

PROJECT DOCUMENT**Sri Lanka**
 Empower lives.
Resilient nations.

Project Title: Biomass Energy 2022: fuelling the economy - protecting forests
Project Number: 90074
Implementing Partner: United Nations Development Programme (UNDP)
Start Date: 1 August 2018 End Date: 31 December 2022 PAC Meeting date:
Brief Description

From 2013 to 2018, the Sri Lanka Sustainable Energy Authority (SLSEA) with UNDP and UNFAO implemented a project on – “Promoting sustainable biomass energy production and modern bio-energy technologies” (Biomass Energy Pilot Project) to promote modern biomass use in industry and institutions. The project piloted technological applications and locally manufactured equipment, fuelwood growing models and collection systems to systematically promote green energy in Sri Lanka.

Building on the experiences, best practices and lessons learned from biomass project phase 1, Biomass Energy 2022 (Biomass Project Phase II) will consolidate the results and up-scale promising models that support local industry, afforestation efforts and Sri Lanka's goal of increasing the share of renewable energy in the energy mix in line with the energy policy. The project will build on partnerships established with public institutions and private sector during the implementation of GEF-funded Biomass Project (2013-2018) and support the expansion of viable models and activities through new partners and south-south cooperation.

The expected outcomes of the Biomass Project Phase II are strengthened rural economy, increased forest cover, improved living standards for rural women, sustainable industries and small and medium enterprises (SMEs) in Sri Lanka and growth of technology suppliers for clean and modern biomass technology. The project contributes to the achievement of the Sustainable Development Goals (SDGs) in Affordable and Clean Energy (Goal 7), Industry Innovation and Infrastructure (Goal 9), Gender Equality (Goal 5) and Climate Action (Goal 13). It indirectly contributes to targets under Life on Land (Goal 15) and No Poverty (Goal 1).

The project is closely aligned to a number of national policies and programmes. These include;

- National Energy Policy and Strategies for Sri Lanka – The national energy policy of Sri Lanka has a target to increase the commercial supply of biomass for industrial thermal and household applications. The project will help towards increasing the supply of biomass by establishing of fuelwood plantations and upscaling the supply chain
- Nationally Determined Contributions - The project contributes to NDC 3 and NDC 6 of the energy sector in the INDC plan developed for 2017 – 2019 by establishing small scale biomass power plants and developing policies to strengthen the biomass energy sector. The target of the NDC 3 is to establish 105 MW of biomass power plants and NDC 6 is to strengthen sustainable energy related policies.
- Public Investment Programme 2017-2020 – The project contributes to the goal of this program by creating employment, enhancing income levels and strengthening of rural economy.
- Enterprise Sri Lanka programme - to create entrepreneurs for the biomass energy sector by the project aligns with the main objective of Enterprise Sri Lanka
- Program to Plant One Billion Trees as Renewable Energy Sources – supports the establishment of fuelwood plantations.

- National Poverty alleviation programme –support provided by the project for growing, establishing supply chains and SMEs, employment will be created in rural areas and household income enhanced for youth and women.
National Policy Framework for SME Development -project aims to improve access to clean efficient appropriate technology that reduce transaction costs of SMEs and increase access to credit.

Contributing Outcome (UNDAF/CPD, RPD or GPD):
Development of policies and technology transfer in place for biomass energy by 2022 to achieve a low carbon development to contribute the country's renewable energy target.

Indicative Output(s) with gender marker²:


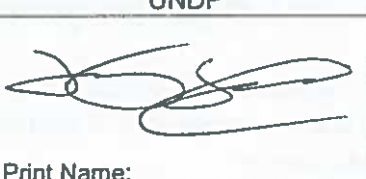
Number of SMEs using modern biomass energy technologies – GN2

Number of new entrepreneurs for growing and processing – GN2

Value of loans obtained for biomass energy sector – GN2

Total resources required:	US \$	19,305,000
Total resources allocated:	UNDP TRAC:	705,000
	Climate Finance (Donor):	1,000,000
	Private Sector	12,900,000
	Government Cash:	3,200,000
	Government In-Kind:	1,500,000
Unfunded:		

Agreed by (signatures)¹:

Government	UNDP	Implementing Partner
		
Print Name:	Print Name:	Print Name:
Date: 04/12/2018	Date: 04/12/2018	Date:

Dr. B. M. S. BATAGODA

Secretary

Ministry of Power & Renewable Energy
No 72, Ananda Coomaraswamy Mawatha,
Colombo 07

¹ Note: Adjust signatures as needed

² The Gender Marker measures how much a project invests in gender equality and women's empowerment. Select one for each output: GEN3 (Gender equality as a principle objective); GEN2 (Gender equality as a significant objective); GEN1 (Limited contribution to gender equality); GEN0 (No contribution to gender quality)

I. DEVELOPMENT CHALLENGE

Biomass still meets around 40% of the primary energy needs of Sri Lanka. Biomass is used for energy by households for cooking, industries and to a lesser degree power plants. Since 2010, the demand for biomass has grown exponentially as the government gradually cut back on fossil fuel subsidies that previously favoured heavy fuels and diesel. Industrial use of biomass has increased due to cost benefit but sustainable, modern and technologically advanced models for energy production have not kept pace with this shift. Despite being an important source of energy to the country, the biomass energy sector operates at an informal level with minimal coordination and standards of operation. Industrial thermal applications using biomass is also one of the most cost-effective means of reducing Sri Lanka's CO₂ emissions and is one of the best investments in meeting the country's intended emissions reduction targets in the short term.

The challenges to be addressed in making biomass energy sustainable and increasing its share in the energy mix in Sri Lanka through wider adoption are briefly described below;

- **Ensuring sustainable supply of fuelwood**
 - Inability to trace biomass energy to its source. This is especially a pressing concern to the industries operating in the global arena where sustainability is a crucial factor to gain market advantage.
 - Non-availability of information and support to establish fuelwood plantations. Growers and investors are unaware of the techniques and potential for using their existing land for fuel production
 - Limited land availability to establish large scale fuelwood plantations. Sri Lanka being an island has limited land and is a barrier for the production of fuelwood and also imposes a limit on the production of fuelwood.
- **Technology for processing and support for sustainable supply chains**
 - The biomass energy sector has been operating on an informal level with minimal coordination and standards for sustainability. This informal level of operation means that issues faced by the stakeholders of biomass energy remain unaddressed such as barriers for transportation, price and technology.
 - Wider adoption of biomass fuels in small and medium industries, government institutions and even households currently dependent on fossil fuel for thermal energy needs is held back due to awareness on clean and modern technologies, cost benefit and availability of market-ready biomass fuel.
 - Lack of sufficient organised supply chains for biomass energy limits the collection and supply of biomass energy to the available full potential. Organised supply chains are needed to make biomass energy supply a competitive and profit-oriented business in the energy market
 - Agricultural waste not fully used to its potential. Due to the physical nature of agricultural waste and the distances involved from sites of generation to end use, the use of agricultural waste as a source of biomass energy is currently under utilised
 - Lack of standards for biomass energy used by end users. Introduction of such standards will ensure the quality of biomass supply and the efficiency of the conversion equipment. At present there are no standards for biomass energy traded at factory gate of the end user
- **Financing for rural enterprises**
 - While large industrial users of biomass are increasing, there persists a lack of awareness in the SME sector of the benefits of modern biomass energy technologies leading to unsustainable practices, and continued use of heavy oils or kerosene or electricity for their energy needs.

- Existing credit schemes do not adequately support SMEs with financing options. Conditions imposed by the banking sector such as reliable historical data, collaterals and high interest rates, pose barriers to SMEs to successfully adopt new technologies and sustainable practices.

From 2015-2018, the SLSEA with UNDP and UNFAO implemented a project to promote modern biomass use in industry and institutions (Biomass Energy Project Pilot Phase). The project piloted technological applications and locally manufactured equipment, growing models and collection systems to promote biomass energy systematically in Sri Lanka. As part of the project, local design, development and manufacture of boilers, dryers, ovens and other equipment, including pre-processing machinery were promoted. The project has identified different modern biomass technologies available in the country and in countries like India, China and others, and initiated technology and knowledge transfer programmes and pilot demonstrations.

Some of the key achievements are:

- Certification system established for sustainable production of fuelwood
- Demonstrated 539 kilotons GHG reduction through modern biomass technologies for large scale industries and SMEs
- 27 pilot demonstration of modern efficient biomass technologies with private sector and public institutions for different applications (process heat/electricity/cooking/drying)
- 1000ha of different model fuelwood plantations established island wide
- 3 biomass energy terminals established to improve and formalize the existing supply chains

These pilot initiatives need time to mature in to commercially acceptable models with investment potential. The second phase of the Biomass Energy Project should be considered an investment strategy/plan. Return on investment is derived through realigning public expenditure (savings on the recurrent national budget allocation for energy services in government institutions; Ex:- for government hospitals etc) and fuel switching in small medium and large industries; and also through financing mobilized for small enterprises that contribute to rural livelihoods.

II. STRATEGY

Theory of change

The project aims to position sustainably sourced biomass as a renewable energy of choice in Sri Lanka. By the end of the project, sustainable biomass energy will be widely used in the country as a renewable energy source in industry, households, institutions and for power generation. The project's outputs will address policy gaps to promote biomass energy; increase access to finance; promote new and efficient biomass energy technologies through technology transfer, increase biomass energy production to overcome technical, legislative and awareness barriers and improve coordination among relevant government institutions and private sector networks.

To reach this objective, the project's outputs are designed to address the key barriers and challenges described above and building on the lessons learnt and successful models of the Phase 1 project. There are three pre-conditions to be met to reach the objective of the project. These are;

1. Greater acceptance and understanding among stakeholders of the benefits of biomass as a sustainable and low-cost energy source.
2. Wider access of processed biomass and modern, clean, low-cost technological solutions for end users
3. Higher levels of sustainability guaranteed in the production and sourcing of fuelwood; and the adoption of clean technologies.

These preconditions will be addressed through three outcomes designed to deliver concrete results and provide the enabling environment for transformation of the biomass in to modern and clean renewable energy source in Sri Lanka.

The three outcomes of the project listed below will be achieved through 12 clear outputs.

