

Mitigating GHG emission through modern, efficient  
and climate friendly clean cooking solutions (CCS)

The Environment and Social Action Plan

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**LIST OF ABBREVIATIONS**

AEPC	Alternative Energy Promotion Centre
CCS	Clean Cooking Solutions
GCF	Green Climate Fund
ICS	Improved Cook Stove
LG	Local Government
MEP	Municipal Energy Plan
NAST	National Academy of Science and Technology
OHS	Occupational health and safety
PG	Provincial Government
PS	Performance Standard
RE	Renewable Energy
RETS	Renewable Energy Testing Centre

## EXECUTIVE SUMMARY

Alternative Energy Promotion Centre (AEPIC), as an accredited entity, is submitting a funding proposal for the project “Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)” to the Green Climate Fund (GCF). The Project aims to surge the use of CCS by instigating the concepts of (i) bulk tendering via reverse auctioning for cost effectiveness (ii) result based financing for de-risking of investments and (iii) mainstreaming and capacitating local governments in the renewable energy (RE) sector.

The Project has been assessed for compliance with GCF’s Environmental and Social Policy as well as AEPIC’s Environmental and Social Safeguard Policy, 2018. The project potential environmental and social impacts have been identified and the mitigation measures have been proposed when necessary to ensure project compliance with the safeguards.

The key positive impacts of the project are the reduction of greenhouse gas emissions, reduction of non-renewable biomass consumption, reduction of indoor air pollution hence improving health and comfort in the house, reduction of women drudgery to collect firewood, and reduction of time spent to collect firewood. The unintended negative impacts of the project are very few. In case of the domestic biogas plant, slurry management and availability of water resource to run the biogas are identified as the negative impacts, and these impacts will be minor and manageable.

The Environment and Social Action Plan (ESAP) was prepared during the proposal development and is included as an Annex 6 to the GCF funding proposal.

## 1. INTRODUCTION

Alternative Energy promotion Centre is developing the project “**Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)**” to be submitted to the Green Climate Fund (GCF). GCF grant resources, together with government co-financing, will invest in efficient climate friendly cooking technologies in 22 districts of Terai region.

Terai region specifically needs CCS intervention for climate mitigation and adaptation needs as penetration of clean cooking solution technologies is very low in Terai. Only 1.4 % of the households use Improved Cooking Stoves (ICS) and the Induction stove users (electric cook stove) are even low (0.4%)<sup>1</sup>. Majority of the households (58%) in Terai region still use Traditional cook stoves (TCS), followed by Liquefied Petroleum Gas (LPG) (40.2 %) and Biogas plant (3.3%). Replacing lower tier cook stoves with Tier 3+ ICS, biogas plant and electric cook stoves will mitigate the emission of GHG gas.

The Environmental and Social Action Plan (ESAP) ensures that environmental and social management is integrated into the development cycle of projects. This ESAP for the proposed CCS Project has been prepared in accordance with AEPC’s Environmental and Social Safeguards Policy and GCF’s Environmental and Social Safeguards. This document has been designed to ensure to support the following key activities:

- Identification, management and evaluation of the environmental and social risks and impacts associated with the CCS project.
- Identify measures for impact avoidance, minimization, and mitigation.
- Define the institutional framework required for the execution of monitoring and management programs
- To adopt appropriate steps for mitigating environmental and social impacts in advance or incorporated into the design phase
- Provide an opportunity of public and stakeholders including affected people/ parties’ involvement in the planning stage

The unintended negative impacts of the project are very few or negligible and the project has been categorised at “C” based on the screening as per AEPC and GCF environmental and social policy.

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<sup>1</sup>Baseline survey of Terai-Madhes Clean Cooking Program, 2019

## 2. PROJECT DESCRIPTION

### 2.1 Project Objective and Outputs

The Project “**Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)**”, financed by GCF grant and co-financed by Nepal government will contribute to mitigate GHG emissions and strengthen the resilience of most vulnerable communities to adapt to climate change. The project will address the specific barriers from transitioning traditional inefficient cooking practice to an efficient and climate friendly cooking solutions. Scaling up the government initiative on CCS, the proposed project aims at reducing an estimated 6.5 million tons of CO<sub>2</sub>eq by bringing transformative change in cooking pattern with wider usage of modern clean cooking solutions via Electric Cook stoves, Tier 3 Improved Cook Stoves and biogas.

The main objective of the proposed project is to surge the use of Clean Cooking Solutions by instigating the concepts of:

- (i) Bulk tendering via reverse auctioning for cost effectiveness
- (ii) Result based financing for de-risking of investments, and
- (iii) Mainstreaming and capacitating local governments in the renewable energy (RE) sector.

In order to remove the barriers in clean cooking sector and achieve its goal of replacing lower tier cook stoves and fossil fuel in cooking sector with clean and renewable energy sources, the project focuses on **three core components** as listed below:

The first component will provide support on **Scaling up the deployment of clean cooking technologies through accelerated investment and market development**. The project will do so by deploying 1,000,000 CCS and boosting financing options for CCS contributing to commercialization of clean cooking sector.

The second component is to **strengthen enabling environment through sector based assessments and quality assurance of the technologies**. The project will do so by enhancing product standards, conducting assessments, surveys and analysis and Strengthening quality assurance mechanisms.

The third component will provide support in **empowering institutions, capacitate supply chain and ensure increased access to clean cooking solutions**. The project will do so by capacitating sub-national institutions, increasing awareness, strengthening service centers and biomass manufacturers to provide quality and affordable clean cooking solutions.

#### Outputs:

##### Output for Component 1:

- 500,000 Electric stoves, 490,000 Tier 3+ ICS and 10,000-biogas plant installed



### Outputs for Component 2:

- MEP template prepared
- Standards on technical specifications of all three CCS technologies developed
- A robust quality assurance mechanism is in place
- 1 testing center strengthened at central level
- A supply chain mechanism for CCS is established and strengthened
- MIS database set up at AEPC

### Outputs for Component 3:

- Municipal Energy Plan (MEP) developed by at least 150 LGs
- Demand aggregation and cost effective reverse auction process introduced in MEP of Local government with priority to CCS promotion
- A total of 450 clean cooking champions identified with 3 at each local government
- 750 no. of awareness campaigns conducted (Once in each LG per year for five years)
- Climate resilience of the people and community enhanced with the savings and awareness on climate change adaptation measures
- 24 no. of trainings provided to beneficiaries in collaboration with Council for Technical Education and Vocational Training (CTEVT) institutions on repair and maintenance, biomass fuel processing, biogas installation, electrical safety and house wiring (Training conducted at province level; one training per province per year from year 2 to year 5)
- 24 Province level trainings provided to service centers/providers in collaboration with CTEVT institutions (Trainings conducted at province level; one training per province per year from year 2 to year 5)
- 900 service centers strengthened and established at local level (6 at least in 1 LG)

## 2.2 Project location

Topographically, Nepal is divided into three ecological regions, alias Mountains, Hills and Terai (southern plains). The proposed project will be implemented in southern plains of Nepal; in about 22 districts of Terai region. The project implementation area is shown in

