individual, legal person and organization who act against statistics law;
7. Consider and propose measures in addressing the problems to assure the transparency and consistency with Law;
8. Cooperate /collaborate with international community on statistics;
9. Summarize and report the result of the statistical activities implementation to the Government on regular basis;
10. Other rights and responsibilities in accordance to law and those responsibilities given by the Government.

Article 46: Rights and Responsibilities of Province Planning and Investment Division, Municipality Planning and Investment Division

The Province planning and investment division and the Municipality planning and investment division have the rights and responsibility in regards to the management of the statistical areas as follows:

1. Dispatch, implement the policies, strategic plan, legislation and laws in the areas of statistics activities including advocacy and disseminate them in their provinces;
2. Direct, monitor and coordinate with other sectors within their local authority in the implementation of the statistics activities;
3. Conduct appraisal on the request from individual, legal person and organization who act against statistics law in their areas of responsibility;
4. Consider and propose measures in addressing the problems to assure the transparency

and consistency with Law in their areas of responsibility;

5. Cooperate /collaborate with international community on statistics in accordance with the given task by the higher authority;
6. Summarize and report the result of the statistical activities implementation to the Ministry of Planning and Investment, Province' Governor Office, Municipality Governor Office on regular basis;
7. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authority.

Article 47: Right and Responsibilities of Planning Office at Districts, and subdistricts

The District and sub-district planning offices have the rights and responsibility with regard to the management of the statistical areas as follows:

1. Implement the policies, legislation, laws and plans in the areas of statistics activities, including the dissemination work in their provinces;
2. Conduct appraisal on the request from individual, legal person and organization who act against statistics law in their areas of responsibility;
3. Consider and propose measures in addressing the problems to assure the transparency and consistency with Law in their areas of responsibility;
4. Summarize and report the result of the statistical activities implementation to the Province Planning and Investment Division, Municipality Planning and Investment Division and District Governor Offices , and Sub District Governor Office on regular basis;
5. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authority.

Article 48: Right and Responsibilities of Line Ministries, Agencies, Divisions at the provincial and district level and sub-district offices

Line Ministries, Agencies, Divisions at the provincial and district level and sub-district offices have the rights and responsibility in regards to the management of the statistical areas as follows:

1. Advocate, disseminate, provide guideline and monitor the implementation by the statistics organization under them, conduct appraisal and address measures to solve the problems on the request from individual, legal person and organization in their areas of responsibility thru the coordination of the Horizontal Statistics System;
2. Examine and propose measures in addressing the problems in their respective sectors to assure the transparency and consistency with Law in their areas of responsibility;
3. Summarize and report the result of the statistical activities implementation to the higher authority and Lao Bureau Statistics on a regular basis;
4. Other rights and responsibilities in accordance to law and those responsibilities given by the higher authority.

Chapter 2 Inspection

Article 49: Organization responsible for Statistics inspection

Organizations for Statistics inspection are as follows:

1. The inspection organization is the same as the management organization as defined in article 44 of this law;
2. The external inspection organizations include National Assembly, the State inspection and the State Audit organization

Article 50: Objectives of Inspection

The objectives of inspection are to make the management of the program of statistics work execution of the National Statistics System and to attain efficiency and effectiveness in accordance with the regulations and law.

Article 51: Inspection Substance

The areas of the substance inspection include monitoring and, assessment of the implementation of the working programs of the National Statistics System in accordance with regulation and law.

Article 52: Inspection Plan

The inspection organization/authority creates the inspection plan in order to monitor, inspect statistics work that is related to the execution of statistics activities and products defined in the operational program of the National Statistics System in each period of time.

Article 53: Form of Inspection

There are three inspection forms underneath:

- Regular system inspection
- Advance notification inspection
- Emergency inspection without advance notification

Regular system inspection must be carried out at a minimum of once a year on a regular basis with exact date and time notified.

Advance notification inspection is conducted when necessary and must be notified to the target of the inspection in advance at a minimum of 24 hours.

Emergency inspection without advance notification is conducted when necessary without prior notification to inform the target of inspection in advance.

The inspection must be carried out based on documents and sites of field work as basis.

Article 54: External Inspection

The external inspection is carried out with the objective of examining/investigating the implementation of all statistics organization within the National Statistics System, Management and Inspection organizations are for the soundness, transparency and impartiality. The external inspections are as follows:

1. Inspection by National Assembly as defined in the Monitoring Inspection Law of National Assembly;
2. Inspection of the State Inspection as defined in the State inspection law;
3. Inspection of State Audit Authority as defined in State Auditing Law;

Article 55: Report and Problems Solution

The inspection committee must create the memo of the inspection, report of result which includes the measures to solve problems encountered and report to the authority for consideration on the result of inspection.

The inspection committee must be responsible for the result of the inspection report and strictly keep confidential all statistics documents that have been inspected.

Article 56: Rights and Responsibilities of the target of inspection intervention

The rights and responsibilities of inspection targets are as follows:

1. Ask the inspection committee to present the agreement for the inspection mission and authorized card for inspection;
2. Appeal to related authorities on the inaccurate inspection in accordance to the regulation as set in the agreement;
3. Facilitate the inspection committee in the inspection process by providing documents, data, witness and responses to the questions that relate to the inspection substance in accordance to the request of the inspection committee.

Part VIII

Budget, Logo, Uniform and Stamp

Article 57: Sources of the Fund

The main sources of funds to support statistics activities are from government budget, support from bilateral and multilateral international organization, contributions from the society and other sources.

Article 58: Budget

The budget of the Lao Statistics Bureau (LSB) is classified at the first grade layer of the state budget.

The management and use of the budget for the vertical statistics system must follow the state budget law.

Article 59: Logo, uniform and stamp

The vertical statistics system has its own logo, uniform and official stamp for use in their official routine work.