1. Small and medium enterprises (SMEs) have access to credit, technical support and training and awareness to adopt modern biomass energy technologies

Related Outputs:

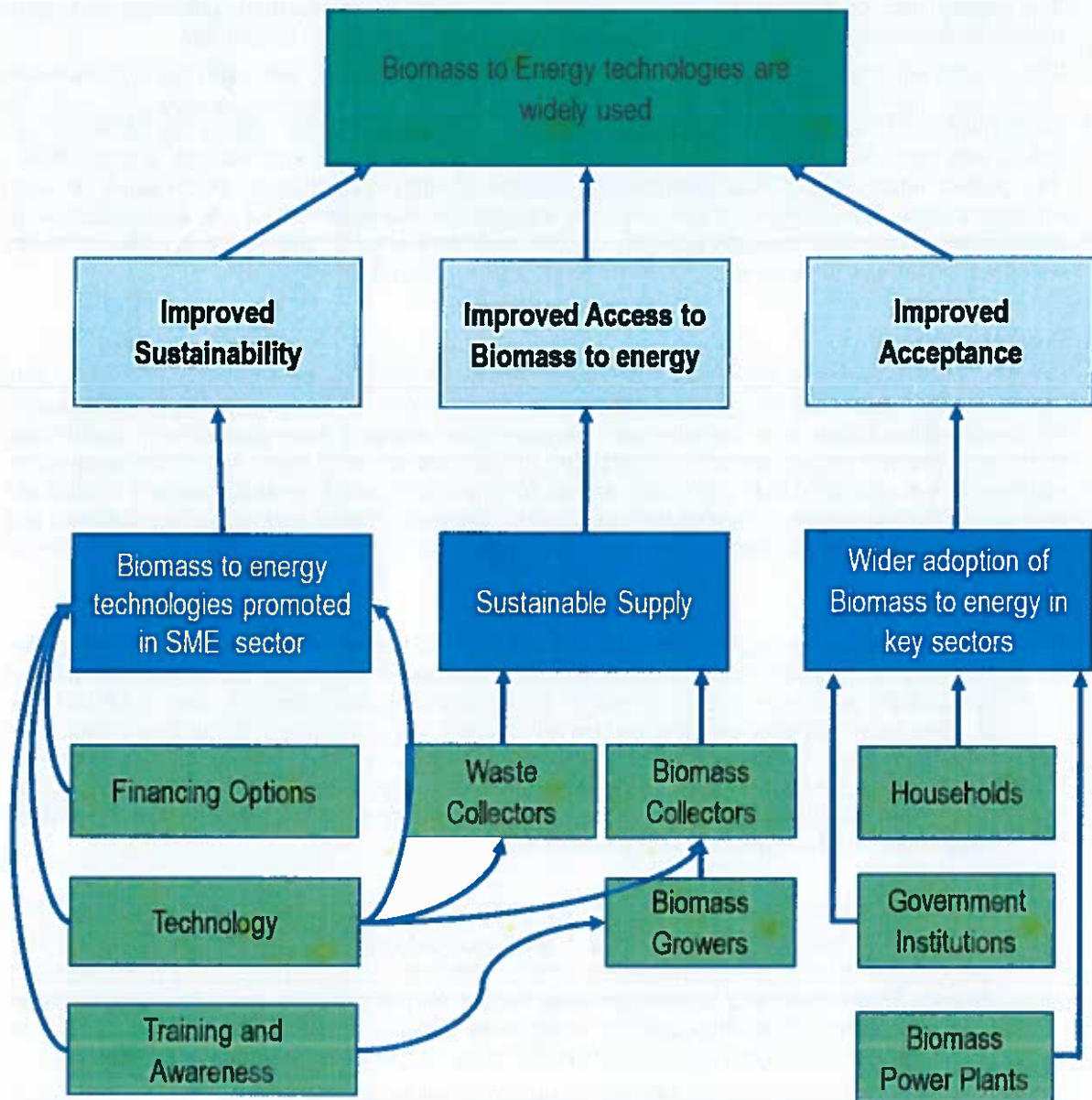
- 1.1 Convert 100,000 SMEs industries to modern biomass energy systems
 - 1.2 Improve the performance of biomass energy technologies.
 - 1.3 Increasing access to credit schemes for SMEs for fuel switching
 - 1.4 Capacity building of stakeholders on modern biomass energy technologies
2. Promoted the wider adoption of sustainable biomass energy in other key sectors
 - 2.1 Facilitating the adoption modern biomass cooking systems in households
 - 2.2 Facilitating government institutions adopt biomass energy systems for heating, cooling and cooking.
 - 2.3 Increasing the number of biomass energy power plants
3. Increased availability of sustainable and certified biomass energy
 - 3.1 Increasing extent of sustainable fuelwood production systems
 - 3.2 Introducing agricultural waste into the biomass energy supply chain
 - 3.3 Mobilise new entrepreneurs to support biomass growing and processing
 - 3.4 Increasing the collection and supply of biomass energy by establishing satellite collection centres
 - 3.5 Facilitating suppliers of biomass energy to adopt sustainable certification SLS 1551

Outcome 1 proposes to address the barriers that prevent SMEs from adopting modern biomass energy and benefiting from the same level of cost reduction and sustainability enhancement as large industrial users. Based on the successful pilots of Biomass Energy Pilot Project, SME's will be supported through training and awareness, low-cost technology options and easy-to-access credit schemes to convert their current energy use to sustainable biomass. Please see Annex 04 for a full listing of proposed incentives and credit schemes for SMEs. Biomass Pilot Project demonstrated the viability of modern biomass energy technologies and Biomass Project phase II will build on these learning and findings to scale up the use of these technologies in the SME sector. To drive the sector towards sustainable use, performance improvement of the existing technologies will be also be addressed.

Outcome 2 will look at the wider adoption of renewable energy within other key sector such as government institutions, households and power generation. In Biomass Pilot Project, the cost-benefit of converting hot water boilers and cooling systems to modern biomass technologies has been amply demonstrated in government institutes, hotels, food industry etc. The return on investment for government establishments is generally 12-15 months, meaning the recurrent budget on electricity or LP Gas for many of these establishments can be saved in consequent years. These pilots will be upscaled in the project utilising public funds and technology support from the project. Efficient, smoke free and modern cookstoves using processed fuelwood will benefit at least 500,000 urban and rural homes. Initially 500 cook stoves will be piloted to demonstrate the benefits and identify any specific issues. To increase the use of biomass energy for power generation small scale power plants will be established with the necessary supply chain for the operation of the plants. These power plants will benefit the local households/farmers and also to the economy of the country.

Outcome 3 will focus on the crucial aspect of sustainable biomass supply and fuelwood cultivation. The project plans to mobilise 1000 new entrepreneurs to developing businesses around biomass growing and processing. Based on the growing models developed for the Biomass Pilot Project, the project will establish 15000 ha of fuelwood plantations by providing access to finance, promoting inter-cropping models in different agro-ecological regions and liaising with donor projects promoting export crops and spices- such as the World Bank funded 'Agriculture Modernisation Project'. The

project will expand biomass production to agricultural wastes, building on recommendations of key stakeholders, and will develop technologies and collection systems to process 100,000 tons of agricultural waste annually to biomass energy forms used by industries. The project will establish 50 satellite collection centres to increase collection and supply of biomass energy and promote the wider adoption of the SLS 1551 standard on sustainable biomass production to ensure sustainability of the larger supply base.



Contributing to the CPD

The project contributes to the country programme outcome 2 and UNDAF Outcome 4: By 2022, people in Sri Lanka, in particular the vulnerable and marginalized are more resilient to climate change and natural disasters and benefit from increasingly sustainable management of natural resources, better environmental governance and blue/ green development.

The project also contributes to the CPD Output 2.3 which is Low-carbon pathways and green development promoted focusing on renewable energy and Blue-Green investment.

The project will promote sustainable biomass energy technologies to the industrial and domestic sector and promote sustainable growing practices, including sustainable forestry. As such the project will contribute towards increasing renewable energy share in the energy mix of the country in line with Nationally Determined Contributions under the UNFCCC and National Energy Policy. The project interventions also contribute to climate change mitigation by contributing to GHG emissions reduction. Further, it will promote sustainable management of natural resources by introducing sustainable biomass growing models and standards for the biomass energy industry which will contribute to reduced deforestation and increasing the forest cover.

Project approach

Considering the complex and multi-dimensional nature of biomass energy promotion and with lessons learnt from the first project, the approach combines addressing policy gaps/changes; improved collaboration and coordination between the relevant key government institutions; technology transfer and investment in both public and private sector to improve biomass availability, adoption and sustainable use; improving access to information and knowledge related to biomass energy; increasing access to finance for investment in biomass energy and facilitating research and development towards increasing biomass production and efficient use through the below approaches.

- Addressing policy gaps to facilitate sustainable production and increase wider adoption. Building on the work initiated in the Biomass Energy Pilot Project, the project will support discussion papers and policy briefs on biomass pricing and transport, land availability for private sector forestry etc. The project will support key government institutions (health and education primarily) to budget for fuel switching, lobby for tax concessions and incentives for biomass production and to support local manufacture. The project plans to strengthen the Inter-ministerial officials Committee on Biomass Energy to prepare the necessary policy supporting for the biomass energy sector development.
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- The project will nurture innovation and entrepreneurship in biomass energy sector by encouraging new models, systems and technological innovations with public support. The areas that will benefit from such innovative approaches have been identified in the Biomass Energy Pilot Project and include; growing models for optimal land use combining fuelwood and cash crops, innovative uses for agricultural wastes, improved locally manufacture of equipment, technologies for greater fuel efficiency and low-cost transportation systems.
- Technology Transfer and south-south cooperation will be developed to support modern end-use equipment such as clean and modern biomass cook stoves, biomass pre-processing techniques and harvesting equipment.
- Catalysing finance for the development of the biomass energy sector is a vital aspect and the project seeks to mobilise finance from public, private and donors to support the project's objective. The project will build on the recommendation of studies conducted by DFCC Bank under the Pilot project to access existing incentives and develop new financing programmes for fuelwood cultivation and supply chains. The project will support the activation of the Guarantee Fund of the Sustainable Energy Authority to support new technology applications and SMEs. The project will lobby for carbon taxes levied by government to be diverted to biomass production.

Gender equality, social inclusion, and human rights

Gender equality and women's empowerment (GEWE): During the pilot project a study was conducted to identify entry points and interventions for mainstreaming gender into biomass sector. The recommendations from the gender study will be incorporated in project design, strategy and implementation. The project recognizes the differential needs and capacities of men vs women and will provide an enabling environment to improve their engagement in project interventions. Further, both men and women will equitably benefit from project interventions. These include equitable accesses to technology, financing solutions, knowledge and information. The project also recognizes that women can play a considerable role in promoting biomass for energy generation and women in SME sector will specifically benefit from improved access to resources. Further, the enabling environment created by the project will provide opportunity for more women to enter into the SME sector to expand their income generation options. This applies for both biomass growing and technology transfer. Ultimately these interventions will contribute to improve the quality of life of men and women in the long term in many ways.

Human Rights and Human Rights Based Approaches (HRBA): The project adopts a human rights-based approach.