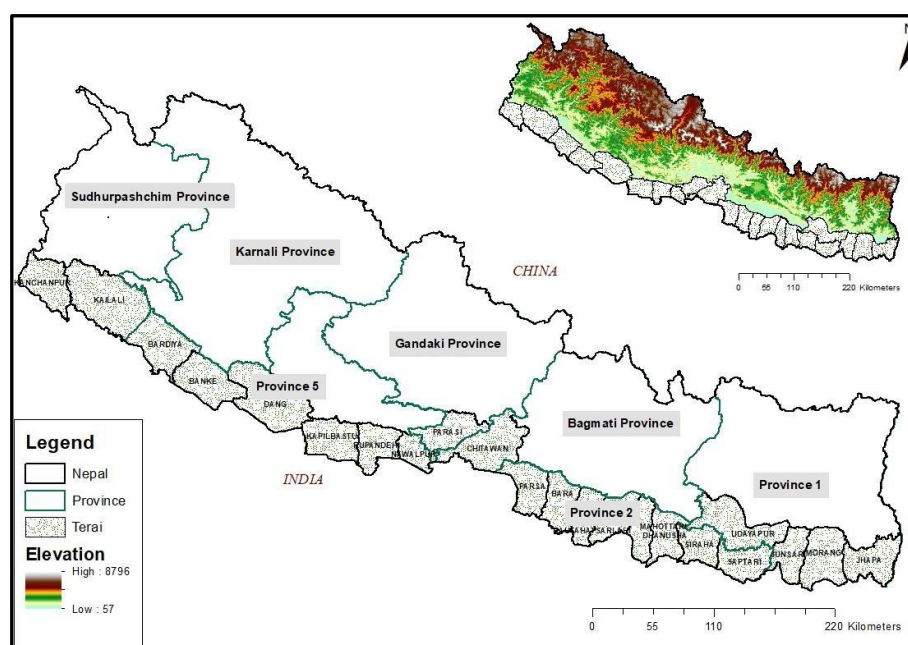


Figure 1: Project Location

### 2.3 Project beneficiaries

The project is aligned with the AEPC's vision to implement renewable energy and energy efficiency projects for climate change mitigation with multiple co-benefits involving private sectors, PGs and LGs. More than 4.8 million people will directly be benefitted with increased resilience to climate change that amounts to 17% of the country's total population.

### 2.4 Project implementation arrangements

The institutional framework for this project will engage a wide range of stakeholders, ensuring their sustained engagement from the project design to implementation, to monitoring and evaluation (M&E). AEPC in close collaboration with the wide range of stakeholders including Local Governments and Private Sector will implement the project. The project would be executed by and under the technical and administrative supervision of AEPC, following the Government of Nepal's rules and procedures regarding the acquisition of project services, supplies, and works.

The MoEWRI is the line ministry of AEPC. It will provide policy guidance and strategic support. The Project Management Committee will be chaired by AEPC Executive Director and its membership will include the head of each department of AEPC, and representatives from private sectors and technical institutions such as NAST and RETS. Member secretary will be the head of a particular department of AEPC that manages the project. The management committee will ensure the collaboration among the partners and stakeholders that involve in project implementation. AEPC will perform both functions of an Accredited Entity (AE) as well as an Executing Entity (EE) during the project implementation and shall have a separate Project implementation Unit (PIU) to execute the project. The project will engage private sector to provide CCS technologies and services whereas Local Government will play important role in planning, demand collection, awareness raising and monitoring of the project.

#### **Compliance and ethics subcommittee**

AEPC has a compliance and ethics subcommittee, which provides complete oversight functions and ensures accountability of the project.

#### **Project Implementation Unit (PIU)/ AEPC**

A dedicated PIU will be established within AEPC to oversee and manage the project. Under strategic guidance of the project management committee, PIU will be responsible for day-to-day management and monitoring of the project activities according to approved annual work plans and budgets. PIU will ensure that the results of the project are achieved. PIU will engage private service providers to provide services to the project beneficiaries in installation of CCS and after sales services. PIU will be responsible to provide technical and capacity development support to Local Governments. In the inception phase, the PIU will develop a detailed work plan and monitoring framework for the full project duration and get approval from competent authority. Further, PIU will develop guidelines and procedures required to implement the project effectively. These documents will outline the detailed implementation procedure of the project including roles of all responsible institutions and project stakeholders, including in terms of procurement, monitoring, reporting and auditing. The project would be executed by the PIU, following the Government of Nepal's rules and procedures regarding the acquisition of project services, supplies, and works.

**Provincial Project Management Unit:** The project area touches six Provinces of Nepal, however to optimize the resource allocation, only four Provincial project management unit will be established that shall cover all the local governments. One technical officer and one CCS coordinator would be deployed at each provincial project management unit. The technical officer will look after the technical issues, support service providers and the vendors, and the CCS coordinator will oversee the activities and coordinate planning at province or regional level. The province level staff will not be limited to only one province, but will also support nearby LGs of adjacent provinces. Provincial Governments will be responsible for coordination among provincial level stakeholders in implementing the project. The project will coordinate with the Provincial Governments in creating an enabling environment for the project at province level and will support in strengthening capacity of the Provincial Governments in performing their coordination role.

**Local Governments** (i.e. Municipalities/Rural Municipalities): Local Government plays a very important role in the project implementation. AEPC will identify at least 150 LGs for the deployment of CCS, where LGs would also contribute partially in funding the technologies to their respective households. Local Government will primarily be responsible for Municipal energy planning, CCS demand collection, raising awareness on benefits of CCS and monitoring of the project progress. At LG level, the project will allocate at least one CCS mobilizer in each local government. They will collaborate with their respective LGs for the project implementation, and help LGs to develop their MEPs. Overall, LGs will be instrumental in supporting PIU to implement the project activities at the ground level.

The implementation modality includes:

**Bulk Tendering via Reverse Auctioning:** Post the availability of demand, the MIS will automate the demand aggregation process. This will enable the PIU to procure the technologies in bulk, reducing considerable amount of the total cost due to the economies of scale. This model implies that the suppliers and consumer negotiate on the technology and only after the consumer has decided which technology to procure, the suppliers install the technology and claims subsidy from AEPC.

**Result Based Financing:** Further, a robust quality assurance mechanism will be set to test the CCS and payment shall be linked with the result. This mechanism is another breakthrough in terms of business as usual wherein subsidies are being provided on 90%-10% ratio wherein the supplier upfront takes all the financial risk and the major chunk of the payment is made prior to the monitoring.

#### **Private Sector Service Providers:**

Private sector service providers, hired through **bulk tendering and reverse auctioning process**, will be responsible for providing services on CCS, particularly the distribution and installation of the CCS Unit and after sales services to the beneficiaries. The Private sector service providers interested to procure CCS technologies in the bulk tendering process will participate in tender calls of AEPC. The supplier then in coordination with LGs will set-up distribution/installation of the technologies as per the local demand. The supply chain will be formed in coordination with AEPC and Local Government.