Part IX

Rewards and Abuse Settlement

Article 60: Rewards

Individual, legal person or any organization that has been outstanding in the implementation of statistics activities will receive the honor certificate or any other reward in accordance with the regulations.

Article 61: Abuse Settlement

Individual, legal person or any organizations act against the statistics law will be punished, fined according to the case of offense including compensation of accrued cost.

Part X

Implementation Provisions

Article 62: Accomplishment

The Lao People's Democratic Republic Government is executor this Law.

Article 63: Enforcement

This Law shall take effect after sixty days, starting from the date that President of Lao PDR issued the Decree for the announcement;

Any rules, regulations which contradict this law shall have their effects terminated.

5.5 Law on the Promotion of Domestic Investment

Translation Endorsed by the Law Committee of the National Assembly of the Lao PDR



LAO PEOPLE'S DEMOCRATIC REPUBLIC PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

President's Office

No. 72/PO

DECREE *of the* PRESIDENT *of the*

LAO PEOPLE'S DEMOCRATIC REPUBLIC On the Promulgation of the Amended Law on the Promotion of Domestic Investment

Pursuant to Chapter 6, Article 67, point 1 of the Constitution of the Lao People's Democratic Republic; and

Pursuant to Resolution No. 10/NA, dated 22 October 2004, of the National Assembly of the Lao People's Democratic Republic on the adoption of the Amended Law on the Promotion of Domestic Investment; and

Pursuant to Proposal No. 26/SC, dated 10 November 2004, of the National Assembly Standing Committee.

The President of the Lao People's Democratic Republic Decrees That:

Article 1. The Amended Law on the Promotion of Domestic Investment is hereby promulgated.

Article 2. This decree shall enter into force on the date it is signed.

Vientiane, 10 November 2004
The President of the Lao People's
Democratic Republic
[Seal and Signature]
Khamtai SIPHANDON

Translation Endorsed by the Law Committee of the National Assembly of the Lao PDR



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

National Assembly

No. 10/NA
22 October 2004

**LAW ON THE
PROMOTION OF DOMESTIC INVESTMENT**

**Chapter 1
General Provisions**

Article 1. Purpose

The Law on the Promotion of Domestic Investment in the Lao PDR defines the principles, regulations and measures for the promotion, protection and management of domestic investment in order to encourage all economic sectors, and to make efficient use of investment sources, resources, and labor and intellectual resources within the country to increase the effectiveness of production forces, to support gradual industrialization and modernization, to contribute to the improvement of the livelihood of the public and to develop the country to be strong and wealthy.

Article 2. Domestic Investment

Domestic investment is the application of capital, such as assets, technology and experience, into production and business operations within the country by Lao citizens, resident aliens and apatrids¹ who live permanently in the Lao PDR, including Lao people living abroad.

Article 3. Promotion of Domestic Investment

Domestic investors may invest in production and business in all sectors and zones of investment in the Lao PDR, except in operations that are detrimental to national security

¹ Readers may wish to refer to the Law on Lao Nationality for the distinction between aliens, apatrids (i.e. persons unable to certify their nationality) and foreign individuals.

[or]² that cause severe adverse impact to the environment at the moment [of the investment] or in the long term, [or that] adversely impact on health or fine national traditions.

The State promotes domestic investors to invest in sectors [and] investment zones as defined in Articles 9 and 10 of this law by defining tax and customs policies, regulations, and measures, and by providing information, services and other facilities to domestic investors.

Article 4. Methods of Investment

Domestic investors may invest in all kinds,³ forms and types of enterprises as provided by the Business Law⁴.

During the business operations of the domestic investment enterprise, the assets of the enterprise shall not be less than the registered capital.

Article 5. Protection of Domestic Investment

Assets and investments belonging to domestic investors will be fully protected by the laws and regulations of the Lao PDR and will not be requisitioned, seized⁵, or nationalized⁶ except if necessary for a public use in respect of which the investor will be compensated according to the laws and regulations.

Chapter 2

Rights, Interests and Obligations of Domestic Investors

Article 6. Rights and Interests of Domestic Investors

Domestic investors have the following rights and interests:

1. To receive facilitation from the State in establishing and operating their production, [and] business within the country and abroad in accordance with the laws and regulations;
2. To obtain protection of their rights and legitimate interests relating to their business operations;
3. To be the owners of property, such as rights of possession, usufruct rights, rights to transfer, inheritance rights⁷, and other benefits from their investments;
4. To receive facilitation in requesting credit from financial institutions in

² The Lao word “and” is sometimes used in a disjunctive sense, often when the authors wish to emphasize the importance of all items in the disjunctive list. Here the literal translation is “and”, but it is clear that the disjunctive “or” meaning is intended.

³ This term refers to the kinds of activities corresponding to different industries.

⁴ This law pre-dates the Law on Enterprises, which has since superseded the Business Law.

⁵ This term refers to property that is taken and treated as illegal property and is given to the State budget.

⁶ This term refers to expropriation.

⁷ Readers may wish to refer to the Property Law for more information concerning property rights.

- accordance with their regulations⁸;
5. To receive assistance or instruction on technical matters [and] technology[,] and [to receive] data and information from the State regarding production and business operations;
 6. To receive promotion and encouragement from the State in respect of the marketing and pricing of goods that they produce;
 7. For domestic investors who reside overseas⁹, after fulfilling obligations relating to customs, taxes and other fees, they can expatriate profits and capital from their business operations and other income legally received to their countries of residence or to other third countries through commercial banks in the Lao PDR, using the exchange rate¹⁰ on the date of the transfer;
 8. Domestic investors and members of their families, including technical officers¹¹ and staff who are foreigners working for domestic enterprises, will receive facilitation to obtain multiple entry or departure visas for long-term residence in the territory of the Lao PDR, as agreed by the government;
 9. To obtain protection of their intellectual property rights that are registered with concerned sectors¹² of the Lao PDR;
 10. To bring petitions, [or] claims to concerned authorities if they find that they are treated unfairly in the operation of their business.