Climate change directly and indirectly impacts an array of human rights including the right to life, food security, water, health etc. Renewable energy is one of the strongest tools to combat climate change. Therefore, a step towards renewable energy is a step towards improving human rights. In this respect the project interventions will contribute to protect basic human rights. Further, The project promotes human rights and inclusion by supporting rural communities, women and youth to access technology, financial services and markets that contribute to better incomes and living conditions. The project will support rural communities in districts with ethnic minorities and other disadvantaged groups; and support women and young entrepreneurs where possible.

Moreover, Special attention will be given to improve women's rights through ensuring equity in the project approach.

III. RESULTS AND PARTNERSHIPS

Expected Results

The results that the project expect are as follows;

- **Supported SMEs to adopt sustainable, renewable energy sources;**
5,000 industries, with focus on SMEs, converted to modern biomass energy systems by 2022: SMEs are regarded as backbone of the economy by the Government of Sri Lanka as it accounts for more than 75 % of the total number of enterprises and provided 45 % of the employment and contributes to 52 % of the Gross Domestic Product. There are over 900,000 SME establishments in the country. The project aims to improve the profitability, by reducing transaction cost, and environmental performance of 5,000 industries, mainly targeting the SMEs to switch to clean modern biomass energy technologies. Support will be provided to access appropriate and affordable modern biomass energy technologies by linking SMEs to technology suppliers: Linking SMEs to convenient credit schemes offering features like low interest, long term payments and credit guarantee; Raising awareness amongst officials of the banks and financial institutions on appraisal of modern biomass energy technologies; Training of SMEs on preparation of project proposals for modern biomass energy technologies
- **50 satellite collection centers and 6 biomass energy terminals will be established in rural areas island wide to increase the collection and supply of biomass energy:**
Three biomass energy terminals have been established under the "Biomass Mass Phase I-pilot project" in Homagama, Kurunegala, and Badalkumbura and those are functioning satisfactorily now. The number of energy terminals will be increased up to 10 by adding additional seven terminals under this project.

Satellite terminal will function as intermediate collection centers to link growers and energy terminals. Transporting biomass with small quantities is not economical and these satellite collection centers will help to reduce transport costs by transporting in economical loads to the biomass energy terminals. As such these terminals will mainly cater for small scale suppliers and help increase income in the rural areas. These collection centers will also be set up by supporting young and new entrepreneurs.

A study has been carried out under the GEF-funded Biomass Energy project and identified few economical modes for transporting biomass and even now biomass is being supplied from Badalkumbura to Biyagama with competitive prices.

From Biomass Phase I – Results of the Transport Study

Utilizing more fuel-efficient vehicles that can deliver a bigger payload will of course deliver cost and greenhouse gas emissions reductions. The preferred truck payload sizes are 4,500kg, 8,000kg and 10,300kg. By switching to these trucks alone, costs can be reduced by 4% for briquettes, 8.5% for logs and 12% for woodchip.

Although the greatest cost savings have been found in woodchip, from an environmental perspective, this is the worst form of biomass fuel to transport. The environmentally suitable delivery radii for denser biomass fuels such as briquettes is between two and three times better than for woodchip. Therefore, utilizing higher density fuels or introducing automation that increases product density should be a priority.

Bringing automation to loading and unloading brings significant improvements to cost through two reasons. Firstly, by reducing loading and unloading times by enough that two trips per day can be scheduled, which means that fixed daily costs such as driver costs can be halved, and secondly by eliminating the need for helpers, as only the driver will be needed to operate the loading equipment.

- **1000 new entrepreneurs supporting biomass growing and processing by 2022:** To formalise the biomass energy sector and increase the collection of biomass energy in the country, support will be provided to develop entrepreneurs operating in the biomass energy supply chain for growing and processing of biomass. Training on the operation of the biomass energy supply chain will be provided to the entrepreneurs; the entrepreneurs will be linked with convenient credit schemes (Annex 4) identified under the DFCC Bank study of Biomass Energy Pilot Project in and end users. Establishment of widespread collection and processing centres throughout the country will help increase the collection of biomass energy and coordination between production and consumption

From Biomass Phase I – Results of the Biomass Pricing Study

The study on the long-term price behaviour of the fuelwood reveals that there is a conclusive relationship between the price of the fuelwood and auto diesel and labour wage rate. Transport is a major cost component for which auto diesel is used. The current price difference between commercial fuelwood and fuel oil is driving the industry to switch from fossil fuel to fuelwood especially for thermal applications, which brings in significant financial savings. The number of fuelwood boiler installation has increased since 2004. This financial savings made by the end users of fuelwood is also reflected in the economy through the reduction of import of fossil fuel. However, a sustainable source of fuelwood needs to be established to ensure that the environment is unharmed and fuelwood can accommodate increasing demand by users. Through appropriate regulatory interventions the supply of fuelwood can be increased to meet the demand of the present and future needs while contributing positively to the economy and environment.

Modern applications for Biomass promoted

500,000 households using modern biomass cooking systems by 2022: Biomass supplied over 38% of the country's primary needs and has a widespread demand for commercial and non-commercial application. Addressing the efficiency of the equipment used in the domestic sector is also needed in order to ensure that the domestic sector is sustainable and able to accommodate increasing demand and be resilient to growing industrial demand.

Initially as a pilot, 500 modern cook stoves and the required fuel supply chain will be setup to determine how the cook stoves are accepted. The findings from the pilot will be used to address any issues for wide scale adoption and to produce communication material of the actual benefits to the user. The project will also initiate the distribution channel for the cookstoves by partnering with retail chains, cooperative societies and other such institutions to ensure that the cookstove is readily available island wide with convenient payment schemes.

The project will use the experience gained during the initial phase to undertake the coordination of establishing the fuel supply chain for the cookstoves.

- Small-scale biomass power plants to generate 80MWh electricity established in proximity to the satellite energy terminals: To improve collection and reduce transport costs small scale power plants will be built close to the satellite collection center and this makes the supply of biomass less sensitive to transport costs and other related external factors. This will help improve the income of rural households created by the steady demand for biomass from the biomass power plants.

Sustainable and certified supply sources established and promoted

Establishing 15000 ha of fuelwood plantations contributing to the forestry target of Sri Lanka and producing 80,000 to 150,000 tons of biomass energy per annum: Sustainable production of biomass energy is key to the continuity of the sector. The growing models developed in the first phase of the biomass energy project will be used in producing biomass energy in available agricultural lands, home gardens and marginal lands. Growers will be linked with land owners, investors, biomass processing centers and convenient credit schemes.

- 100,000 tons of agricultural waste converted annually to biomass energy forms used by industries. At present wood is the main form of biomass energy used in the country. However, there are large quantities of agricultural waste that can be used as biomass energy by densification. The distances from such agricultural waste generation sites to the processing centers, that are mainly located in the western part of the country, and the lightweight nature of the waste makes it uneconomical to transport. Processing this waste close to the generation site makes it a competitive and a desirable biomass energy form which can help ease pressure on the demand for wood. Processing sites for agricultural waste will be established throughout the country by developing and supporting entrepreneurs to get involved.

From Biomass Phase I – Results of the Biomass Resource Survey

The three energy sources - fuelwood, gas, and electricity – emerged as main energy mix for cooking, hot water preparation, and heating & drying purposes. It was evident that householders use those three energy sources as an energy mix to minimize the total costs (including opportunity cost).

The study aims at looking into three key information gap areas, namely (a) existing fuelwood demand and supply, (b) availability, and (c) potential to increase the supply. The present study collected data both from secondary and primary sources.

It is widely recognized that pressure on environment is very high if present demand and supply patterns keep continuing without a policy intervention in increasing supply and/or limiting demand.

In order to increase the fuelwood production, the secondary data of the study revealed that there are potential lands as well as other arrangements to promote fuelwood growing. Results suggest that it may not be possible to promote a crop dedicated for fuelwood. In other words, results in several districts suggest energy crops should be promoted along with other economic crops or crops should be promoted who's by products (residues) enhance fuelwood supply capacity.

Household survey revealed householders, ranging from 5-35 percent in different districts, are willing to engage in fuelwood growing provided such economic activity is relatively profitable and sustainable. Hence, such house holders could be encouraged to engage in fuelwood growing. Also, the findings reflect the fact that an increase in industrial fuelwood demand may not adversely affect the availability of fuelwood for household use.

As in other countries, fuelwood as an energy source in house hold level will be an inferior source for many households in near future. Implication of such trend is the availability of additional fuelwood, which currently consume at household level, for industrial use in future. Hence, it is important to have a mechanism in place in collecting unused fuelwood at household use for the purpose of industrial use. One of the draw backs of this initiative would be the suitability of fuelwood currently used by households for industrial use.

Resources Required to Achieve the Expected Results

Partnerships

- The Ministry of Power and Renewable Energy will be the implementing partner of the project and will provide the necessary guidance and technical input and other resources to implement the project.
- Forest Department will provide its technical expertise to support growing of biomass energy to help increase the production of sustainable biomass energy. During Biomass Energy Pilot Project various fuelwood growing models were developed and tested with CBOs, NGOs, Forest Department, Rubber Research Institute, Coconut Development Board
- Ministry of Plantation Industries and Ministry of Primary Industries will provide resources and expertise towards establishing a sustainable biomass energy source. It is expected that the both partners will provide mainly access to land to increase biomass energy production.