#### **Independent Third Party Monitoring Agency:**

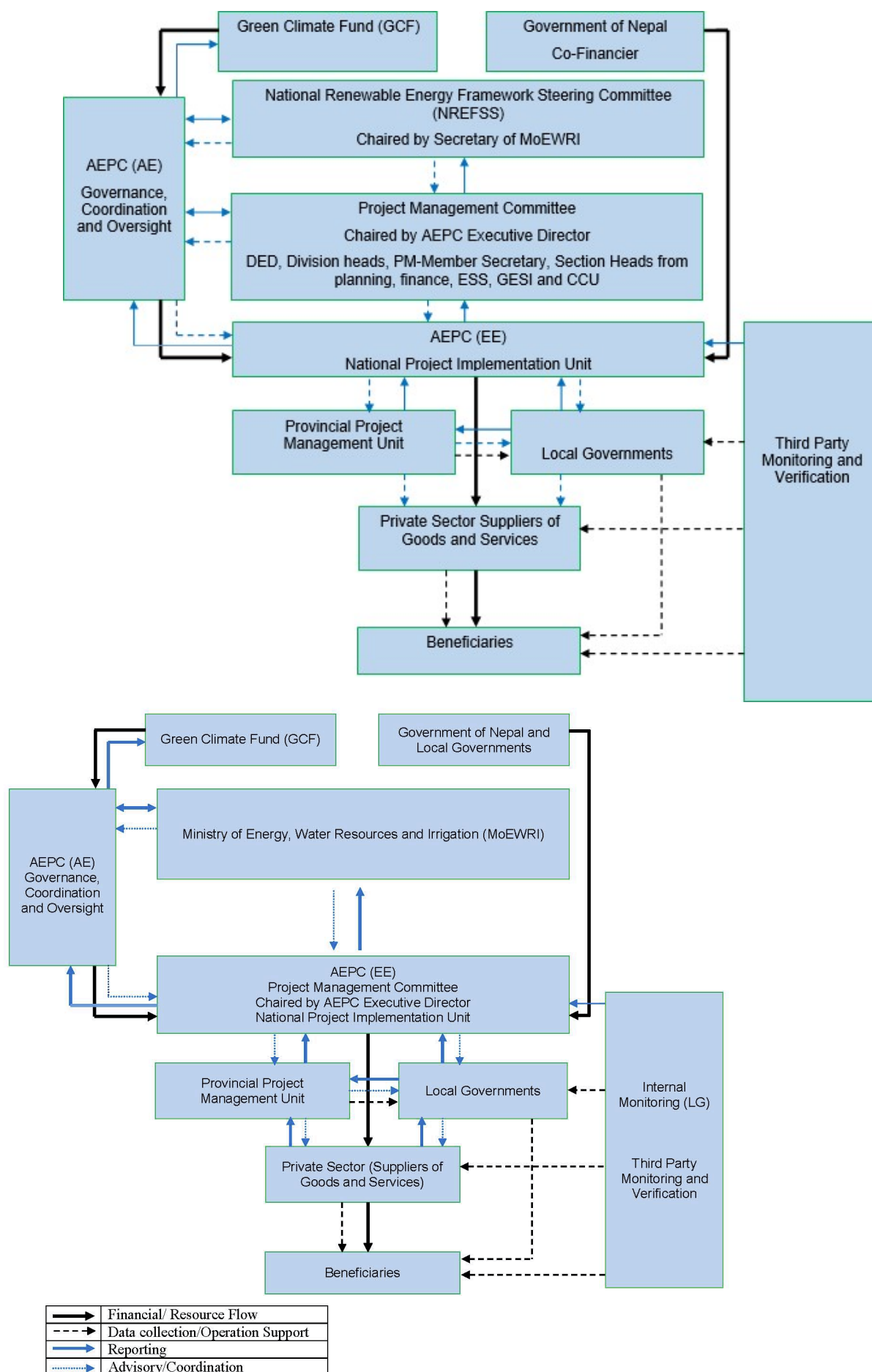
An independent third party monitoring agency will be placed parallel to the distribution of the CCS technologies wherein the third party will specifically assess and verify appropriate percentage of the total beneficiaries in terms of:

- The technical parameters of the CCS technologies,
- Quality and standard of the CCS technologies,
- Mitigation impact through replacement of firewood, dung cake and LPG and
- Adaptation benefits in terms of vulnerable communities and remote areas, among others.

**Project Beneficiaries:**

The project beneficiaries are the ultimate target groups of the project and will receive services from private service providers and LGs on CCS technologies. Further, the beneficiaries will receive technical assistance and capacity development services that will help to reduce their vulnerability and build resilience to climate change impact through the time saving, health benefits, gender empowerment and increase in agricultural productivity by using cow dung as fertilizer, by replacing its use for cooking fuel.

Figure 2: Overview of Project Implementation Modality



### 3. ENVIRONMENTAL AND SOCIO-ECONOMIC BASELINE CONDITIONS

#### 3.1 Environmental conditions

The proposed project area covers the southern plains of Nepal.

##### 3.1.1 Climate

Terai is located in a sub-tropical climatic zone characterised by hot and humid summers, intense monsoon rain, and dry winters.

The total annual rainfall decreases from 2,680 mm to 1,138 mm from east to west, and the mean monthly precipitation ranges from 8 mm in November to 535 mm in July. While 80% of the total rainfall occurs in the monsoon season (June-September), some rainfall also occurs during the pre-monsoon (March-May) and the post-monsoon (October-November) seasons and a few showers may occur during the winter (December-February). Total annual precipitation over the last 30 years has increased by an average of 4 mm/year in the Terai; while it has increased in the Eastern and Central development regions, it has decreased elsewhere.

Extreme temperature events are observed in Terai, as compared to last 5-10 years, with extreme hot days and cold days, and increase in duration of cold waves. Rainfall pattern has become more erratic and the shift in rainy season has been observed<sup>3</sup>. An observed climate trend analysis for the period of 1975- 2014 suggests a significant positive trend in annual maximum temperature data at the rate of 0.056 °C/ year.

##### 3.1.2 Biophysical zones, soils and geology

Terai extends from 80° 4' 30" to 88° 10' 19" east longitudes; and from 26° 21' 53" to 29° 7' 43" north latitudes and is bordered by the Indian Gangetic plain in the south and the Churia Physiographic Region in the north. Its elevation varies from 63 m to 330 m above mean sea level, and is sloped gently at rates of 2-10 m per kilometre. It consists of gently sloping recent and post Pleistocene alluvial deposits, which form a piedmont plain south of the Himalayan.

Most soils in the Terai are alluvial deposits. Alluvium is unconsolidated material deposited by rivers. The nature of the alluvium depends on the parent materials from which it has been derived, and so it may vary in texture from sand to clay. The soils in the Bhabar, in contrast, generally consist of coarse sand, gravels and boulders.

##### 3.1.3 Land use

Among the total area of the 20 districts in Terai region, around 40.33 % of the area is forest covered including the shrubland. The largest area of land in Terai is dedicated to agriculture purpose. About 50.28 % of area is used for agriculture. About 4.13% of the land is bare land

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<sup>3</sup> National Adaptation Programme of Action (NAPA), 2010  
<https://unfccc.int/resource/docs/napa/npl01.pdf>

whereas water bodies cover around 1.3% of total area. Built up area covers 0.8 % of total area and 1.3 % of the total area consists of land filled with grass only<sup>4</sup>.

### 3.1.4 Biodiversity and forests

About 20.41% (411,580 ha) of the total area of the Terai Region is covered by forests. Four types of forests (Sal Forest, Khair-Sissoo Forest, Sal-Terai Mixed Hardwood Forest and Terai Mixed Hardwood Forest) are found in the Terai-Madhesh and Bhavar regions. Terai Mixed Hardwood and Sal forests dominates the Terai forest.

The forest area in the Terai declined by 16,500 ha in the last nine years from 2001 to 2010 and by 32,000 ha in the last 19 years from 1991 to 2010. The annual rate of decrease in forest cover was 0.44% during the last nine years from 2001 to 2010 and was 0.40% during the last 19 years from 1991 to 2010/11<sup>5</sup>.

### 3.1.5 Water Resources

The Terai is drained by numerous rivers and streams. The largest of them are the Koshi in the east, the Gandaki in the center, and the Karnali and the Mahakali in the west, all originating from the Himalaya or beyond. Every year during monsoon season, most of the rivers are swollen up causing flash floods in the Terai Region due to their shallow beds.

## 3.2 Socio-economic conditions

### 3.2.1 Distribution of population in the project area in terms of caste/ethnicity, language, literacy, and religion

#### a. Demography:

More than 50% of the total population reside in Terai with a very high population density. Majority of people in Project area are Hindu (86%) followed by Islam (8%) and Buddhism (4%)<sup>6</sup>.

#### b. Literacy rate

The total population aged 5 years and above of Terai is 12,002,204. Around 61.16 % of that population are able to both read and write, 2.54 % of them can read only and 36.2 % can't read and write. Among the total number of males aged 5 years and above (58,73,771) in Terai almost 70.34% can read and write, 2.5 % can read only and 27.05% cannot read nor write. In case of female population aged 5 years and above in Terai (61,28,433) about 52.35% can read and write, 2.57% can read only and 44.9% cannot read nor write<sup>7</sup>.

#### c. Caste/Ethnicity

The caste/Ethnicity is diverse in Terai region with around 125 different castes. The main caste/ethnicity in the Terai region is Tharu covering 12.5 % of total population of Terai.

<sup>4</sup> Land Cover Dynamics in Nepal. <http://geoapps.icimod.org/landcover/nepallandcover/>

<sup>5</sup> FRA, 2014. Terai Forests of Nepal <http://frtc.gov.np/downloadsdetail/25/2020/58136989/>

<sup>6</sup> CBS, 2011. Nepal Population and Housing Census 2011. <https://unstats.un.org/unsd/demographic-social/census/documents/Nepal/Nepal-Census-2011-Vol1.pdf>

<sup>7</sup> ibid



Brahman-Hill (9.5 %), Chhetri (8.8%), Muslim (8.3 %) and Yadav (7.8 %) are other major castes<sup>8</sup>.