Article 7. Obligations of Investors

Domestic investors have the following obligations:

1. To conduct their business operations and production in accordance with their licenses, [and] in accordance with the feasibility studies or business operation plans, contracts, laws and regulations;
2. In operating their business, domestic investment enterprises shall have accounting systems in accordance with the Law on Enterprise Accounting and shall report their accounts to concerned sectors. The accounting reports shall be certified by the State Audit Authority¹³ or independent audit companies established in accordance with regulations in the Lao PDR;
3. To report on their production and business activities to the CPMI¹⁴ and other

⁸ This term has the connotation of the financial institution's own internal regulations.

⁹ This term refers to domestic investors who both permanently reside and "have a residence" overseas.

¹⁰ This term is unqualified and is wide enough to refer to the exchange rate set by commercial banks. I.e., this rate need not be the one set by the central bank.

¹¹ This term refers to professionals, e.g. lawyers would also be considered technical officers.

¹² The term "sector" is used here to refer to the cluster of government ministries or agencies responsible for a particular activity.

¹³ Previously, this body was part of the Ministry of Finance. Today it is an independent body that reports directly to the National Assembly. This authority was set up principally to audit government units, but it also audits State-owned companies.

¹⁴ The abbreviation used here is defined in Article 12. This was previously the Committee for Promotion and Management of Investment (as in this law); today it is the Committee for Planning and Investment ("CPI").

- concerned sectors in a timely manner as defined by the State;
4. To completely and timely fulfill their obligations to pay duties, taxes and other fees;
 5. To facilitate the establishment and operations of the Party and mass organizations in their enterprises;
 6. To pay attention to the social welfare, healthcare and safety of workers in their enterprises;
 7. To protect the environment, to ensure that their business operations shall not cause a severe adverse impact on the public, national security or public order;
 8. To create a reserve fund according to laws and regulations;
 9. To maintain social security and insurance in accordance with laws and regulations;
 10. In the event that the office of the enterprise is relocated, the enterprise shall inform the concerned management authorities, and the enterprise shall restore the project site to normal conditions;
 11. To fulfill other obligations as provided in the laws.

Chapter 3

Investment Promotion Policies¹⁵

Article 8. Provision of Promotion Policies

The State considers providing promotion policies for domestic investment based on the types of investment sectors and the areas¹⁶ of promotion as provided in Articles 9 and 10 of this law.

Article 9. Operation of Promoted Sectors

The government defines promoted sectors as follows:

1. Production operations for export or to supplement imports;
2. Operations in the agriculture or forestry sectors, manufacturing activities in agriculture and forestry, and handicraft [activities];
3. Operations in industrial processing, industries that use modern techniques and technology, scientific research and development, [and activities relating to] the protection of the environment and biodiversity;
4. Operations in human resource development, skills development and public health;
5. Operations in the construction of infrastructure;
6. Operations in the production of construction materials;

¹⁵ The term “policies” in this context has the meaning of “incentives” or “privileges”.

¹⁶ The term “areas” is used deliberately here because the Lao word used here is not the same word as “zone” used in other provisions of this law. This term may therefore include areas that are not zones.

7. Operations in the production of raw materials and equipment to be supplied to key industrial activities;
8. Operations in the development of the tourism industry and transit services.

Article 10. Promoted Zones

The government determines 3 promoted zones for investment based on geographical location and socio-economic conditions. The zones are as follows:

- Zone 1: Mountainous, plateau and plain zones with no economic infrastructure to facilitate investments.
- Zone 2: Mountainous, plateau and plain zones with a moderate level of economic infrastructure suitable to accommodate investments to some extent.
- Zone 3: Mountainous, plateau and plain zones with good infrastructure to support investments.

The details of the promoted zones for investment shall be determined by the government.

Article 11. Policies related to Duties and Taxes

Domestic investment enterprises investing in activities within the promoted sectors and zones determined in Articles 9 and 10 of this law shall be entitled to the following duty and tax policies:

Investments in Zone 1 shall be entitled to a profit tax exemption for 7 years and thereafter shall be subject to profit tax at the rate of ten percent (10%).

Investments in Zone 2 shall be entitled to a profit tax exemption for 5 years, and thereafter shall be subject to a reduced profit tax rate of half of fifteen percent for 3 years and thereafter a profit tax rate of fifteen percent (15%).

Investments in Zone 3 shall be entitled to a profit tax exemption for 2 years, and thereafter shall be subject to a reduced profit tax rate of half of twenty percent for 2 years and thereafter a profit tax rate of twenty percent (20%).

Profit tax exemption starts from the date the domestic investment enterprise carries out operations. For tree plantation activities, profit tax exemption commences from the date the enterprise starts making a profit.

Once the profit tax exemption period is over, the domestic investment enterprise must pay profit tax in accordance with the laws and regulations.

In addition to the policies mentioned above, domestic investment enterprises shall be entitled to the following policies:

1. During the tax exemption period and during the tax reduction period, the enterprise is entitled to an exemption of minimum tax;
2. The profit used for the expansion of licensed business activities shall be exempted from profit tax during the accounting year;
3. Exemption from import duties and taxes on equipment, spare parts and vehicles

directly used for production, on raw materials which do not exist domestically or which exist but are insufficient, and on semi-finished products imported for processing or assembly for the purpose of export; and

4. Exemption from export duty on export products.

Raw materials and semi-finished products imported for processing or assembly for import substitution shall be exempted from import duties and taxes or shall be subject to reduced rates of import duties and taxes.

Special economic zones, industrial zones, border trade areas and other specific economic zones must follow the laws and regulations of such specific areas.