Risks and Assumptions

- Financial institutions operating credit or incentive schemes are not sure about the sustainable biomass energy supply. The project will raise awareness in the sector from the learnings of phase where a study of the 10 districts revealed that there are opportunities to increase supply
- Biomass energy terminals which operate at very low profit margins are sensitive to price changes and are at the risk of closing down business. The project will minimise the risk by educating the terminal operators on ways to minimise transport cost, and reduce operational cost
- Weather is key to the production of biomass energy and the current weather pattern poses risk to the production of biomass energy. The project will take this into account and promote growing models that rely less on weather
- Production of fuelwood: currently production of fuelwood is not a very profitable business and there is a risk that changes in prices to cash crops will reduce fuelwood production. The risk is managed by introducing growing models that include cash crops and fuelwood production
- The political priorities in the renewable sector are not on biomass energy. The project will take necessary actions to minimize the risk through Inter-Official Committee on Biomass Energy that was formed for identifying policy gaps and formulating policies required to recognise biomass energy as an important source of energy to the country
- Difficulties in getting the necessary clearances to harvest fuelwood leads to delays and sometimes abandoning of harvesting. The project is working with the Ministry of Plantations and the Central Environmental Authority to streamline the process of getting the clearances for harvesting of fuelwood

Stakeholder Engagement

The key stakeholders in the project are;

- Financial Institutions – the project will build capacity of the financial institutions and link finance required for the biomass energy sector.
- Technology suppliers in the biomass energy sector – These suppliers will be linked to technology
- Public – To adopt efficient technology for domestic applications and involve in the supply chain of the biomass energy sector
- Government Institutions – Will see cost benefit from switching to modern biomass
- Private sector – Will be engaged for investing in the biomass energy sector and
- Universities – To conduct research and development, technology improvement studies
- Biomass Energy Consortium – to provide the necessary background data to formulate policy briefs
- Community based organisation – For growing and setting up of collection centers
- Non-governmental organisation - For growing and setting up of collection centers
- Inter-official committee on Biomass Energy – to provide the necessary support to formulate policies
- Ministry of National Policies and Economic Affairs - To support the project for formulating policy in favour of biomass energy
- Ministry of Power and Renewable Energy – As the implementing partner of the project
- Ministry of Industry and Commerce - To support the project in getting SMEs to invest in the biomass energy sector
- Presidential secretariat – To provide support for growing
- Ministry of Samurdhi and Poverty Alleviation – To support the project in rural areas where
- Ministry of Mahaweli Development and Environment -

South-South and Triangular Cooperation (SSC/TrC)

- The Biomass Energy Pilot Project promoted south-south cooperation with China by facilitating a technology exposure visit for government, and private sector. This visit resulted in sharing

experiences including best practices, lessons learnt on modern biomass energy technologies, optimising biomass resource usage, values added product manufacturing etc. During the pilot phase of the Biomass Project it was recommended technical collaboration with China in the area of biomass energy. Under this Project it is expected to strengthen the south-south and triangular cooperation through technology transfer in areas of end use applications, biomass processing and investment in applications in bio refining of biomass.

Knowledge

The project will produce the following studies and publications with the aim of increasing knowledge and awareness among stakeholders in the biomass energy sector. The increased knowledge will facilitate wider adoption of biomass energy technologies in the country. These knowledge products will be distributed among and made available to key stakeholders including policy makers, investors, financial institutions, end users etc.

- A guide on best practices and recommendations to increase utilization of biomass energy – growing models, streamlining agricultural waste, biomass energy terminals and operational methods;
- Study on the potential of agricultural waste for biomass energy as a long-term energy source for industrial and domestic use
- Detailed study of the economics of agricultural waste as a source of biomass energy
- Feasibility study of modern biomass technologies used by SMEs for use of the financial institutions
- Feasibility study of biomass processing centres for use by the financial institutions
- Policy briefs for the transport of biomass energy, biomass energy terminals and pricing of biomass energy
- Knowledge products targeting investors of biomass energy terminals
- Standard for Solid Bio Fuels used in the industry
- s Guides in Sinhala and Tamil on accessing finance for biomass energy projects with existing credit schemes focusing on SMEs.

Sustainability and Scaling Up

The Project will ensure sustainability and upscaling by the following;

- The Biomass Energy Cell at the Sustainable Energy Authority that was established during the Pilot Project of the biomass energy project will be used to ensure continuity and scaling up of results. The Biomass Energy Cell will work closely with the Project and take ownership of the project during project closure.
- Standard for sustainable biomass production will be incorporated in the Environmental Protection Licence of the Central Environmental Authority and this will ensure that sustainable biomass production is adopted nationally. The relevant department at the Central Environmental Authority will be given training on SLS 1551
- The Sri Lanka Sustainable Energy Authority owns the standard for sustainable biomass production SLS 1551 and will engage the Sri Lanka Standards institute to develop the necessary revisions as and when required
- The project will incorporate growing of fuelwood into the master/long term plans of major national forest and plantation sector of Sri Lanka: Forest Department, Coconut Development Authority, Rubber Development Department and Tea Research Institute
- The Project will lay the necessary foundation for coordination between the Biomass Energy Consortium and the Inter-Ministerial Officials' Committee for Biomass Energy that was established in Pilot Phase of the project. This will ensure that the concerns of the users of the biomass energy are communicated to the committee for appropriate policy interventions

- Programs in place for national priorities that align with project activities will be communicated on the success stories of the relevant project activities. This information can then be incorporated into the programs to provide the necessary support for sustaining and upscaling

IV. PROJECT MANAGEMENT

Cost Efficiency and Effectiveness

4.1 Cost Efficiency and Effectiveness

The Project will take various approaches to achieve cost effectiveness. Procurement will be based on a transparent and competitive process, as well as on the value-for-money principle.

Further, the Project will work to achieve economies of scale in investments by employing the co-financing approach for implementation of activities where risks are not taken currently by the financial institutions and or in areas where there is no government support. For implementation where financing is available or a government framework is in place the project will link such facilities to the interested stakeholders to access the entire financial resources needed for implementation

Also, the Project will explore and seek to partner with other on-going UNDP projects, locally and internationally, working in related areas through co-financing for additional energy efficiency infrastructure measures.

This Project is a partnership of the Ministry of Power and Renewable Energy and UNDP. The Project will increase cost efficiency and effectiveness through its effort to avoid overlapping of project activities with those for which the government has allocated financial resources, as well as intentions to maximize the efficient use of available budgets through joint operations especially for monitoring purposes.

As agreed at the Project Board Meeting that the Project Management Unit (PMU) of the Phase I, will be co-funded by the Government of Sri Lanka and UNDP to support the smooth transition between the two phases and will continue to provide the following services;

- Continued coordination between stakeholders until biomass sector functions smoothly
- Provides knowledge to investors and end users from learning of Biomass Pilot Project
- Support the implementation of biomass technology adoption
- Expand the number of energy terminals and improve their operational efficiency
- Increase biomass production with private sector investment
- Establish and test a monitoring system for biomass sector

To implement this proposed arrangement commencing with a provision of LKR 15 million from 2018 allocation, and to allocate required provisions for remaining years from 2019 to 2023 from the national budgets under the Ministry of Power and Renewable Energy/ Sri Lanka Sustainable Energy Authority which will be channelled to the pool of funds administered by the Project Board for the implementation of the Phase 2 of the Biomass Energy Project "Biomass Energy 2022: fuelling the economy - protecting forests". These funds will be managed by UNDP under its globally accepted standards and quality assurance processes.

4.2 Project Management

4.2.1 The Project Board

A Project Board will be set up and chaired by the Secretary, Ministry of Power and Renewable Energy or his designate for the Project. Sri Lanka Sustainable Energy Authority and UNDP will be the other permanent members of the Board.

The Senior Supplier for the Project is the Ministry of Power and Renewable Energy while the Beneficiary is the Sri Lanka Sustainable Energy Authority. UNDP provides project implementation support, technical assistance, coordination support to Government and monitoring of results and impacts.

The Department of National Planning, the External Resources Department, the Forest Department will also be represented on the Board. Other potential members of the Project Board (PB) will be reviewed and recommended for approval during the Inception Workshop. Representatives of other stakeholders can be included in the Board as appropriate.

The Project Board is responsible for providing strategic guidance and making management decisions for the project, in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the National Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Results Based Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition.

The project will quarterly report the progress and issues of the project to the Cabinet of Ministers' appointed Inter-Ministerial Committee on Biomass Energy (IMCBE). The IMCBE will identify and provide relevant solutions for barriers to expedite and smooth project implementation.

4.2.2 The National Project Director

As a representative of the Government and the project's national executing agency, the National Project Director (NPD) from the Ministry of Power and Renewable Energy/Sri Lanka Sustainable Energy Authority, will have the main responsibility to ensure that the efficient and effective transferring of the government allocated funds to the project to be implemented by the UNDP to be programmed for the below-mentioned activities under section VII, the overall supervision and quality assurance of the Project Board. Quarterly progress reports on the allocation will be prepared and submitted by the PMU to the Project Board for review.

4.2.3 The Project Manager

A Project Manager (PM) will be the primary contact person for the project for external communication and will act as the convener for meetings between the national execution partners and UNDP.

4.2.4 The Project Management Unit (PMU)

The project activities will be implemented through a Project Management Unit (PMU) that will draw on expertise from the PMU established for Biomass Energy Phase I. **The PMU will be hosted by the Ministry of Power and Renewable Energy/Sri Lanka Sustainable Energy Authority.** Under the Project Board's guidance, the PMU will coordinate the project's operation on a day-to-day basis with the government agencies involved (Forest Department, Private sector, Other government and private partners and Sustainable Energy Agency; etc) and report to UNDP on the progress in implementation of the project activities.

The PMU will consist of:

- Project Manager: contracted by UNDP;
- Chief Technical Advisor (Climate Change Mitigation): contracted by UNDP on part time basis;
- Technical Coordinator (Energy & Technology): contracted by UNDP;

- Technical Coordinator (Production and Supply): contracted by UNDP;
- Project Assistants (Admin (01)): contracted by UNDP;
- Three Project Assistants (Technology (01), Supply Chain & Production (01), Admin & Accounts (01)) (part-time): provided by Ministry of Power and Renewable Energy /Sustainable Energy Authority (SEA);
- Project Accountant (part-time): provided by Ministry of Power and Renewable Energy.
- Driver cum Office Assistant: contracted by UNDP

UNDP will part-fund the costs of the PMU the PM, Chief Technical Advisor, Two Technical Coordinators, One Project Assistants (Admin and Programme) and Driver cum Office Assistant as described above. The Project will seek to utilize in-kind contribution from partners (Ministry of Power and Renewable Energy/ Sri Lanka Sustainable Energy Authority) in the form of hosting venues office space and hospitality.

4.3 Audit arrangements

Audit on project will follow Financial Regulations and Rules and applicable Audit policies of the UNDP and government.

4.4 UNDP direct country office support services and project costing

As the implementation of this project will be realized by direct engagement of UNDP personnel in terms of its managing, it will be supported by the country office in terms of management, administrative/auxiliary personnel (technical assistant) and general management services. These costs are incorporated into the budget of the project.

V. RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s):

GOAL1: No Poverty

GOAL5: Gender equality

GOAL7: Affordable and cleaner energy

GOAL 9: Industry innovation and infrastructure

GOAL13: Climate action

GOAL 15: Life on Land

Intended Outcome as stated in the Country [or Global/Regional] Programme Results and Resource Framework:

UNDAF outcome 4: By 2022, people in Sri Lanka, in particular the vulnerable and marginalized, are more resilient to climate change and natural disasters and of natural resources, better environmental governance and blue/ green development

Outcome indicators as stated in the Country Programme [or Global/Regional] Results and Resources Framework, including baseline and targets:

5.1. Number of adopted or adjusted legal and strategic documents that are harmonized at State and/or Entity levels; Baseline: 0 (year 2018); Target: 5

5.2. Increase in percent of budgetary allocations directed to environmental protection and energy efficiency/renewable (climate change); Baseline: 0; Target: 10

Applicable Output(s) from the UNDP Strategic Plan:

CPD Output 2.3: Low-carbon pathways and green development promoted focusing on renewable energy and blue-green investment

Project title and Atlas Project Number: Biomass Energy 2022: fuelling the economy - protecting forests

EXPECTED OUTPUTS	INDICATORS	DATA SOURCE	BASELINE		TARGETS (by frequency of data collection)				
			Value	Year	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Project objective: Biomass energy promoted as a prominent sustainable energy source in Sri Lanka	01. Increased investments to promote modern biomass energy technologies	Project implementation and technical Reports							
	02. Renewable energy % increased in Energy mix	Annual Reports of the Financial Institutions							
	03. 217 ktCO ₂ e GHG emission reduction Annually by EOP (indirect/direct)	SLSEA Reports							

Outcome 1: Increased access to sustainable biomass energy technologies for the SME sector	01. Total number of SMEs adopting modern biomass energy technologies 02. Number of certified biomass energy suppliers	Project implementation and technical Reports SLSI reports	19	2018	0	900	900	1800	450	450	4500	Methods: SLSEA report Risks: Institutions' stance toward biomass energy utilization
Output 1.1 5,000 industries converted to modern biomass energy systems by 2022	1.1 Number of private sector enterprises that adopt biomass technologies (Indicator for Gender disaggregated data)	Annual performance review in energy sector	0	2018	0	2	2	3	4	1	12	Methods: SLSEA report Risks: Institutions' stance toward biomass energy utilization
Output 1.2 Improved performance of biomass energy technologies	1.2.1 Number of existing technologies improved 1.2.2 Number of applications of existing biomass technologies improved	Project implementation and technical projects	0	2018	0	2	2	3	4	1	12	Methods: SLSEA report Risks: Institutions' stance toward biomass energy utilization
Output 1.3 Access to credit schemes enhanced for SME for fuel switching	1.3.1 Number of SMEs applied for credit schemes	Project implementation reports	0	2018	0	200	500	800	250	250	2000	Methods: Project reports Risks: Institutions' stance toward biomass energy utilization
Output 1.4 Relevant stakeholders are trained on modern biomass energy	1.4.1 Number of SMEs trained 1.4.2 Number of financial institutions trained 1.4.3 Number of technology providers trained	Project implementation reports	0	2018	0 0 0	600 50 50	600	600 50	0	0	1800 100 50	Methods: Project reports Risks: Institutions' stance toward biomass energy utilization
Outcome 2: Wider adoption of biomass energy technologies in the domestic, private sector and government institutions	1) Amount of investments leveraged from government, household and industries											Methods: Project reports Risks: Institutions' stance toward biomass energy utilization
Output 2.1 Modern biomass cooking systems	2.1.1 Number of commercial suppliers for modern cook stoves available	Project implementation	0	2018	1	2	3	4			10	Methods: Analysis Project documents and reports

are used by 500,000 households by 2022	2.1.2 Number of Households recorded in the distribution programme (gender disaggregated data)	and technical Reports	0	2018	500	39,500	100,000	130,000	180,000	50,000	500,000	Risks: Changes of relevant household's stance toward biomass energy utilization
	2.1.3 Number of fuel wood distributors for cook stoves		0	2018	01	05	05	05	05	05	25	
Output 2.2 Modern biomass energy technologies are installed in 500 government institutions by 2022	2.2.1 Number of government institutions adopting modern biomass energy technologies		10	2018	20	100	100	100	100	80	500	Risks: Changes of relevant institutions stance toward biomass energy utilization
Output 2.3 Number of biomass power plants increased	2.3.1 Capacity of biomass power plants increased by 20MW by 2022	Project Implementation and technical Reports SEA Energy permits	5	2018	0	05	15	15	10	5	50	Methods: Analysis of project reports Risks: Changes of relevant institutions stance toward wood biomass utilization
Outcome 3: Increased availability of sustainable biomass energy	1) Number of people engaged in biomass production and supplying 2) Increase % share of fuel switching 3) % annual income from biomass energy production	SEA report on national energy balance	250	2018	100	400	500	1000	1000	2000	5000	
Output 3.1 Establishing 15000 ha of fuelwood plantations contributing to the forestry target of Sri Lanka and producing 150,000 tons of biomass energy per annum	3.1.1 Hectareage of sustainable fuelwood plantations established 3.1.2 number of public private partnerships created for fuel wood production	Project Implementation and technical Reports Data base of the land bank	1000	2018	0	2000	3000	3000	5000	2000	15000	Methods: Analysis Project reports and data base Risks: 1. Changes of relevant entrepreneur's /institutions' stance toward biomass growing and production 2. Extreme weather conditions may affect biomass growing programmes

Output 3.2 100,000 tons of agricultural waste converted annually to biomass energy forms used by industries	3.2.1 Number of agriculture waste collection and processing plants established	Project implementation and technical Reports Database on suppliers And waste biomass collection	0	2018	01	01	02	03	02	0	07	Methods: Analysis Project reports and data base Risks: Changes of relevant entrepreneur's /institutions' stance toward biomass energy production
	3.2.2 Tons of agricultural waste biomass processed annually		0	2018	10,000	10,000	20,000	40,000	20,000	0	100,000	
Output 3.3 1000 new entrepreneurs supporting biomass growing and processing by 2022	3.3.1 Number of biomass supply related jobs created	Project implementation and technical Reports Data base with the details of entrepreneurs interested in fuelwood growing and processing	15	2018	0	100	200	200	300	200	1000	Methods: Analysis Project reports Risks: Changes of relevant entrepreneur's /institutions' stance toward biomass growing and processing methods and technologies
	3.3.2 Amount of co-financing generated											
Output 3.4 50 satellite collection centers established in rural areas island wide to increase collection of biomass energy which will also contribute to the above-mentioned growth of new entrepreneurs	3.4.1 Number of functioning satellite collection centres established (Gender disaggregated)	Project implementation reports Forest department data	3	2018	03	05	12	12	12	6	50	Methods: Analysis of project reports Risks: Changes of relevant institutions stance toward wood biomass utilization
Output 3.5 50 suppliers certified under SLS 1551	3.5.1 Number of biomass suppliers certified under SLS 1551	Project implementation and technical Reports	0	2018	3	10	10	10	10	7	50	Methods: Analysis Project reports Risks: Changes of relevant entrepreneur's /institutions' stance toward biomass growing and processing methods and technologies

VI. MONITORING AND EVALUATION

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans: *[Note: monitoring and evaluation plans should be adapted to project context, as needed]*

Monitoring Plan

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
Track results progress	Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.	Quarterly, or in the frequency required for each indicator.	Slower than expected progress will be addressed by project management.	UNDP, Project Board	
Monitor and Manage Risk	Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.	Quarterly	Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.	UNDP	
Learn	Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.	At least annually	Relevant lessons are captured by the project team and used to inform management decisions.	UNDP	
Annual Project Quality Assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform management decision making to improve the project.	Annually	Areas of strength and weakness will be reviewed by project management and used to inform decisions to improve project performance.	UNDP, Project Board	
Review and Make Course Corrections	Internal review of data and evidence from all monitoring actions to inform decision making.	At least annually	Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections.	UNDP, Project Board	

Project Report	A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary, an updated risk long with mitigation measures, and any evaluation or review reports prepared over the period.	Annually, and at the end of the project (final report)		UNDP	
Project Review (Project Board)	The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to socialize project results and lessons learned with relevant audiences.	Specify frequency (i.e., at least annually)	Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.	Project Board	
Total Monitoring					30,000

VII. MULTI-YEAR WORK PLAN ²³

All anticipated programme and operational costs to support the project, including development effectiveness and implementation support arrangements, need to be identified, estimated and fully costed in the project budget under the relevant output(s). This includes activities that directly support the project, such as communication, human resources, procurement, finance, audit, policy advisory, quality assurance, reporting, management, etc. All services which are directly related to the project need to be disclosed transparently in the project document.

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year (USD)						RESPONSIBLE PARTY	PLANNED BUDGET		
		2018	2019	2020	2021	2022	2023		Funding Source	Budget Description	Amount
Outcome 1: Increased access to sustainable biomass energy technologies for the SME sector											
Output 1.1 5,000 industries converted to modern biomass energy systems by 2022	1.1.1 Provide support to access appropriate and affordable modern biomass energy technologies by linking SMEs to technology suppliers		5,000	5,000	5,000	5,000	-	UNDP	Government	Implementation cost	20,000
Output 1.2 Improved performance of biomass energy technologies	1.2.1 Conduct studies to find opportunities for biomass technology/efficiency improvement by at least 5% giving priority for co-generation	12,000						UNDP	UNDP	Grants to Instit & Other Benef (72600)	12,000
			7,000	7,000				UNDP	Government	Implementation cost	14,000

² Cost definitions and classifications for programme and development effectiveness costs to be charged to the project are defined in the Executive Board decision DP/2010/32

³ Changes to a project budget affecting the scope (outputs), completion date, or total estimated project costs require a formal budget revision that must be signed by the project board. In other cases, the UNDP programme manager alone may sign the revision provided the other signatories have no objection. This procedure may be applied for example when the purpose of the revision is only to re-phase activities among years.