#### d. Language

Around 105 languages are spoken as a mother tongue in Terai. Among them Nepali is the most spoken language with 26.24% of population of Terai using Nepali as first language. Maithili (22.55%) is the second most used language in Terai. Bhojpuri (11.58%) and Tharu (11.10%) are other highly used language<sup>9</sup>.

#### 3.2.2 Current cooking Practices

Majority of household (58%) in Terai region use TCS for cooking purpose followed by LPG (40.2 %) and Biogas plant (3.3%). Only 1.4 % of the households use ICS and the Induction stove users are even

low (0.4%) (Figure 3)<sup>10</sup>.

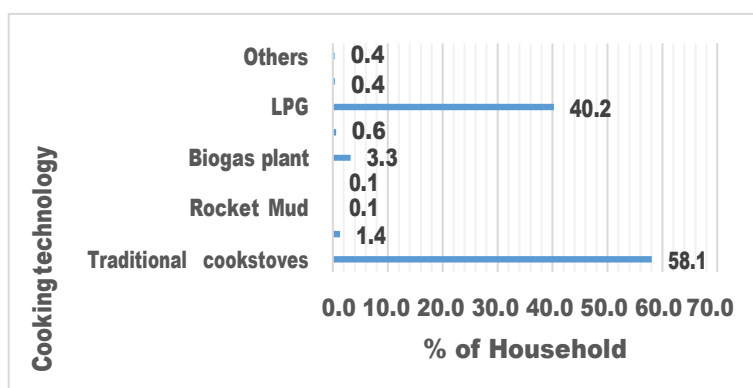


Figure 3: Current cooking practices

#### 3.2.3 Fuel used in TCS

Majority of TCS users (73 %) use wood as cooking fuel followed by cow dung (25%) and Loose biomass (2%) (Figure 4)<sup>11</sup>.

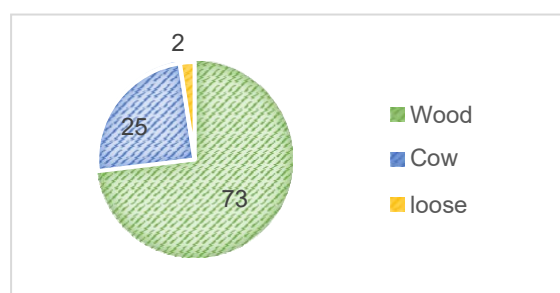


Figure 4: Fuel used in TCS

#### 3.3.4 Poverty

Terai (southern plain) borders with north India and holds 17 percent of total land against about 50 % population implying that unequal distribution of population to land size. This region has fertile and industrial land. It has some well-developed infrastructure and considered to be developed area than other regions.

More population (33.04%) from Terai region suffer human poverty than Hill region (29.2%)<sup>12</sup>. The Terai region has large size of population who are deprived of basic facilities of education

<sup>8</sup> ibid

<sup>9</sup> ibid

<sup>10</sup> Baseline survey of Terai-Madesh Clean Cooking Program, 2019

<sup>11</sup> ibid

<sup>12</sup> Pokharel 2015. <https://dms.nasc.org.np/sites/default/files/documents/Poverty%20in%20Nepal.pdf>



and health. This region holds ethnic populations who are socially, culturally and economically excluded from mainstream development and thus have challenges to enjoy health, education and access to resources.

### 3.2.3 Culture

Terai is rich in cultural diversities with large number of ethnicities, languages and religions. Holi, Diwali, chhaith, judshital (New year), sama-chakewa, jitiya, Eidand muharram are the major festivals celebrated in this region. The region is rich in history and culture and especially known for lumbini and Janaki temple. Rice is the basis of most madhesi dishes as is one of the largest producers of Rice<sup>13</sup>.

### 3.2.4 Indigenous People

The Terai is home to several indigenous groups. The largest indigenous group are the Tharus who make up 12.5% of Terai population<sup>14</sup>. Some of the other Indigenous groups in Terai are Dhanuk (1.62 %), Dhimal (0.18%), Tajpuriya (0.14 %), Gangai (0.28%), Jhangad (0.28%)<sup>15</sup>.

<sup>13</sup> UNPO, 2018. <https://unpo.org/members/20426>

<sup>14</sup> ibid

<sup>15</sup> <https://www.indigenousvoice.com/en/indigenous-peoples/national.html>

#### 4. RELEVANT POLICIES, LEGISLATIONS, GUIDELINES AND STANDARDS

The prevailing Acts, Policies, Regulations and Guidelines relevant to the project implementation are reviewed for preparing ESAP report. The ESAP adopted the requirements and provisions of the different relevant acts, rules and guidelines of Government of Nepal as applicable to ensure environmental and social safeguard during proposal implementation. The relevant policies, Legislations, Guidelines and Standards reviewed for this project are listed below.

- The Constitution of Nepal, 2015<sup>16</sup>
- Fifteenth Plan, 2019-2024<sup>17</sup>
- Fourteenth Plan, 2016-2019<sup>18</sup>
- Rural Energy Policy, 2006<sup>19</sup>
- Climate Change Policy, 2019<sup>20</sup>
- National Environment Policy, 2076<sup>21</sup>
- Nepal National Adaptation Programme of Action, 2010<sup>22</sup>
- Biomass energy strategy, 2017<sup>23</sup>
- Gender Equality and Social Inclusion (GESI) Policy of AEPC<sup>24</sup>
- Environment Protection Act, 1997 and Environment Protection Rules, 1997<sup>25</sup>
- Local Self Governance Act, 1999<sup>26</sup>
- Local Government Operation Act (2017)<sup>27</sup>
- Child Labour (Prohibition and Regulation) Act, 2000<sup>28</sup>
- Labour Act, 1991<sup>29</sup>
- Environmental and Social Policy (GCF)<sup>30</sup>
- Environmental and Social safeguard policy Principle (AEPC)<sup>31</sup>

#### International Policies and Conventions

- Convention on Biodiversity (CBD), 1993

<sup>16</sup><http://www.lawcommission.gov.np/en/wp-content/uploads/2018/09/constitution-of-nepal-2-2.pdf>

<sup>17</sup>[https://www.npc.gov.np/images/category/15th\\_Plan\\_Final1.pdf](https://www.npc.gov.np/images/category/15th_Plan_Final1.pdf)

<sup>18</sup><https://www.npc.gov.np/images/category/14th-plan-full-document.pdf>

<sup>19</sup>[https://www.aepc.gov.np/uploads/docs/2018-06-24Rural%20Energy%20Policy,%202006%20\(English\).pdf](https://www.aepc.gov.np/uploads/docs/2018-06-24Rural%20Energy%20Policy,%202006%20(English).pdf)

<sup>20</sup>[https://mofe.gov.np/downloadfile/climatechange\\_policy\\_english\\_1580984322.pdf](https://mofe.gov.np/downloadfile/climatechange_policy_english_1580984322.pdf)

<sup>21</sup>[https://mofe.gov.np/downloadfile/National%20Environment%20Policy\\_1563366482.pdf](https://mofe.gov.np/downloadfile/National%20Environment%20Policy_1563366482.pdf)

<sup>22</sup>National Adaptation Programme of Action (NAPA), 2010 <https://unfccc.int/resource/docs/napa/npl01.pdf>

<sup>23</sup>[https://www.aepc.gov.np/uploads/docs/2018-07-29\\_Biomass%20Energy%20Strategy%202073%20BS%20\(2017\)%20English.pdf](https://www.aepc.gov.np/uploads/docs/2018-07-29_Biomass%20Energy%20Strategy%202073%20BS%20(2017)%20English.pdf)

<sup>24</sup>AEPC, "Government of Nepal Ministry of Energy, Water Resources and Irrigation Alternative Energy Promotion Centre Making Renewable Energy Mainstream Supply in Nepal." <http://www.aepc.gov.np/gender-equality-social-inclusion>.