Chapter 4

Application for Domestic Investment License

Article 12. Submission of Application for Domestic Investment

An individual or legal entity that wishes to invest in any socio-economic sector that relates to the rights of concession or operations in any investment sector defined in Articles 9 and 10 of this law, must submit an application to the Committee for Promotion and Management of Investment, which is abbreviated as “CPMI”, attaching supporting documents: copies of his family registration book and resume[;] the feasibility study or business plan[;] information relating to the business, if [the applicant is] an enterprise[;] the joint venture agreement, if the investment is in the form of a joint venture[;] and such documents shall be presented to the CPMI for consideration.

Except for the operations mentioned above, other [applications for] operations shall be submitted to the commercial sector.

Article 13. Consideration of Domestic Investment Application

Upon receipt of an application with its attachments in accordance with Article 12 of this law, the Committee for Promotion and Management of Domestic Investment and the commercial sector shall consider [the application] and respond in writing to the domestic investor pursuant to the following timeframes:

- For operations relating to the rights of concession, the CPMI shall respond within thirty official working days, and for other operations, the response shall be given within twenty official working days;
- For common operations, the commercial sector shall respond within twenty official working days.

The applicant for a domestic investment license who submits his application to the CPMI and meets all qualifications, shall receive an investment license, together with an enterprise license and tax registration, all at the CPMI.

The applicant for a domestic investment license who submits his application to the commercial sector and meets all qualifications, shall receive an enterprise license, together

with tax registration, all at the commercial sector.

After that the enterprise will be regarded as a legally established enterprise, and within 90 days, the domestic investment enterprise shall commence business operations in accordance with the feasibility study or business plan that was attached to the application for an investment license. In the event that the enterprise does not commence operations without sufficient reasons, its investment license and enterprise license will be withdrawn.

Article 14. Term of Enterprise License

The enterprise license of a domestic investor shall not terminate as long as the investor conducts his operations regularly, unless the contract¹⁷ defines the term of the investment, or the investor intends to terminate his operations, or the investment enterprise faces difficulties in paying its debts, in which case it shall comply with the Law on the Bankruptcy of Enterprises.

Chapter 5

Management of Domestic Investment

Article 15. Management Authorities related to Domestic Investment

Management authorities related to domestic investment are:

- The Committee for Promotion and Management of Investment at the central and provincial levels;
- The commercial sector and other sectors.

Article 16. Rights and Duties of CPMI at the Central Level

The Committee for Promotion and Management of Investment at the central level is established by the Prime Minister, located at the Committee for Planning and Investment and has the following rights and duties:

1. To study strategies and policies to promote and attract domestic investments and to propose them to the government for approval;
2. To issue decisions, orders, instructions and notifications regarding the protection and promotion of domestic investments;
3. To prepare a plan and a list of available investment projects for attracting domestic investment;
4. To disseminate policies, laws and regulations; and to provide information to and to facilitate domestic investors;
5. To consider issuing or withdrawing a domestic investment license within its scope of rights and duties, particularly relating to projects involving the grant of a concession;

¹⁷ This term refers to the joint venture contract or other concession contract.

6. To coordinate with other sectors and local authorities, and to provide instruction on the implementation of this Law on the Promotion of Domestic Investment;
7. To monitor¹⁸, assess and report to the government on the business operations of domestic investment enterprises;
8. To be a focal point in supporting, promoting and solving problems occurring in relation to the business operations of domestic investment enterprises;
9. To organise the annual meeting of the CPMI and consultative meetings with domestic investors; and
10. To exercise such other rights and perform such other duties as provided in the laws and regulations.

Article 17. Rights and Duties of CPMI at Provincial Levels

The Committee for Promotion and Management of Investment at provincial levels¹⁹ is established by the chairman of the CPMI at the central level. The CPMI at the provincial level acts as a secretariat to the provincial governor, the mayor of the capital city, the chief of special zone²⁰ and the CPMI at the central level in promoting and managing domestic investment. The CPMI at the provincial level are located at the provincial Planning and Investment Divisions and have the following rights and duties:²¹

1. To implement strategic plans, policies to promote and attract domestic investments within their locality;
2. To disseminate policies, laws and regulations, provide information and facilitate domestic investors;
3. To consider issuing or withdrawing domestic investment licenses within their scope of rights and duties;
4. To coordinate with other concerned sectors in implementing the promotion policies within their approved projects and in implementing the decisions, orders, instructions and notifications of the higher-level authorities;
5. To monitor, assess and report to the provincial governors, the mayor of the capital city or the chief of special zone and the CPMI at the central level regarding domestic investment in their locality;
6. To act as a focal point in solving problems related to domestic investment;
7. To organise the CPMI annual meetings at the provincial level and consultative meetings with domestic investors; [and]
8. To exercise such other rights and perform such other duties as provided in the

¹⁸ In the Lao language, the same word is used to represent all of the following related (but slightly different) concepts: “control”, “inspection”, “supervision”, “audit” and “monitoring”. The translators have chosen “monitor” (and its variants) as the most appropriate English equivalent but readers should note and bear in mind the other meanings that might have been intended.

¹⁹ The connotation here is that there is more than one committee.

²⁰ Readers should note that the organisation of local administration has undergone change over time. The translators understand that the special zone referred to here may have since been re-designated.

²¹ For readability, the structure of this paragraph has been modified.

laws and regulations.

Article 18. Rights and Duties of Concerned Sectors and other Sectoral Organizations

The concerned ministries, ministry-equivalent organisations and other sectoral organizations must promote, manage domestic investments in accordance with their rights and duties as follows:

1. To coordinate with the CPMI and the commercial sector at the central level in drafting laws, regulations, policies and plans in relation to domestic investment;
2. To prepare a plan and list of available domestic investment projects to attract domestic investment to their sectors, and to disseminate information to attract and promote investment;
3. To participate in the process of consideration and approval of investment projects;
4. To supervise the sectors both at central and local levels in implementing policies and in improving procedures regarding implementation of investment projects;
5. To monitor, inspect and assess the business operations of domestic investment enterprises within their scope of rights and; [and]
6. To exercise such other rights and perform such other duties as provided in the laws and regulations.