Output 1.3 Access to credit schemes enhanced for SME for fuel switching	1.3.1 Linking SMEs to convenient credit schemes offering features like low interest, long term payments and credit guarantee	2,500	2,500	2,500	2,500	2,500	-	UNDP	Government	Implementation cost	10,000	
Output 1.4 Relevant stakeholders are trained on modern biomass energy	1.4.1 Training of SMEs on preparation of project proposals for modern biomass energy technologies	10,000	10,000	10,000	10,000	10,000	-	UNDP	Government	Implementation cost	40,000	
	1.4.2 Training of the technology providers on modern biomass energy technologies, efficiency improvements, credit schemes etc	10,000	10,000	10,000	10,000	10,000		UNDP	Government	Implementation cost	40,000	
	1.4.3 Raising awareness amongst officials of the banks and financial institutions on appraisal of modern biomass energy technologies	8,000	8,000	8,000	8,000	8,000		UNDP	Government	Implementation cost	32,000	
	Sub-Total for Output 1											168,000
Outcome 2: Wider adoption of biomass energy technologies in the domestic, private sector and government institutions												
Output 2.1 500,000 households using modern biomass cooking systems by 2022	2.1.1 Implement initial pilot programme with 500 modern cook stoves and the required supply chain will be setup to determine how the cook stoves are accepted	15,000						UNDP		UNDP	Contractual Services-Companies (72100)	15,000
		18,000								Government	Implementation cost	18,000

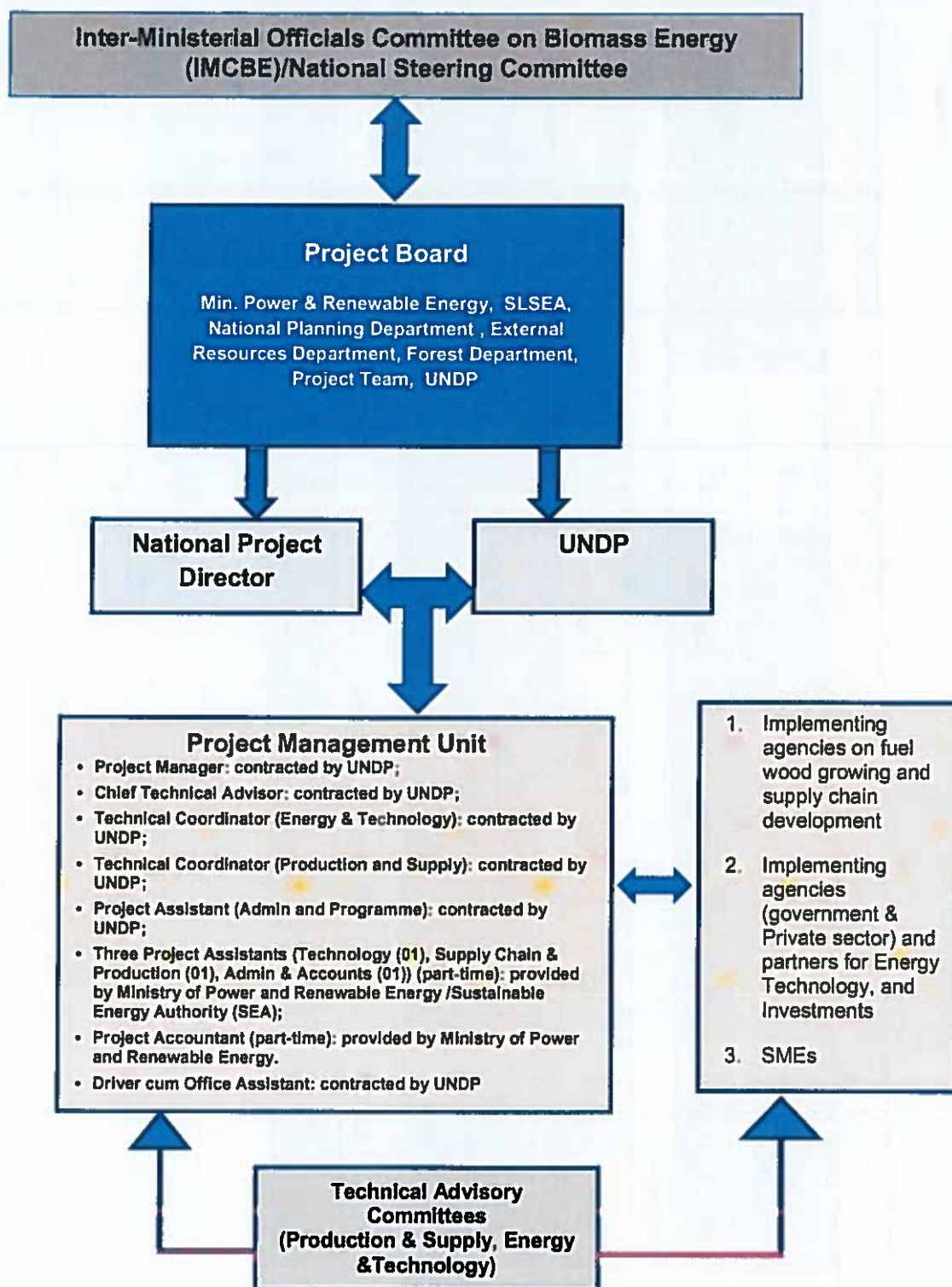
Output 2.2 Modern biomass energy technologies are installed in 500 government institutions by 2022	2.1.2 Develop the most effective distribution channel to reach the 500,000 households	15,000	15,000	15,000	15,000	15,000	5,000	10,000	15,000	5,000	UNDP	Government	Implementation cost	65,000
	2.1.3 Establishment of biomass fuel processing centers to process and supply the required fuel for modern cook stoves to meet quality criteria and market demand	25,000	25,000					31,645			UNDP & Ministry of power & Renewable Energy	UNDP	Contractual Services-Companies (72100)	15,000
	2.1.4 Monitor, evaluate the operation and performance of the cookstove distribution channel and fuel supply chain	2,000	2,000	2,000	2,000	2,000					UNDP	Government	Implementation cost	10,000
	2.2.1 Training and awareness of relevant government stakeholders on modern biomass energy technologies	8,000	8,000	8,000							UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	24,000
Output 2.3 Number of biomass power plants increased	2.2.2 Installation of modern biomass energy technologies in the government institutions	15,000									UNDP & Ministry of power & Renewable Energy	UNDP	Contractual Services-Companies (72100)	15,000
	2.2.1 Conduct feasibility study for setting up of the small-scale power plants	55,000	412,821	412,821	412,821	412,821	412,821			412,821	UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	2,119,105
		8,000	8,000	8,000							UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	24,000

2.2.2 Identify and develop convenient credit schemes with the support of financial institutions.	5,000	5,000	5,000	5,000	5,000	200,000	200,000	200,000	200,000		UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	20,000
2.2.3 development of set of guidelines and procedures for setting up of small scale biomass power plants with respect to the SLS 1551	2,500	2,500	2,500	2,500	2,500						UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	10,000
2.2.4 Facilitate entrepreneurs to develop proposals and feasibility studies for small scale biomass power plants to generate 20 MW		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000		UNDP and Ministry of Power and Renewable Energy	Private sector	Implementation cost	1,000,000
2.2.5 Linking investors in small-scale biomass powerplants with credit schemes		5,000	2,500	2,500	2,500						UNDP and Ministry of Power and Renewable Energy	UNDP	Training and workshops (75700)	10,000
2.2.6 Linking of the small-scale biomass powerplants with satellite fuelwood collection centers.	5,000	2,500	2,500	2,500	2,500						UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	12,500
Sub-Total for Output 2														3,439,250
Outcome 3: Increased availability of sustainable biomass energy														
Output 3.1 Establishing 15000 ha of fuelwood plantations contributing to the	5,000	10,000									UNDP	Government	Implementation cost	15,000

Output 3.2 100,000 tons of agricultural waste converted annually to biomass energy forms used by industries	3.2.1 Develop database of entrepreneurs interested in fuelwood growing and processing	5,000	5,000	5,000	5,000	5,000	5,000	5,000	UNDP	Government	Implementation cost	25,000
	3.2.2 Prepare guidelines and criteria for different agriculture waste to be converted as biomass energy by densification		5,000	5,000	5,000	5,000	5,000	5,000	UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	25,000
	3.2.3 Register agriculture waste suppliers and establish a transport mechanism to support the guidelines and criteria developed in 3.2.2		2,000	2,000	1,000				UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	5,000
	3.2.4 Establishment of agriculture waste collection and processing plants for biomass energy	30,000							UNDP and Ministry of Power and Renewable Energy	UNDP	Contractual Services-Companies (72100)	30,000
	3.2.5 Link entrepreneurs with convenient credit schemes and end users.		65,000	65,000	65,000					Government	Implementation cost	195,000
	3.3.1 Awareness and training on biomass growing and processing technologies		2,500	2,500	2,500				UNDP	Government	Implementation cost	7,500
Output 3.3: 1000 new entrepreneurs supporting biomass			16,000	27,000	32,000	43,000	32,000		UNDP and Ministry of Power and Renewable Energy	Government	Implementation cost	150,000

growing and processing by 2022	3.3.2 Linking entrepreneurs with credit schemes		5,000	5,000	2,500	2,500	2,500			UNDP	Government	Implementation cost	15,000
	3.3.3 Linking stakeholders for growing and processing		2,500	2,500	2,500	2,500				UNDP	Government	Implementation cost	10,000
Output 3.4: 50 satellite collection centers established in rural areas Island wide to increase collection of biomass energy which will also contribute to the above-mentioned growth of new entrepreneurs	3.4.1 Study and map the most feasible locations for the satellite terminal based on the findings of biomass resource survey conducted under phase I.	7,500	7,500	7,500						UNDP	Government	Implementation cost	22,500
	3.4.2 Establishment of 50 satellite collection centers linking to larger scale biomass energy terminals and end users.		10,000							UNDP	UNDP	Contractual Services-Companies (72100)	10,000
			189,000	189,000	189,000	189,000	189,000	189,000		UNDP	Private Sector	Implementation cost	945,000
		32,000								UNDP	Government	Implementation cost	32,000
Output 3.5 50 suppliers certified under SLS 1551	3.4.3 Link entrepreneurs with convenient credit schemes and end users.		2,500	2,500	2,500					UNDP	Government	Implementation cost	7,500
	3.3.1 Certification of the 50 biomass suppliers (training, certification, surveillance tests, registration in online database)	8,000								UNDP	UNDP	Grants to Institt & Other Benef (72600)	8,000
			8,000	15,000	15,000	15,000	15,000				Government	Implementation cost	53,000
Sub-Total for Output 3													13,607,750

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS



The project will be implemented over a period of 60 months.

The UNDP Country Office (CO) through the Energy and Environment Sector Leader and the National Project Director will monitor the implementation of the project, review progress in the realization of the project outputs, and ensure the proper use of funds.

The day-to-day administration of the project will be carried out by the Project Management Unit. Recruitment of specialist support services and procurement of any equipment and materials for the project will be done in accordance with relevant recruitment and procurement rules and procedures.

A Project Board will be constituted to serve as the executive decision-making body for the project. It will consist of representatives of following institutions:

- Ministry of Power and Renewable Energy
- National Planning Department
- External Resource Department
- Forest Department
- UNDP
- Project Team

The project board will meet minimum two times per year.

The financial arrangements and procedures for the project are governed by the UNDP rules and regulations for Direct Implementation Modality (DIM). All procurement and financial transactions will be governed by applicable UNDP regulations under DIM.

IX. LEGAL CONTEXT

Where the country has signed the Standard Basic Assistance Agreement (SBAA)

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of (country) and UNDP, signed on (date). All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

This project will be implemented by [name of entity] ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

X. RISK MANAGEMENT

[NOTE: Please choose one of the following options that corresponds to the implementation modality of the Project. Delete all other options.]

Option a. Government Entity (NIM)

1. Consistent with the Article III of the SBAA *[for the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:
 - a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
 - b) assume all risks and liabilities related to the Implementing Partner's security, and the full implementation of the security plan.
2. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.
3. The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml.
4. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-sm>).
5. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.
6. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

7. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.
8. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.
9. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.
10. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

11. *Choose one of the three following options:*

Option 1: UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

Option 2: The Implementing Partner agrees that, where applicable, donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities which are the subject of this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Option 3: UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement.

Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

12. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the

selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

13. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.
14. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management Standard Clauses" are included, *mutatis mutandis*, in all sub-contracts or sub-agreements entered into further to this Project Document.

Option b. UNDP (DIM)

1. UNDP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)
2. UNDP as the Implementing Partner will undertake all reasonable efforts to ensure that none of the [project funds]⁴ [UNDP funds received pursuant to the Project Document]⁵ are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.
3. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-sm>).
4. UNDP as the Implementing Partner will: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.
5. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.
6. UNDP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor and sub-recipient:
 - a. Consistent with the Article III of the SBAA [for the Supplemental Provisions to the Project Document], the responsibility for the safety and security of each responsible party, subcontractor and sub-recipient and its personnel and property, and of UNDP's property in such responsible party's, subcontractor's and sub-recipient's custody, rests with such responsible party, subcontractor and sub-recipient. To this end, each responsible party, subcontractor and sub-recipient shall:
 - i. put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
 - ii. assume all risks and liabilities related to such responsible party's, subcontractor's and sub-recipient's security, and the full implementation of the security plan.
 - b. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate

⁴ To be used where UNDP is the Implementing Partner

⁵ To be used where the UN, a UN fund/programme or a specialized agency is the Implementing Partner

security plan as required hereunder shall be deemed a breach of the responsible party's, subcontractor's and sub-recipient's obligations under this Project Document.

- c. Each responsible party, subcontractor and sub-recipient will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, subcontractors and sub-recipients in implementing the project or programme or using the UNDP funds. It will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.
- d. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to each responsible party, subcontractor and sub-recipient: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. Each responsible party, subcontractor and sub-recipient agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.
- e. In the event that an investigation is required, UNDP will conduct investigations relating to any aspect of UNDP programmes and projects. Each responsible party, subcontractor and sub-recipient will provide its full cooperation, including making available personnel, relevant documentation, and granting access to its (and its consultants', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with it to find a solution.
- f. Each responsible party, subcontractor and sub-recipient will promptly inform UNDP as the Implementing Partner in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

Where it becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, each responsible party, subcontractor and sub-recipient will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). It will provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

- g. *Choose one of the three following options:*

Option 1: UNDP will be entitled to a refund from the responsible party, subcontractor or sub-recipient of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of this Project Document. Such amount may be deducted by UNDP from any payment due to the responsible party, subcontractor or sub-recipient under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail any responsible party's, subcontractor's or sub-recipient's obligations under this Project Document.

Option 2: Each responsible party, subcontractor or sub-recipient agrees that, where applicable, donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities which are the subject of the Project Document, may seek recourse to such responsible party, subcontractor or sub-recipient for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Option 3: UNDP will be entitled to a refund from the responsible party, subcontractor or sub-recipient of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the responsible party, subcontractor or sub-recipient under this or any other agreement.

Where such funds have not been refunded to UNDP, the responsible party, subcontractor or sub-recipient agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to such responsible party, subcontractor or sub-recipient for the recovery of any funds determined by UNDP to have been used inappropriately, including

through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

- h. Each contract issued by the responsible party, subcontractor or sub-recipient in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from it shall cooperate with any and all investigations and post-payment audits.
- i. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project or programme, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.
- j. Each responsible party, subcontractor and sub-recipient shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to its subcontractors and sub-recipients and that all the clauses under this section entitled "Risk Management Standard Clauses" are adequately reflected, *mutatis mutandis*, in all its sub-contracts or sub-agreements entered into further to this Project Document.

Special Clauses. In case of government cost-sharing through the project, the following clauses should be included:

1. The schedule of payments and UNDP bank account details.
2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether any further financing could be provided by the Government. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.
3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.
4. UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.
5. All financial accounts and statements shall be expressed in United States dollars.
6. If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavors to obtain the additional funds required.
7. If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph [] above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.
8. Any interest income attributable to the contribution shall be credited to UNDP Account and shall be utilized in accordance with established UNDP procedures.

In accordance with the decisions and directives of UNDP's Executive Board:

The contribution shall be charged:

- (a) [...] cost recovery for the provision of general management support (GMS) by UNDP headquarters and country offices
- (b) Direct cost for implementation support services (ISS) provided by UNDP and/or an executing entity/implementing partner.

9. Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.

10. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules and directives of UNDP."

XI. ANNEXES

1. Project Quality Assurance Report

2. Social and Environmental Screening Template

Project Information

Project Information	
1. Project Title	"Biomass Energy 2022: fuelling the economy - protecting forests"
2. Project Number	103135
3. Location (Global/Region/Country)	Sri Lanka

Part A. Integrating Overarching Principles to Sustainable Biomass Project Phase II- Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Overarching Principles in order to Strengthen Social and Environmental Sustainability?
<i>Briefly describe in the space below how the Project mainstreams the human-rights based approach</i>
Although the Project does not directly deal with human rights-related matters, it envisages participatory engagement of a wide range of stakeholders with various interests related to biomass energy potential. Some of its activities devote attention to fostering economic growth and contribution to job creation in Sri Lanka, in which way the Project may contribute to promotion of the economic rights of the population.
<i>Briefly describe in the space below how the Project is likely to improve gender equality and women's empowerment</i>
Particular attention will be given assuring that both men and women benefit equally from services, funding, employment and capacity development opportunities supported by the project. Women will be encouraged to participate equally in all activities led by the project. In particular the project will incorporate gender inclusiveness into the following <ul style="list-style-type: none"> - gender-sensitive design of regulatory and policy frameworks - increase access to technology which will open equal opportunities for women to operate in the biomass supply chain - Opening market information so that women have access to information to make investment decisions on the biomass supply chain
<i>Briefly describe in the space below how the Project mainstreams environmental sustainability</i>
<ul style="list-style-type: none"> - The standard for sustainable production of fuelwood SLS 1551 will be incorporated into the Environmental Protection Licence so that all biomass produced can be traced back to the source. - All equipment promoted by the project will be modern efficient clean technology, this measure will control the demand for biomass - All sites that the project works on will be required to have the necessary legal environmental clearances - Capacity building of the operators biomass supply chain on sustainable production

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? <i>Note: Describe briefly potential social and environmental risks identified in Attachment 1 -- Risk Screening Checklist (based on any "Yes" responses) if no risks have been identified in Attachment 1 then note "No Risks Identified" and skip to Question 4 and Select "Low Risk". Questions 5 and 6 not required for Low Risk Projects.</i>	QUESTION 3: What is the level of significance of the potential social and environmental risks? <i>Note: Respond to Questions 4 and 5 below before proceeding to Question 6</i>	QUESTION 6: What social and environmental management measures have been conducted and/or are required to address potential risks (for Risks with Moderate and High Significance)?		
Risk Description	Impact and Probability (1-5)	Significance (Low, Moderate, High)	Comments	Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.
Risk 1: Lack of capacity of duty bearers to meet their obligations.	I = 3 P = 3	Low		The Project focuses upon strengthening the capacities of duty bearers (government and non-government) in order to promote biomass energy as a prominent source of energy.
Risk 2 : Threat to natural forests	I = 2 P = 2	Low		The Project will deploy the standard for sustainable biomass production SLS 1551 to the biomass energy supply chain which will enable biomass energy to be traced back to its sources. The standard address all legal, social and environmental concerns associated with biomass energy production and harvesting. Capacity building of all stakeholders in the supply chain on sustainability will be one of the main focus The Project will be promoting biomass energy production from agricultural waste, which is currently not used to its potential, as a measure to reduce pressure on wood fuel and which will lead to reduce threat to natural forests from biomass energy
[add additional rows as needed]				

QUESTION 4: What is the overall Project risk categorization?			
Select one (see SESP for guidance)			Comments
	Low Risk	<input checked="" type="checkbox"/>	
	Moderate Risk	<input type="checkbox"/>	
	High Risk	<input type="checkbox"/>	
QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?			
Check all that apply			Comments
Principle 1: Human Rights			<input checked="" type="checkbox"/>
Principle 2: Gender Equality and Women's Empowerment			<input checked="" type="checkbox"/>
1. Biodiversity Conservation and Natural Resource Management			<input type="checkbox"/>
2. Climate Change Mitigation and Adaptation			<input type="checkbox"/>
3. Community Health, Safety and Working Conditions			<input type="checkbox"/>
4. Cultural Heritage			<input type="checkbox"/>
5. Displacement and Resettlement			<input type="checkbox"/>
6. Indigenous Peoples			<input type="checkbox"/>
7. Pollution Prevention and Resource Efficiency			<input type="checkbox"/>

Final Sign Off

Signature	Date

Checklist Potential Social and Environmental Risks	
Principles 1: Human Rights	Answer (Yes/No)
1. Could the Project lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
2. Is there a likelihood that the Project would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups? ⁶	No
3. Could the Project potentially restrict availability, quality of and access to resources or basic services, in particular to marginalized individuals or groups?	No
4. Is there a likelihood that the Project would exclude any potentially affected stakeholders, in particular marginalized groups, from fully participating in decisions that may affect them?	No
5. Is there a risk that duty-bearers do not have the capacity to meet their obligations in the Project?	Yes
6. Is there a risk that rights-holders do not have the capacity to claim their rights?	No
7. Have local communities or individuals, given the opportunity, raised human rights concerns regarding the Project during the stakeholder engagement process?	No
8. Is there a risk that the Project would exacerbate conflicts among and/or the risk of violence to project-affected communities and individuals?	No
Principle 2: Gender Equality and Women's Empowerment	
1. Is there a likelihood that the proposed Project would have adverse impacts on gender equality and/or the situation of women and girls?	No
2. Would the Project potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	No
3. Have women's groups/leaders raised gender equality concerns regarding the Project during the stakeholder engagement process and has this been included in the overall Project proposal and in the risk assessment?	No
4. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? <i>For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being</i>	No
Principle 3: Environmental Sustainability: Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below	
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management	
1.1 Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	No
1.2 Are any Project activities proposed within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	No

⁶ Prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender people and transsexuals.