<sup>25</sup><http://www.lawcommission.gov.np/en/archives/category/documents/prevaling-law/rules-and-regulations/environment-protection-rules-2054-1997>

<sup>26</sup>[http://www.mofald.gov.np/sites/default/files/Resources/docs\\_25.pdf](http://www.mofald.gov.np/sites/default/files/Resources/docs_25.pdf)

<sup>27</sup><http://www.chainpurmun.gov.np/en/content/local-government-operation-act-2074-0>

<sup>28</sup><http://www.lawcommission.gov.np/en/archives/category/documents/prevaling-law/statutes-acts/child-labor-prohibition-and-regulation-act-2056-2000>

<sup>29</sup><http://www.lawcommission.gov.np/en/archives/category/documents/law-archives/statutes-acts-law-archives/labour-act2048-1992>

<sup>30</sup><https://www.greenclimate.fund/document/environmental-and-social-policy>

<sup>31</sup><https://www.aepc.gov.np/uploads/docs/2018-06-24Environmental%20and%20Social%20Safeguard%20Policy%20of%20AEPC.pdf>

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973
- Convention (No. 169) Concerning Indigenous and Tribal Peoples in Independent Countries, 1989

Table 1: Key features of relevant Policies, Guidelines, Act and Rules

Relevant policies, Guidelines, Act and Rules	Key features
The Constitution of Nepal, 2015	<ul style="list-style-type: none"> <li>• The Constitution has prioritized the human rights and protection of the environment. Article 30 (1) of the Constitution asserts that every person shall have the right to live in a healthy environment. Similarly, Article 51 (G) asserts that; the State shall make such arrangements as may be required to keep the environment clean and stated Policies relating to protection, promotion and use of natural resources. The State shall give priority to the prevention of adverse impacts in the environment from physical development activities, by increasing the awareness of the public about environmental cleanliness, as well as to the protection of the environment and special safeguard of the rare wildlife. The State shall make arrangements for the protection of, sustainable uses of, and the equitable distribution of benefits derived from, the flora and fauna and biological diversity."</li> </ul>
Fifteenth Plan 2019-2024	Identified the sectors with particular growth potential, such as hydropower, tourism, agriculture and human capital formation, as the drivers of economic growth. The plan is committed to harness the potential of growth drivers by best utilizing the demographic dividend of an economically active young population and aims to cater to the vast markets of neighboring India and China with higher connectivity.
Fourteenth Plan 2016-2019	<ul style="list-style-type: none"> <li>• Country's development plan to support sustainable development in Nepal</li> <li>• Resource allocation is made by SDG goals and high priority is given for infrastructure sector including energy, transportation and urban infrastructures, which was lag behind during the MDG era in Nepal.</li> <li>• Promotes gender equality and social inclusion across sectors, promoting inclusive and equitable development</li> </ul>
Rural Energy Policy, 2006	<ul style="list-style-type: none"> <li>• The main rationale of formulating Rural Energy Policy is to create conducive environment that will self-motivate and mobilize local institutions, rural energy user groups, non-government organizations, cooperatives and private sector organization for the development and expansion of rural energy resources.</li> <li>• The government will act as facilitator and promoter for involving the private sector and non-governmental organizations to be involved in rural energy development for development and expansion of new technologies.</li> <li>• It has also envisioned subsidy provision for the promotion of such renewable energy technologies.</li> </ul>
Climate Change	<ul style="list-style-type: none"> <li>• Aims to contribute to socio-economic prosperity of the nation by</li> </ul>

Policy (2019)	building a climate resilient society. The policy also targets to enhance climate change adaptation capacity of persons, families, groups and communities vulnerable to, and at risk of, climate change, mobilize national and international financial resources for climate change mitigation and adaptation in just manner and mainstream gender equality and social inclusion (GESI) into climate change mitigation and adaptation programs. To achieve its goal, low emission technologies and adaptation programs will be incorporated in settlement development plans.
National environmental Policy, 2076	<ul style="list-style-type: none"> <li>• Aims to avoid and mitigate all forms of environmental pollution</li> <li>• Promote urban greenery</li> <li>• Manage industrial waste</li> </ul>
Nepal National Adaptation Programme of Action (2010)	<ul style="list-style-type: none"> <li>• Promotes community-based adaptation through integrated management of agriculture, water, forests and biodiversity; building and enhancing adaptive capacity of vulnerable communities; community-based disaster management for facilitating climate adaptation; and empowering vulnerable communities through sustainable management of water resource and clean energy supply</li> <li>• Specifically sets priority actions for reducing land degradation through sustainable land and forest management, improved agricultural value chains, restoring degraded areas and promoting climate related research, information and awareness</li> </ul>
Biomass Energy Strategy, 2017	<ul style="list-style-type: none"> <li>• Enhance the living standards of people by modernizing the use of biomass energy through research and studies on biomass energy; through creating public awareness; through market development, technology transfer and capacity development in biomass energy; as well as through efficient use of biomass energy</li> </ul>
Environment Protection Act (EPA), 2019 and Environment Protection Rules, 2020	<ul style="list-style-type: none"> <li>• EPA 2019, state that, any vehicle, device, equipment, industrial state, hotel, restaurants or other places or any activities should not cause severe affect to the public health and environment and should follow the pollution standard set by government. The EPA 2019 enforce to carry out the environment assessment (BEIS, EIA or IEE) of projects. The environment assessment shall be approved by concern ministry or provincial government depending upon their jurisdiction. Public opinions and suggestion shall be incorporated in the report. The concern ministry or provincial government shall may grant approval to the document on providing convincing and realistic mitigation or control or minimizing measures to the significant adverse impacts.</li> <li>• The newly formed regulation have included three types of environment examination Brief Environment Impact Study (BEIS) for project under schedule 1, Initial Environment Examination (IEE) for the project that comes under schedule 2 and Environment Impact Assessment (EIA) for the project that come under schedule 3. The thresholds has laid out in these Schedules (1, 2, 3), guide individuals to undergo prescribe environment assessment (BIES/ IEE/ EIA).</li> <li>• Section 4 of chapter 2 guides for the scoping works and section 6 guides for conducting the public hearing. Section 7 guides to develop the report with reference to annex 10 for concise environment study report, annex 11 for initial environment examination report and annex 12 for environment impact assessment report. to carry out environment impact assessment.</li> </ul>

Local Government Operation Act (2017)	<ul style="list-style-type: none"> <li>• Provides detailed information on the roles, responsibilities and coordination mechanisms. Rural municipalities and municipalities shall make rules required under its defined domains or jurisdictions to operate the given responsibilities and regulate procedures, while complying with provincial and national laws.</li> <li>• Local Governments in charge of natural resource management at the local (rural municipality) level (Article 18).</li> <li>• Local government can implement climate change mainstreaming into local plans, including GESI, and building institutional capacities through making operational guidelines, procedures and criteria.</li> </ul>
Child Labor (Prohibition and Regulation) Act, 2000	<ul style="list-style-type: none"> <li>• The Child Labor (Prohibition and Regulation) Act 2000 is the main legal expedient to prohibit engaging children in factories, mines or similar risky activities and to make necessary provisions with regard to their health, security, services and facilities while engaging them in other activities.</li> <li>• Under the Section 3 of the Act, child having not attained the age of 14 years is strictly prohibited to be engaged in works as a laborer.</li> <li>• Under Section 4, engagement of child in works as a laborer against his/her will by way of persuasion, misrepresentation or by subjecting, him/her to any influence, fear, threat, or coercion or by any other means is prohibited.</li> <li>• Under Section 6, in case any Enterprise has to engage a child in works, an approval has to be obtained from the concerned Labor Office or any authority or official prescribed by that office and from the father, mother or guardian of the child.</li> </ul>
Labour Act, 1991	<ul style="list-style-type: none"> <li>• This Act strictly prohibits the concerned parties who hire work force to over utilize the manpower during its different activities.</li> <li>• Section 27 of the Act has made the provision relating to health and safety. It is the duty of the management to maintain cleanness in the enterprises.</li> <li>• Section 4, states that prior work permit is required to Non-Nepali citizens and they are allowed to work in Nepal for certain period only in the area where Nepalese man power is not available or not competent.</li> <li>• Section 5, states that child labor i.e. under 14 years of age is prohibited. Section 18 states that, thirty minutes must be allowed for rest and/or refreshments for every five hours of work. Section 18 states that over-time payment must be given at 1.5 times the normal wage if employees are required to work more than normal working hours i.e. 8 hours/day</li> </ul>
Environmental and Social Policy (GCF)	<p>Under this policy, GCF will require that all GCF-supported activities will commit to:</p> <ul style="list-style-type: none"> <li>• Avoid, and where avoidance is impossible, mitigate adverse impacts to people and the environment;</li> </ul>