The administrative authorities and sectors at the local level [which are] described above must coordinate with the CPMI and the commercial sector at the local level within the scope of rights and duties described in this article.

Chapter 6 Dispute Resolution

Article 19. General Principles

In the event that a dispute arises in relation to their business operations, the parties must implement the principle of [dispute resolution through] amicable settlement, mediation, or filing a claim.²²

Article 20. Mediation of Disputes

Disputes related to business operations which cannot be settled amicably shall be submitted for mediation to the CPMI or commercial sector where the enterprise obtained its license.

If the CPMI or commercial sector is not able to mediate such dispute, such dispute must be submitted to the Office of Economic Dispute Resolution for resolution.²³

Article 21. Filing a Claim

²² This list has a sequential connotation.

²³ The term “resolution” may connote assisting the parties to resolve the matter (i.e., unlike arbitration).

The parties to a dispute related to business operations which cannot be mediated may file a claim to the People's Court for resolution in accordance with the judicial process.

Chapter 7

Policies towards Persons with Outstanding Performance and Measures Against Violators

Article 22. Policies towards Persons with Outstanding Performance

Individuals or organisations who have had outstanding achievements in implementing this law and in contributing to national socio-economic development shall receive rewards as deemed reasonable.

Article 23. Measures Against Investors Who Violate [this Law]

Individuals or legal entities that violate this law shall be subject to measures depending on the seriousness of the violation in the form of warnings, suspension, withdrawal of their investment license and enterprise license or being sued in a court of law.

Article 24. Measures Against other Violators

Individuals who violate investment laws and regulations by abusing their power or position to hinder or obstruct the promotion and approval of investment, falsify documents, mislead investors, receive bribes or commit any acts causing damage to the State or investors must compensate for such damages and must be subject to disciplinary and other measures in accordance with the laws of the Lao People's Democratic Republic.

Chapter 8

Final Provisions

Article 25. Implementation

The government of the Lao People's Democratic Republic shall implement this law.

Article 26. Effectiveness

This Law shall enter into force after sixty days from the date of the promulgating decree issued by the President of the Lao People's Democratic Republic. After that, the Law on the Promotion of Domestic Investment, No. 03/95/NA, dated 14 October 1995, will have no effect but without affecting the rights, benefits, and obligations granted to domestic investors or implemented under the Law on Promotion of Domestic Investment, No. 03/95/NA. If domestic investors who received investment licenses under Law No. 03/95/NA would like to obtain investment policies under this Law on the Promotion of Domestic Investment, the investors shall submit a new investment application.

Vientiane, 22 October 2004
President of the National Assembly
[Seal and Signature]
Samane VIGNAKET

5.6 Law on the Promotion of Foreign Investment

Translation Endorsed by the Law Committee of the National Assembly of the Lao PDR



LAO PEOPLE'S DEMOCRATIC REPUBLIC PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

National Assembly

73/PO

No.

22 October 2004

DECREE

of the

PRESIDENT

of the

LAO PEOPLE'S DEMOCRATIC REPUBLIC

On the Promulgation of the Amended Law on the Promotion of Investment

Pursuant to the Constitution of the Lao People's Democratic Republic in Chapter VI, Article 67, Paragraph 1 regarding the promulgation of the Constitution and laws adopted by the National Assembly.

Pursuant to the Resolution of the National Assembly of the Lao People's Democratic Republic No. 11/NA, dated 22 October 2004 regarding the adoption of the Amended Law on the Management of Foreign Investment.

Pursuant to the Proposal of the National Assembly's Standing Committee No. 27/NASC, dated 10 November 2004.

The President of the Lao People's Democratic Republic

Decrees that:

Article 1. The Law on the Promotion of Foreign Investment is hereby promulgated.

Article 2. This decree shall enter into force on the date it is signed.

Vientiane, 15 November 2004

President of Lao People's Democratic Republic

[Seal and Signature]

Khamtay SIPHANDONE

Translation Endorsed by the Law Committee of the National Assembly of the Lao PDR



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

National Assembly

No. 11/NA
22 October 2004

**LAW ON THE
PROMOTION OF FOREIGN INVESTMENT**

**Chapter 1
General Provisions**

Article 1. Objectives

The Law on the Promotion of Foreign Investment defines the principles, regulations and measures regarding the promotion, protection and management of foreign investment in the Lao People's Democratic Republic, with the aim of enhancing relationships and economic cooperation with foreign countries, [enhancing] the utilisation of financial resources and knowledge to increase production capacity for the purpose of industrialisation and progressive modernisation as well as to contribute to gradually improving the people's living conditions, and to strengthen and to develop the country.

Article 2. Definitions

Foreign investment means the importation of capital, which includes assets, technology and expertise, into the Lao People's Democratic Republic by foreign investors for business purposes.

Foreign investor means a foreign individual or legal entity investing in the Lao People's Democratic Republic.

Domestic investor means Lao individuals or Lao legal entities, or aliens or apatrids¹ residing in the Lao People's Democratic Republic who take part in joint ventures or co-operate with foreign businesses.

¹ Readers may wish to refer to the Law on Lao Nationality for the distinction between aliens and apatrids (i.e., persons residing in the Lao People's Democratic Republic but who are unable to certify their nationality).

Asset means currency, materials² and intellectual property.

Foreign investment enterprise means a one hundred percent foreign investment enterprise, a joint venture or business cooperation by contract established in the Lao People's Democratic Republic.

Article 3. Promotion of Foreign Investment

Foreign investors may invest in production, [and] business in all sectors and zones of investment in the Lao People's Democratic Republic, except in business activities which are detrimental to national security or cause a negative impact on the environment in the present or long term, or are detrimental to health or fine national traditions.³

The State supports foreign investors investing in [the] sectors and zones of investment as provided in Articles 16 and 17 of this law by establishing policies on customs [and] taxes, [by issuing] regulations [and] measures, [and] by providing information, services and other facilities to foreign investors.