1.3	Does the Project involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No
1.4	Would Project activities pose risks to endangered species?	No
1.5	Would the Project pose a risk of introducing invasive alien species?	No
1.6	Does the Project involve harvesting of natural forests, plantation development, or reforestation?	Yes
1.7	Does the Project involve the production and/or harvesting of fish populations or other aquatic species?	No
1.8	Does the Project involve significant extraction, diversion or containment of surface or ground water? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	No
1.9	Does the Project involve utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)	No
1.10	Would the Project generate potential adverse transboundary or global environmental concerns?	No
1.11	Would the Project result in secondary or consequential development activities which could lead to adverse social and environmental effects, or would it generate cumulative impacts with other known existing or planned activities in the area? <i>For example, a new road through forested lands will generate direct environmental and social impacts (e.g. felling of trees, earthworks, potential relocation of inhabitants). The new road may also facilitate encroachment on lands by illegal settlers or generate unplanned commercial development along the route, potentially in sensitive areas. These are indirect, secondary, or induced impacts that need to be considered. Also, if similar developments in the same forested area are planned, then cumulative impacts of multiple activities (even if not part of the same Project) need to be considered.</i>	No
Standard 2: Climate Change Mitigation and Adaptation		
2.1	Will the proposed Project result in significant ⁷ greenhouse gas emissions or may exacerbate climate change?	No
2.2	Would the potential outcomes of the Project be sensitive or vulnerable to potential impacts of climate change?	No
2.3	Is the proposed Project likely to directly or indirectly increase social and environmental vulnerability to climate change now or in the future (also known as maladaptive practices)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	No
Standard 3: Community Health, Safety and Working Conditions		
3.1	Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	No
3.2	Would the Project pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No
3.3	Does the Project involve large-scale infrastructure development (e.g. dams, roads, buildings)?	No
3.4	Would failure of structural elements of the Project pose risks to communities? (e.g. collapse of buildings or infrastructure)	No
3.5	Would the proposed Project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	No
3.6	Would the Project result in potential increased health risks (e.g. from water-borne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	No
3.7	Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	No

⁷ In regards to CO₂, 'significant emissions' corresponds generally to more than 25,000 tons per year (from both direct and indirect sources). [The Guidance Note on Climate Change Mitigation and Adaptation provides additional information on GHG emissions.]

3.8	Does the Project involve support for employment or livelihoods that may fail to comply with national and international labor standards (i.e. principles and standards of ILO fundamental conventions)?	No
3.9	Does the Project engage security personnel that may pose a potential risk to health and safety of communities and/or individuals (e.g. due to a lack of adequate training or accountability)?	No
Standard 4: Cultural Heritage		
4.1	Will the proposed Project result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: Projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	No
4.2	Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	No
Standard 5: Displacement and Resettlement		
5.1	Would the Project potentially involve temporary or permanent and full or partial physical displacement?	No
5.2	Would the Project possibly result in economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No
5.3	Is there a risk that the Project would lead to forced evictions? ⁸	No
5.4	Would the proposed Project possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	No
Standard 6: Indigenous Peoples		
6.1	Are indigenous peoples present in the Project area (including Project area of influence)?	No
6.2	Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	No
6.3	Would the proposed Project potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the Project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? <i>If the answer to the screening question 6.3 is "yes" the potential risk impacts are considered potentially severe and/or critical and the Project would be categorized as either Moderate or High Risk.</i>	No
6.4	Has there been an absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No
6.5	Does the proposed Project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No
6.6	Is there a potential for forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources?	No
6.7	Would the Project adversely affect the development priorities of indigenous peoples as defined by them?	No
6.8	Would the Project potentially affect the physical and cultural survival of indigenous peoples?	No
6.9	Would the Project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	No

⁸ Forced evictions include acts and/or omissions involving the coerced or involuntary displacement of individuals, groups, or communities from homes and/or lands and common property resources that were occupied or depended upon, thus eliminating the ability of an individual, group, or community to reside or work in a particular dwelling, residence, or location without the provision of, and access to, appropriate forms of legal or other protections.

Standard 7: Pollution Prevention and Resource Efficiency	
7.1	Would the Project potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?
7.2	Would the proposed Project potentially result in the generation of waste (both hazardous and non-hazardous)?
7.3	Will the proposed Project potentially involve the manufacture, trade, release, and/or use of hazardous chemicals and/or materials? Does the Project propose use of chemicals or materials subject to international bans or phase-outs? <i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol</i>
7.4	Will the proposed Project involve the application of pesticides that may have a negative effect on the environment or human health?
7.5	Does the Project include activities that require significant consumption of raw materials, energy, and/or water?

3. Risk Analysis. Use the standard [Risk Log template](#). Please refer to the [Deliverable Description of the Risk Log](#) for instructions

(see [Deliverable Description](#) for the Risk Log regarding its purpose and use)

Project Title: Biomass Energy 2022: fuelling the economy - protecting forests	Award ID:	Date:
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#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Confidence of financial institutions (In Atlas, use the Description field. Note: This field cannot be modified after first data entry)	During project preparation (In Atlas, select date. Note: date cannot be modified after initial entry)	Financial (In Atlas, select from list)	-Delay of project activities -Inadequate results of the project -Increased renewable energy share not achieved P = 1 I = 5 (In Atlas, use the Management Response box. Check "critical" if the impact and probability are high)	Capacity building of financial institutions on the biomass energy sector Policy level support through the interofficial committee on biomass energy (In Atlas, use the Management Response box) (In Atlas, use the Management Response field can be modified at any time. Create separate boxes as necessary using "+", for instance to record updates at different times)	UNDP (In Atlas, use the Management Response box)	UNDP (In Atlas, automatically recorded)	During preparation of project proposal (In Atlas, automatically recorded)	(In Atlas, use the Management Response box)

2	Closing down of biomass energy terminals	During preparation of project proposal	Environmental Financial	-Increased supply of biomass not achieved -Benefits to rural economy not realised P =2 I = 5	Capacity building of investors Policy level support for pricing and transport of biomass				
3	Weather	During preparation of project proposal	Environmental	-Increased production of biomass energy not achieved P =2 I = 5					
4	Price of cash crops	During preparation of project proposal	Environmental Economic Financial – opportunity cost	- Decrease in biomass energy production - Demand for biomass energy not met P=2 I=5	Growing models that incorporate cash crops				
5	Political priorities not on biomass energy	During preparation of project proposal	Political – Government Commitment	-Lack of policy level support P=2 I = 4	-Interofficial committee on biomass energy formed to prepare priorities at ministry level -Capacity building at policy level				

6	Approvals for harvesting of biomass energy	During preparation of project proposal	Organisational-Implementation arrangements	-Reduced supply of sustainable biomass energy -Demand for biomass not met by supply P=3 I=5	Streamlining procedures for harvesting and felling of biomass energy				
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4.0 Proposed Incentives and Credit Schemes For SMEs

Several existing credit schemes targeting the small and medium scale industries, services and agriculture sector (and also schemes under consideration) can accommodate credit proposals to support the following biomass related initiatives

- Growing of fuelwood
- Establishing sustainable supply chains
- Fuel switching at end user level

Such credit schemes offered by donor agencies and managed by State agencies consist of one or more of the following features

- Concessionary long term credit
- Technical assistance
- Credit guarantee schemes

Salient features of 12 such schemes which can support fuelwood cultivation, biomass supply chains and fuel switching initiatives are summarised in the table below.

	1	2	3	4
Scheme	Small & Medium Sized Enterprise Line of Credit (SMELCO)	SMILE III Revolving Fund	SMILE III Revolving Fund	E-Friends II Revolving Fund
Agency	ADB	JICA Credit	JICA Technical Assistance	JICA Credit
Eligibility	Registered SMEs Annual T/O < LKR 750m OR Employees < 300	Fixed Assets < LKR 75m excluding Land & Bldg.	<ul style="list-style-type: none"> • Managerial • Technical • Consultancy • Quality Control • Lab Equipment 	Fixed Assets < LKR 250m Excluding Land & Bldg.
Max. Loan	LKR 50m	LKR 25m	LKR 25m	LKR 30m
Rate of Interest	Market based	8.0%	5.0%	6.5%
Refinance	100%	100%	100%	100%
Min. Equity	25%	25%	-	25%
Tenor	Max. 10 years	3 – 8 years Including a grace period of max. 2 years	7 years Including a grace period of max. 2 years	10 years Including a grace period of max. 2 years

	5	6	7	8
Scheme	E-Friends II Revolving Fund	"Suabagya"	"Sarusara"	"Jaya Isura"
Agency	JICA Credit	Central Bank of Sri Lanka	Central Bank of Sri Lanka	Ministry of Finance
Eligibility	Consultancy services w.r.t. <ul style="list-style-type: none"> Resource recovery & savings Pollution control 	<ul style="list-style-type: none"> Micro SMEs New / employment generating / innovative / modernizing / exceptional Fixed Assets < LKR 40m Excluding Land & Bldg. Employees 5 – 100 	Short term loan	C1: Annual turnover LKR 10m – 250m Employees 5 – 50 C2: Annual turnover LKR 250m – 750m Employees 51 – 300
Max. Loan	LKR 1m	LKR 25m	Depends on the crop	C1: LKR 50m C2: LKR 200m
Rate of Interest	2.0%	8.0%	7.0%	C1: 6.75% C2: 10.12%
Refinance	100%	100%	Interest subsidy	Interest subsidy
Min. Equity	25%	15%	-	25%
Tenor	5 years Including a grace period of max. 1 year	5 years Including a grace period of max. 6 months	270 days	5 years Including a grace period of max. 1 year

	9	10	11	12
Scheme	"Ran Aswenna"	"GoviNavoda"	Smallholder Agribusiness Partnership Programme	Agriculture Sector Modernisation Project
Agency	Ministry of Finance	Ministry of Finance	IFAD	World Bank / Ministry of Plantation Industries
Eligibility	C1: Farmers and farmer organisations C2: Agro processing C3: Commercial scale farming	<ul style="list-style-type: none"> Mechanisation Entity or individual Fulltime involvement 	<ul style="list-style-type: none"> Smallholder Registered in a value chain 	<ul style="list-style-type: none"> Farmers Farmer Organisations Smallholder producer organisations
Max. Loan	C1: LKR 5m C2: LKR 300m C3: LKR 750m	LKR 0.5m	<ul style="list-style-type: none"> Individual farmers – LKR 0.3m Clusters – LKR 25.0m 	<ul style="list-style-type: none"> Market based Credit guarantee Prudent appraisal & follow-up
Rate of Interest	6.75%	3.38%	6.5%	Grant / Credit Guarantee Scheme
Refinance	Interest subsidy	Interest subsidy	Interest subsidy	Interest subsidy
Min. Equity	-	-	-	<ul style="list-style-type: none"> 50% Grant 40% Loan 10% Equity
Tenor	5 years Including a grace period	5 years Including a grace period of max. 1 year	3 years Including a grace period of 6 months	Guarantee Cover of max. 5 years

5. **Capacity Assessment:** Results of capacity assessments of Implementing Partner (including HACT Micro Assessment)
4. **Project Board Terms of Reference and TORs of key management positions**