	<ul style="list-style-type: none"> <li>• Enhance equitable access to development benefits; and</li> <li>• Give due consideration to vulnerable and marginalized populations, groups, and individuals, local communities, indigenous peoples, and other marginalized groups of people and individuals that are affected or potentially affected by GCF-financed activities</li> </ul>
Indigenous People's Policy (GCF)	<ul style="list-style-type: none"> <li>• All GCF activities will respect key international human rights and principles, rights of the indigenous peoples to their lands, territories and resources</li> <li>• Respect and recognize traditional knowledge and livelihood systems.</li> <li>• Respect the system of self-governance in indigenous communities</li> <li>• Full information, consultation- including Free, Prior and Informed Consent (FPIC) where appropriate and participation of indigenous communities in project implementation arrangements, operation and decommissioning.</li> </ul>
Environmental and Social safeguard policy Principle (AEPC)	<ul style="list-style-type: none"> <li>• Ensures AEPC's activities are undertaken in such a way that environmental and social impacts are minimized to the extent possible through appropriate mitigation measures, if it is not possible to avoid them completely.</li> <li>• Recognizes and ensures that Nepal's Environmental Protection Act and Environment Protection Rules are adhered to wherever applicable.</li> </ul>
Gender Equality and Social Inclusion (GES) Policy of AEPC	<ul style="list-style-type: none"> <li>• The main objectives of GESI policy of AEPC are- improve living standard of rural women and men, increase employment of women and men as well as productivity, reduce dependency on traditional energy and attain sustainable development through integrating the alternative energy with the socio-economic activities of women and men in the rural communities.</li> </ul>
Convention on Biodiversity (CBD), 1993	<ul style="list-style-type: none"> <li>• The main objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.</li> </ul>
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973	<ul style="list-style-type: none"> <li>• The convention classifies species according to criteria where access or control is important (e.g. I - species threatened with extinction; II - species which could become endangered; III - species that are protected; E - Endangered; V - Vulnerable, R – Rare (CITES 1983). The project will have to minimize impacts to the CITES species as far as possible.</li> </ul>
Convention (No. 169) Concerning Indigenous and Tribal Peoples in Independent Countries, 1989	<ul style="list-style-type: none"> <li>• The Article 7 of the convention provides the right to the indigenous and tribal people to decide their own priorities for the process of development. However, for the national development plans and programs, it mandates consultation with them in the formulation of the plans and programs.</li> <li>• Article 12, 13, 14 and 15 safeguards rights of the indigenous people in the land and natural resources in territories traditionally occupied by them.</li> <li>• In the event that the state retains the right of the natural resources in their territories, it mandates formulation of special provisions under the state legislation for participation in the decision making process and resettlement process with full compensation of the resulting loss or injury (Article 16).</li> </ul>

## 5. IMPACT SCREENING

This ESAP has been prepared to support the proposed project ' Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS) developed by the AEPC and submitted to the GCF. Thus, the project has been screened against AEPC's Environmental and Social Safeguard Policy, as well as the GCF Environmental and Social Safeguards.

### 5.1 AEPC environmental and social standards

AEPC's Environmental and Social Safeguard (ESS) Policy Principles that have been developed to align with the International Finance Corporation's (IFC) Performance Standards (2012). While the Principles adopted align with IFC's performance standards, they have been modified to suit the needs and scale of AEPC's projects, programs, and activities (Table 3)<sup>32</sup>.

Table 2: Overview of Environmental and Social Safeguard Policy Principles of AEPC

Principles	Description
ESS Policy Principle 1: Assessment and management of environmental and social risks and impacts	Under this principle AEPC will ensure: <ul style="list-style-type: none"> <li>• Environmental and social risks and impacts are identified;</li> <li>• Mitigation plans are developed to anticipate, avoid; minimize; compensate or offset E&amp;S risks;</li> <li>• Stakeholders and affected communities are engaged throughout the project cycle. This includes communications and grievance mechanisms.</li> </ul>
ESS Policy Principle 2: Biodiversity conservation and sustainable management of living natural resources	Under this principle AEPC will ensure: <ul style="list-style-type: none"> <li>• Protection and conservation of biodiversity</li> <li>• Maintenance of benefits from ecosystem services</li> <li>• Promotion of sustainable management of living natural resources</li> <li>• Integration of conservation needs and development priorities.</li> </ul>
ESS Policy Principle 3: Human Rights	<ul style="list-style-type: none"> <li>• Under this principle, AEPC will ensure full respect for human rights of all individual as stipulated by the Constitution of Nepal (2015). Efforts will be made to safeguard indigenous peoples, their human rights, dignity, aspirations and livelihoods. The principle also strives to avoid/minimize the adverse impact projects may have on cultural heritage and promotes the equitable sharing of cultural heritage benefits.</li> </ul>
ESS Policy Principle 4: Labour and working conditions	To ensure that working conditions are safe and conducive, and the workplace is designed in a way that it does not pose any hazard of occupational or community significance and that the practices are adhered to with the Labor Act (1992) of Nepal. This includes the following: <ul style="list-style-type: none"> <li>• Fair treatment, non-discrimination, equal opportunity;</li> <li>• Good worker–management relationship;</li> <li>• Comply with Nepal's employment and labour laws;</li> </ul>

<sup>32</sup> <https://www.aepc.gov.np/uploads/docs/2018-06-24Environmental%20and%20Social%20Safeguard%20Policy%20of%20AEPC.pdf>

	<ul style="list-style-type: none"> <li>• Protect workers, in particular those in vulnerable categories;</li> <li>• Promote safety and health; and</li> <li>• Avoid use of forced labour or child labour</li> </ul>
ESS Policy Principle 5: Community Health Safety and Security	<p>To avoid any adverse impacts to the community from the project operations. This includes the following:</p> <ul style="list-style-type: none"> <li>• Anticipate and avoid adverse impacts on the health and safety of the affected community.</li> <li>• Anticipate and avoid the circumstances that lead to increased vulnerability of project affected people</li> <li>• Safeguard personnel and property in accordance with the accepted human right principles recognized by the Constitution of Nepal, 2015.</li> </ul>
ESS Policy Principle 6: Land acquisition and involuntary resettlement	<p>To avoid/minimize adverse social and economic impacts from land acquisition or restrictions on land use, including:</p> <ul style="list-style-type: none"> <li>• Avoid/minimize displacement; <ul style="list-style-type: none"> <li>• Provide alternative project designs;</li> <li>• Avoid forced eviction.</li> </ul> </li> <li>• Improve or restore livelihoods and standards of living;</li> <li>• Improve living conditions among displaced persons by providing: <ul style="list-style-type: none"> <li>• Adequate housing;</li> <li>• Security of tenure</li> </ul> </li> </ul>
ESS Policy Principle 7: Resource efficiency and pollution Prevention	<p>To promote the conservation of living natural resources and discourage activities entailing environmental pollution including activities those contribute to the GHG emission post execution of the project.</p>

### 5.3 Green Climate Fund safeguards

In addition to AEPC's standard, the project activities have also been assessed against GCF's environmental and social safeguards, which are provisionally adopted from the International Financial Corporation (IFC) Environmental and Social Performance Standards (PS) (Table 4)<sup>33</sup>.