Article 4. Protection of Foreign Investment

The assets and investment of foreign investors in the Lao People's Democratic Republic shall be fully protected by the laws and regulations of the Lao People's Democratic Republic against seizure, confiscation or nationalisation, except if necessary for a public purpose, in which case the foreign investors shall be compensated in accordance with the laws and regulations.

Chapter 2

Forms of Foreign Investment

Article 5. Forms of Foreign Investment

Foreign investors may invest in the Lao People's Democratic Republic in the following forms:

1. Business cooperation by contract;
2. Joint ventures between foreign and domestic investors; [and]
3. One hundred percent (100%) foreign-owned enterprises.

Article 6: Business Cooperation by Contract

A "business cooperation by contract"⁴ is a business arrangement between domestic and foreign legal entities without establishing a new legal entity in the Lao People's Democratic Republic.

The objectives, forms of cooperation, business term, rights and obligations,

² The term "materials" is typically used to refer to tangible things.

³ The Lao word for this term connotes both customs and traditions.

⁴ The quotation marks have been added and are not in the original.

responsibilities and benefits of each party must be determined in a contract.⁵

Article 7. Joint Ventures

A “joint venture”⁶ is an enterprise established and registered under the laws of the Lao People’s Democratic Republic, operated and jointly owned by foreign and domestic investors. The organisation, management, operation and the relationship between the shareholders of the joint venture are set out in an agreement made by both parties and in the articles of such joint venture.

Foreign investors investing in a joint venture must contribute at least thirty percent (30%) of the [joint venture’s] registered capital. Capital contributed in foreign currency must be converted into Kip based on the exchange rate of the Bank of the Lao People’s Democratic Republic on the day of the capital contribution.

Article 8. One Hundred Percent (100%) Foreign Owned Enterprise

A one hundred percent (100%) foreign owned enterprise is an enterprise established in the Lao People’s Democratic Republic in which the investment is made by a foreign investor only. Such enterprise may be incorporated as a new legal entity or as a branch of a foreign investment enterprise.

Article 9. Registered Capital

The registered capital of a foreign investment enterprise must not be less than thirty percent (30%) of its total capital. During the business operation of a foreign investment enterprise, the assets of the enterprise must not be less than its registered capital.

Article 10. Representative Offices

A foreign legal entity established under the law of another country may establish a representative office in the Lao People’s Democratic Republic to collect information, study the feasibility of investment and coordinate matters for the purpose of applying for investment.

Representative offices or agents which operate for commercial purposes do not come under this law.

Article 11. Term of Authorized Investment

The investment term of a foreign investment enterprise depends on the nature, size and conditions of the business activities or project but shall not exceed fifty years and may be extended with the approval of the government. However, the investment term of a foreign investment enterprise shall be for a maximum of seventy-five years.

⁵ Readers may wish to refer to the Contract Law for information on formalities relating to the formation of contracts.

⁶ The quotation marks have been added and are not in the original.

Chapter 3

Rights, Benefits and Obligations of Foreign Investors

Article 12. Rights and Benefits of Foreign Investors

Foreign investors have the following rights and benefits:

1. To receive support from the government in establishing and operating their production, [and] business in accordance with the laws and regulations;
2. To obtain protection of their rights and legitimate interests relating to business operations;
3. To own assets;
4. To receive benefits from the lease of or a concession over land, such as [the right] to use or sell the assets associated with the leased land or concession, to create security interests over such assets in favour of any persons or financial institutions or [to take such assets] for the purpose of a joint venture, to sublease the right to use land, to transfer the land lease or concession agreement in accordance with the terms of the lease, to use the [land] lease contract or concession in a joint venture or to grant a security interest [over the land lease contract or concession] in favour of other persons. The details of the rights, benefits and obligations of foreign investors relating to the land lease or concession must be in compliance with the Land Law and other relevant laws;
5. The use of foreign labourers, if necessary, must not exceed ten percent (10%) of the enterprise's labour force;
6. Foreign investors and their families, including foreign professionals and foreign employees of an enterprise, shall be provided with facilities such as multiple entry visas and, if approved by the government, long term residence in the territory of the Lao People's Democratic Republic, and shall have the right to request Lao nationality in accordance with the Law on Lao Nationality;
7. To receive protection of their intellectual property which has been registered with the relevant authorities in the Lao People's Democratic Republic;
8. To repatriate profits, capital and other income after full payment of duties, taxes and other fees in accordance with the regulations and laws, to their home countries or a third country through a bank located in the Lao People's Democratic Republic;
9. To open a Kip account and a foreign currency account with banks located in the Lao People's Democratic Republic;
10. To request justice from or to file a claim with the relevant authorities in the event that their business operations have been affected; [and]
11. To obtain other rights and benefits as provided in the laws.

Article 13. Obligations of Foreign Investors

The obligations of foreign investors are:

1. To operate production, [and] business activities in accordance with their licence, the procedures set out in their feasibility study, their contract and the laws and regulations;
2. To maintain accounts in accordance with the Enterprise Accounting Law of the Lao People's Democratic Republic. If necessary, to use an internationally recognised accounting system, subject to the approval of the Ministry of Finance. To report on their business performance and to consolidate annual financial statements and send them to the CPMI⁷ and other relevant authorities;
3. To fully pay duties, taxes and other fees relating to their business operations in a timely manner;
4. To facilitate the organisation and activities of the mass organisations in their enterprises;
5. To give priority to recruiting Lao workers; [and] to train and upgrade the professional skills of and transfer technology to Lao workers;
6. To address matters of social security, healthcare and safety of employees in their enterprises;
7. To protect the environment, and ensure that their business activities do not severely impact on the public, national security or public order;
8. To maintain a reserve in accordance with laws and regulations;
9. To maintain insurance and social security policies in accordance with the laws and regulations relating to insurance and social security;
10. If an enterprise is relocated, to inform the relevant authorities and to maintain its premises in normal condition;
11. To report on the performance of business operations to the CPMI and other relevant authorities; [and]
12. To perform such other obligations as set out in the laws and regulations.