Table 3: GCF's safeguards

<b>GCF Standards</b>	<b>IFC Environmental and Social Performance Standards (PS)</b>
ESS 1	PS1: Assessment and management of environmental and social risks and Impacts
ESS 2	PS2: Labour and working conditions
ESS 3	PS3: Resource efficiency and pollution prevention
ESS 4	PS4: Community health, safety and security
ESS 5	PS5: Land acquisition and involuntary resettlement
ESS 6	PS6: Biodiversity conservation and sustainable management of living natural Resources
ESS 7	PS7: Indigenous peoples
ESS 8	PS8: Cultural heritage

<sup>33</sup><https://www.greenclimate.fund/sites/default/files/document/gcf-b07-11.pdf>



## 5.4 AEPC and GCF applicable safeguards

Table 4: AEPC and GCF applicable safeguards

Applicable AEPC Standards	Applicable GCF Standards/IFC PS	Safeguard Triggered?	Justification
ESS Policy Principle 1: Assessment and management of environmental and social risks and impacts	ESS1: Assessment and management of environmental and social risks and impacts	No	The environment and social assessment undertaken for this study indicates the possible unmanaged disposal of the biogas slurry and the availability of water resource to run the biogas plant are the only identified negative impact from the project.
ESS Policy Principle 2: Biodiversity conservation and sustainable management of living natural resources	ESS6: Biodiversity conservation and sustainable management of living natural resources	No	This project has a very significant role in biodiversity conservation by saving forest resources and reducing the smoke burning firewood.
ESS Policy Principle 3: Human Rights	ESS7: Indigenous peoples  ESS 8: Cultural heritage	No	The project anticipates generating numerous additional benefits to the indigenous and the most vulnerable people by reducing the pressure on firewood and conserving their natural resource.  The project activity will not pose any threat to cultural heritage site.
ESS Policy Principle 4: Labour and working conditions	ESS2: Labour and working conditions	No	The project promotes equal participation of male and female workers and there will not be any sort of gender discrimination.  In addition, people from disadvantaged group (DAG), vulnerable community, ethnic minority, Indigenous people will be given priority in awareness raising campaigns and skill development training.  Women will be given priority for the post of CCS facilitator at the local level.  Occupational health and safety (OHS) activities will be taken into

			account for the implementation of the project activities such as construction of biogas plant.
ESS Policy Principle 5: Community Health Safety and Security	ESS4: Community health, safety and security	No	The project contributes to community health safety by reducing air pollution from using CCS as compared to traditional cook systems. Use of clean energy source will reduce the workload of women in collecting firewood and leads to better life and improved health condition.
ESS Policy Principle 6: Land acquisition and involuntary resettlement	ESS5: Land acquisition and involuntary resettlement	No	The project will not allow any Land acquisition and involuntary resettlement.
ESS Policy Principle 7: Resource efficiency and pollution prevention	ESS3: Resource efficiency and pollution prevention	Yes	<p>The project has a very significant positive impact on resource efficiency and pollution prevention by mitigating GHG emission, saving fuel and reducing Indoor air Pollution.</p> <p>During the operation of biogas plant, bioslurry is produced as a byproduct. If this slurry is not managed properly, it may pollute and contaminate the surface and ground water sources.</p>

### 5.5 Impact Screening and Project Categorization

The screening of the project identifies expected negative and positive risks and impacts from different project components. Table 6 provides the project E & S Impact screening.

Table 5: E & S impact Screening

E & S Safeguard	Screening results
ESS Policy Principle 1: Assessment and management of environmental and social risks and impacts	Minor issues, The only identified negative impact from the project is the possible unmanaged disposal of the biogas slurry and the availability of water resource to run the biogas plant.

ESS Policy Principle 2: Biodiversity conservation and sustainable management of living natural resources	This project aids in biodiversity conservation by saving forest resources.
ESS Policy Principle 3: Human Rights	No issues expected, The project anticipates generating numerous additional benefits to the indigenous and the most vulnerable people by reducing the pressure on forest resource and conserving their natural resource.
ESS Policy Principle 4: Labour and working conditions	<p>No issues expected.</p> <p>The project promotes equal participation of male and female workers and there will not be any sort of gender discrimination.</p> <p>In addition, people from disadvantaged group (DAG), vulnerable community, ethnic minority, Indigenous people will be given priority in awareness raising campaigns and skill development training.</p> <p>Women will be given priority for the post of CCS facilitator at the local level.</p> <p>Occupational health and safety (OHS) activities will be taken into account for the implementation of the project activities.</p>
ESS Policy Principle 5: Community Health Safety and Security	<p>The project contributes to community health safety by reducing indoor air pollution through replacing lower tier cookstoves by Tier 3+ ICS and biogas, and LPG by electric cookstoves.</p> <p>Use of clean and efficient energy source will reduce the workload of women in collecting firewood and leads to better life and improved health condition.</p> <p>Safety risks from firewood collection can also be reduced by the implementation of biogas plant and Electric Stove.</p>
ESS Policy Principle 6: Land acquisition and involuntary resettlement	No issues expected, the project does not require any sort of land acquisition and involuntary resettlement.
ESS Policy Principle 7: Resource efficiency and pollution prevention	<p>The project has a very significant positive impact on resource efficiency and pollution prevention by mitigating GHG emission, saving fuel and reducing Indoor air Pollution.</p> <p>The negative impacts of the project could be the unmanaged disposal of biogas slurry but this is a minor issue and is easily manageable.</p>

### 5.6 Project Risk Categorization

The Environmental and Social Screening of the project based on the GCF's and AEPC's Environment and Social Policy, the project in principle be categorized as C (Low risk). The identified potential environmental and social impacts are:

- Site-specific environmental impacts from biogas plants such as unmanaged disposal of bioslurry
- Potential risk of environment contamination from the unsafe disposal of damaged or obsolete cookstoves (ICS and Induction stoves)
- Water availability to operate the biogas plant
- Women, indigenous peoples and marginalised minority groups often experience discrimination and may face additional barriers to their participation and engagement

## 6. 6. ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

### 6.1 Beneficial Impacts

- **Reduction of greenhouse gas emissions**

The introduction of CCS will potentially reduce the greenhouse gas emission by about 7.48 million tons of CO<sub>2</sub>eq in 5 years by reducing and replacing non-renewable biomass by Tier 3 ICS and Biogas and avoiding emissions due to the burning of fossil fuel replacing LPG cylinders by electric stoves. UNFCCC methodologies AMS I.C, AMS II.G and AMS I.E were used to estimate the amount of CO<sub>2</sub> that will be reduced by the project. The Emission Reduction will be monitored as per the requirements provided in the methodologies.

- **Reduction of non-renewable biomass consumption**

The implementation of the clean cooking solutions will help to reduce the consumption of firewood. Use of biogas and Electric stove will completely reduce the use of firewood for cooking purpose whereas use of tier 3+ICS will reduce the consumption of firewood upto 30% compared to the tier 0 and tier 1 cookstoves.

- **Reduction of indoor air pollution hence improving health and comfort in the house**

The introduction of modern, efficient and climate friendly clean cooking solutions will contribute to the reduction of indoor pollution and improve air quality. In average, the Tier 3+ cook stoves will replace the consumption of firewood by 30% and biogas and electric cook-stoves will completely reduce the use of firewood. Hence, in total more than 30% of reduction in the in-door air pollution is expected. This action will therefore contribute to the reduction of health issues due to the emissions of small particles, particularly deadly for women and children.

- **Reduction of time spent to collect firewood**

The replacement of firewood after the installation of stoves will reduce workload of women for the collection of firewood, resulting in time saving that the women can use for other productive activities. More than 60% of time will be saved via the proposed CCS.

### 6.2 Adverse Impacts

- **Unmanaged disposal of slurry**

Bio slurry will be generated as a by-product during the operation phase of the biogas plant. Unmanaged disposal of slurry may have potential health effect to the local people as it possess pathogenic effect. Similarly, deposition of slurry in the pit will increase the odor problem and will attract disease transmission vectors such as housefly and mosquitoes.