Article 14. Personal Income Tax of Foreign Employees

Foreign employees working in a foreign investment enterprise must pay personal income tax at the rate of ten percent (10%) of their total income to the Lao government, except employees of a country with which the Lao Government has signed a double taxation agreement.

Chapter 4 Incentives for Foreign Investment

⁷ The Lao abbreviation for this committee was used. This abbreviation is defined in Article 19.

Article 15. Incentives for Foreign Investment

The State shall consider granting incentives for foreign investment in accordance with the sectors and zones of investment promotion as provided in Articles 16 and 17 of this law.

Article 16. Promoted Activities

The government defines promoted activities as follows:

1. Production for export;
2. Activities relating to agriculture or forestry, and agricultural, forestry and handicraft processing activities;
3. Activities relating to industrial processing, industrial activities using modern techniques and technology, research and development, and activities relating to the protection of the environment and biodiversity;
4. Human resource development, skills development and public health;
5. Construction of infrastructure;
6. Production of raw materials and equipment to be supplied to key industrial activities; [and]
7. Development of the tourism industry and transit services.

Article 17. Promoted Zones

The government determines 3 promoted zones for foreign investment based on geographical location and socio-economic conditions. The zones are as follows:

Zone 1: Mountainous, plain and plateau zones with no economic infrastructure to facilitate investments.

Zone 2: Mountainous, plain and plateau zones with a moderate level of economic infrastructure suitable to accommodate investments to some extent.

Zone 3: Mountainous, plain and plateau zones with good infrastructure to support investments.

The details of the promoted zones for foreign investment shall be determined by the government.

Article 18. Incentives Related to Duties and Taxes

Foreign investment enterprises investing in activities within the promoted sectors and zones determined in Article 16 and 17 of this law shall be entitled to the following duty and tax incentives:

Investments in Zone 1 shall be entitled to a profit tax exemption for 7 years and thereafter shall be subject to profit tax at the rate of ten percent (10%).

Investments in Zone 2 shall be entitled to a profit tax exemption for 5 years, and thereafter shall be subject to a reduced profit tax rate of half of fifteen percent for 3 years and thereafter a profit tax rate of fifteen percent (15%).

Investments in Zone 3 shall be entitled to a profit tax exemption for 2 years and thereafter shall be subject to a reduced profit tax rate of half of twenty percent for 2 years and thereafter a profit tax rate of twenty percent (20%).

Profit tax exemption starts from the date the foreign investment enterprise carries out operations. For tree plantation activities, profit tax exemption commences from the date the enterprise starts making a profit.

Once the profit tax exemption period is over, the foreign investment enterprise must pay profit tax in accordance with the laws and regulations.

In addition to the incentives mentioned above, foreign investment enterprises shall be entitled to the following incentives:

1. During the tax exemption period and during the tax reduction period, the enterprise is entitled to an exemption of minimum tax;
2. The profit used for the expansion of licensed business activities shall be exempted from profit tax during the accounting year;
3. Exemption from import duties and taxes on equipment, spare parts and vehicles directly used for production, on raw materials which do not exist domestically or which exist but are insufficient, and on semi-finished products imported for processing or assembly for the purpose of export; and
4. Exemption from export duty on export products.

Raw materials and semi-finished products imported for processing or assembly for import substitution shall be exempted from import duties and taxes or shall be subject to reduced rates of import duties and taxes.

Special economic zones, industrial zones, border trade areas and other specific economic zones must follow the laws and regulations of such specific areas.

Chapter 5

Application for a Foreign Investment License

Article 19. Application for [Foreign] Investment

An application for foreign investment in the Lao People's Democratic Republic must go through the one stop service of the Committee for Promotion and Management of Investment ("CPMI").

Foreign investors wishing to invest in the Lao People's Democratic Republic must submit an application to the CPMI at the central or provincial levels with attachments, such as copies of the passport and resume of the foreign investor; feasibility study or business plan; information related to the business [of the investor] if it is a legal entity; and a copy of the joint venture agreement in the case of a joint venture.

Article 20. Consideration of a Foreign Investment Application

Upon receipt of an application with its attachments in accordance with Article 19 of

this law, the CPMI must coordinate with relevant sectors and local authorities, when necessary, to consider and to respond in writing to the foreign investor pursuant to the following timeframes:

- Projects which fall in the list of promoted [activities]: fifteen working days;
- Projects which fall in the list of open activities with conditions: twenty-five working days;
- Projects which involve the grant of a concession: forty-five working days.

Foreign investors who are qualified under this law shall obtain a foreign investment licence, an enterprise registration certificate and a tax registration certificate at the same time from the CPMI at the place where the foreign investors are licensed; thereafter they shall be considered as enterprises established in conformity with the laws of the Lao People's Democratic Republic.

Within 90 days from the date of receipt of an investment licence, the foreign investment enterprise must commence business activities in accordance with the steps in the feasibility study stipulated in the foreign investment licence and in conformity with the laws and regulations of the Lao People's Democratic Republic. If such timeframe is not followed, the foreign investment licence shall be terminated.

Chapter 6

Management of Foreign Investment

Article 21. Management Authorities Related to Foreign Investment

Management authorities related to foreign investment are:

1. The Committee for Promotion and Management of Investment at central and provincial levels;
2. Sectors⁸ and other relevant sectoral organizations.

Article 22. Rights and Duties of CPMI at the Central Level

The Committee for Promotion and Management of Investment at the central level is established by the Prime Minister, located at the Committee for Planning and Investment and has the following rights and duties:

1. To study strategies and incentives to promote and attract foreign investments and to propose them to the government for approval;
2. To issue decisions, orders, instructions and notifications regarding the protection and promotion of foreign investments;
3. To prepare a plan and a list of available investment projects for attracting foreign investment;
4. To disseminate policies, laws and regulations; and to provide information to and

⁸ See Article 24.

- to facilitate foreign investors;
5. To consider issuing or withdrawing a foreign investment licence within its scope of rights and duties, particularly within projects involving the grant of a concession;
 6. To supervise and coordinate with the sectoral organizations and local authorities in implementing this Law on the Promotion of Foreign Investment;
 7. To monitor, inspect, assess and report to the government on the business operations of foreign investment enterprises;
 8. To be a focal point in supporting, promoting and solving problems occurring in relation to the business operations of foreign investment enterprises;
 9. To organise the annual meeting of CPMI and consultative meetings with foreign investors; and
 10. To exercise such other rights and perform such other duties as provided in the laws and regulations.

Article 23. Rights and Duties of CPMI at Provincial Levels

The Committee for Promotion and Management of Foreign Investment at provincial levels is established by the chairman of the CPMI at the central level. The CPMI at the provincial level acts as a support to the provincial governors, the capital city governor, the Special Zone Head and the CPMI at the central level in promoting and managing foreign investment. The CPMI at the provincial level are located at the provincial Planning and Investment Divisions and have the following rights and duties:⁹

1. To implement strategic plans, policies to promote and attract foreign investments within their locality;
2. To disseminate policies, laws and regulations, provide information and facilitate foreign investors;
3. To consider issuing or withdrawing foreign investment licences within their scope of rights and duties;
4. To coordinate with various relevant sectors in implementing the incentive policies within their approved projects and in implementing the decisions, orders, instructions and notifications of the higher-level authorities;
5. To monitor, inspect, assess and report to the provincial governors, the capital city governor or the Special Zone Head and CPMI at the central level regarding foreign investment;
6. To act as a focal point in solving problems related to foreign investment;
7. To organise the CPMI annual meetings at provincial levels and consultative meetings with foreign investors; [and]
8. To exercise such other rights and perform such other duties as provided in the

⁹ For readability, the structure of this paragraph has been modified.

laws and regulations.

Article 24. Rights and Duties of other relevant Sectors and Sectoral organizations

The relevant ministries, ministry-equivalent organisations and other sectoral organizations must promote, manage foreign investments in accordance with their rights and duties as follows:

1. To coordinate with the CPMI at the central level in drafting laws, regulations, policies and plans in relation to foreign investment;
2. To prepare a plan and list of available foreign investment projects to attract foreign investment to their sectors, and to disseminate information to attract and promote investment; [and]
3. To participate in the process of consideration and approval of investment projects;
4. To supervise the sectors both at central and local levels in implementing incentive policies and in improving procedures regarding implementation of investment projects;
5. To inspect and assess business operations of foreign investment enterprises and participants in business cooperation contracts within their scope of rights and duties and then report to the higher authorities; [and]
6. To exercise such other rights and perform such other duties as provided in the laws and regulations.

The administrative authorities and sectors at the local level [which are] described above must coordinate with the CPMI at the local level within the scope of rights and duties described in this Article.

Chapter 7 Dispute Resolution

Article 25. General Principles

If a dispute arises in relation to their business operations, the parties must implement the principle of [dispute resolution through] amicable settlement, mediation, or filing a claim.¹⁰

Article 26. Mediation of Disputes

Disputes related to business operations which cannot be settled amicably shall be submitted for mediation to the CPMI that issued the licence.

If the CPMI is not able to mediate such dispute, such dispute must be submitted to the Office of Economic Dispute Resolution for resolution.¹¹

¹⁰ This list has a sequential connotation.

¹¹ The term “resolution” may connote assisting the parties to resolve the matter (i.e., unlike arbitration).

Article 27. Filing of a Claim

The parties to a dispute related to business operations which cannot be mediated may file a claim to the Office for Economic Dispute Resolution or to the People's Court for consideration according to [formal dispute resolution procedures].¹²

Chapter 8

Policies toward Those Who Have Performed Well and Measures Against Violators

Article 28. Policies toward those who have performed well

Individuals or organisations who have had outstanding achievements in implementing this law and in contributing to national socio-economic development shall receive rewards as deemed reasonable.

Article 29. Measures against Investors who violate [the Law]

Individuals or legal entities who violate this law shall be subject to measures depending on the seriousness of the violation in the form of warnings, suspension, withdrawal of their foreign investment licence or being sued in a court of law.

Article 30. Measures against other Violators

Individuals who violate investment laws and regulations by abusing their power or position to hinder or obstruct the promotion and approval of investment, falsify documents, mislead investors, receive bribes or commit any acts causing damage to the State or investors must compensate for such damages and must be subject to disciplinary and other measures in accordance with the laws of the Lao People's Democratic Republic.

Chapter VIII

Final Provisions

Article 31. Implementation

The government of the Lao People's Democratic Republic shall implement this law.

Article 32. Effectiveness

This law shall enter into force sixty days from the date of the promulgating decree issued by the President of Lao People's Democratic Republic. Thereafter, the Law on the Promotion and Management of Foreign Investment No. 01/94/NA, dated 14 March 1994 shall be abrogated without affecting the rights, benefits and obligations granted to investors under or those [rights, benefits and obligations] which need to be exercised under the Law No. 01/94/NA. Foreign investors who have been licensed under the Law No.

¹² This reference appears to be a general term referring to both formal arbitration (before the Office of Economic Dispute Resolution) or formal court proceedings (before the People's Courts).

01/94/NA and who wish to obtain incentives provided by this Law on Promotion of Foreign Investment must submit a request in writing to the CPMI within 120 days from the date of effectiveness of this law.

Vientiane, 22 October 2004
President of the National Assembly
[Seal and Signature]
Samane VIYAKETH