- **Disposal of damaged or obsolete cook stoves**

A potential environmental impact that may arise is disposal of damaged or obsolete cook stoves after their lifespan. The stove will be reused by repair and maintenance and finally will be disposed safely following appropriate municipal waste management protocol.

- **Water availability for biogas plant**

An equal amount of substrate (cowdung) and water is required to run the biogas plant; however, settlements in remote locations may face water scarcities. The functioning of biogas digesters can be limited in areas of low water availability. Women are almost exclusively responsible for collecting water. In the water scarce areas, women have to travel longer distances carrying heavy load, which has a direct impact on women's health. Hence, it is important to ensure the continued availability of water to install the biogas plant.

- **Child Labor and forced labor**

Though legally restricted, technology supplier/vendors may use children as workers due to unavailability of workers and for cheap wages. Similarly, the forced labor may be used to fulfill the requirement of human resource to supply of technology and construction of biogas technology.

- **Disparity in wages**

During supply of technology, equipment and construction of biogas, both male and female workers will get engaged in the works. The discrimination with female workers will be for job opportunity and wages.

- **Occupational Health and Safety**

Introduction of new cooking equipment to local people hold risk of accidents such as fire hazard (ICS and Biogas) and electric shock and burning (ECS).

## 7. ENVIRONMENTAL AND SOCIAL ACTION PLAN

### 7.1 Rationale

The environmental assessment carried out for the project identifies certain negative impacts of the project. Thus, the ESAP has been developed to manage the identified potential negative impacts.

- The tier 3 + ICS focuses on “triple benefits” i.e. they reduce emissions contributing to mitigate global climate change, provide improved health and time savings for households and preserve forest and associated ecosystems. Potential negative environmental impacts from the project implementation is limited to effective management of biogas from biogas plant.
- Introduction of CCS has number of social benefits particularly benefitting women. However, the potential social risk may occur, if the project is implemented in areas of low water availability, as women have to travel longer distance to fetch water to run the biogas plant that has a direct impact on women health and imposes high time burden particularly to women and girls.

The ESAP management activities have been incorporated in the project activities and in the project costs.

### 7.2 Institutional Arrangement for E & S safeguard issues

The key institutions involved in safeguard related issues are AEPC/PIU, Local Governments (LGs) and Provincial Governments (PGs)

Table 6: Institutional arrangement for the project

Organization	Roles and Responsibilities
AEPC	<p>AEPC as an implementing agency will have following responsibilities:</p> <ul style="list-style-type: none"> <li>• Overall supervision, monitoring and evaluation of the activities</li> <li>• Responsible for overseeing subproject compliance with environmental and social safeguard requirement</li> <li>• Carry out public consultation and disclosures</li> <li>• To lead Grievance Redress Committee (GRC)</li> </ul>
PG	<ul style="list-style-type: none"> <li>• Support AEPC during public consultation and perform project coordination role at province level</li> <li>• Provide regulatory supervision across subproject for ESAP compliance</li> <li>• To be a part of GRC</li> </ul>
LGs	<ul style="list-style-type: none"> <li>• Support project in demand aggregation, raising awareness and in providing trainings</li> <li>• To be a part of GRC</li> </ul>

### 7.3 Potential Environmental and Social Mitigation Measures

Table 7 presents the potential environmental impacts identified and then proposed mitigation measures.

SN	Potential Adverse Impact	Mitigation Measure (s)
1	Unmanaged disposal of slurry	<ul style="list-style-type: none"> <li>• <b>Human Health:</b> Slurry from the household biogas does not contain any toxic elements. Hence, it can be applied in the agriculture land as a bio fertilizer for the crop product. Since the slurry consists of large fraction organic matter which helps reduce toxicity in soil and helps to improve soil biological properties. This will improve the soil health. Therefore, there will not be any adverse effects on human health particularly if slurry are used as fertilizers on crops/vegetables that are grown for human consumption.</li> <li>• <b>Unmanaged disposal of slurry:</b> Slurry pit shall be constructed. The pit shall be covered and fenced. Immediate use of slurry to avoid breeding of disease vectors. To prevent from the surface run off to nearby water sources during rain fall, drainage shall be made at the boundary of slurry pit.</li> <li>• Provide training and education materials (such as IEC materials/ user manual) to biogas users regarding effective use of biogas plant and bio slurry.</li> </ul>
2	Availability of Water Resource	<p>The functioning of biogas digesters can be limited in areas of low water availability.</p> <ul style="list-style-type: none"> <li>• Domestic water recycling</li> <li>• Water supply within walking reasonable waking distance</li> </ul>
3	Disposal of damaged or obsolete cook stoves	Project will promote reusing and recycling practices to minimize waste, where applicable. Those that cannot be reused/recycled will be disposed safely following appropriate municipal waste management protocol.
4	Occupational health and safety	<ul style="list-style-type: none"> <li>• Cooking is daily activities in household. The user should be properly oriented about the equipment. Demonstration on use of the technology should be done properly. IEC materials/User manual can be developed to guide them to use the technology safely.</li> <li>• Emergency response plan/techniques shall be demonstrate to protect themselves from the accidents.</li> </ul>
5	Child Labor and forced labor	<ul style="list-style-type: none"> <li>• During contractual agreement with vendors/supplier, one of the clause shall be to avoid child labor, i.e. children below 14 years as worker as per the child labor</li> <li>• Similarly, if forced labor are identified, there shall be provision in contract to terminate the vendors/supplier.</li> </ul>



6	Disparity in wages	<ul style="list-style-type: none"> <li>• Women will be given equal opportunities for work and equal wages as man.</li> <li>• Any sexual violence / information of such violence in the vendor/supplier side will not be tolerated and legal action will be taken against it.</li> </ul>
7	Women, indigenous people and marginalized minority often experience discrimination and may face additional barriers to their participation and engagement	Awareness and skill development training will be provided to the vulnerable community and marginalized minority households and women's group. Awareness program will ensure at least 60 % of female participants and skill development training will ensure at least 33% of female participants.

Table 7: Potential adverse impacts and proposed mitigation measures for Output

## 7.4 Environmental and Social Safeguard Plans

### 7.4.1 Slurry Management Plan

- Conduct awareness highlighting benefits of bio slurry as compost fertilizer and effective utilization of bio slurry.

### 7.4.2 Gender Action Plan

- Skill development training for vulnerable group ensuring at least 33% of participants are female
- Awareness on health and economic benefits of CCS to the vulnerable community ensuring at least 60% of female participants
- Female community health volunteers will be involved as CCS mobilizer at local level

## 7.5 E & S Monitoring

Project E&S monitoring will include: `

- Baseline survey: The project will carry out baseline survey of Terai Madesh region to identify the cooking practice, fuel consumption and gender role in fuel collection and cooking.
- Compliance monitoring: The project will undergo compliance monitoring with the ESAP prepared. This will be verified through yearly E & S report.
- Impact monitoring: The project will implement studies to verify the impacts of the project on GHG emission reductions, fuel and time savings and gender surveys

## 7.6 ESAP Costs

The cost for ESAP activities are fully integrated into the project and are not presented separately here.

## 8. STAKEHOLDER CONSULTATION AND GRIEVANCE REDRESS MECHANISM (GRM)

### 8.1 Stakeholder Identification

Stakeholder consultation and engagement is fundamental to effectively implement the project. A series of stakeholder consultation was conducted to get the valuable feedback for the project. As a first step, the list of stakeholders, who can influence or impact the electric cooking sector, will be identified through review and categorized as: Governments and state entities, development partners/INGOs/funding organizations, the private sector, financial institutions, civil society organizations: local & national NGOs, universities, local leaders and others.

The preliminary stakeholders at different level being considered during the project preparation are presented and tabulated below:

Governmental Organization/Bodies	Development Partners, NGOs, INGOs	Private companies and association
National Planning Commission, Provincial and Local Government (selected only), Alternative Energy Promotion Centre (AEPIC), Nepal Electricity Authority (NEA), Department of Customs, Electricity Regulatory Commission Nepal, Nepal Bureau of Standard and Measurement, Renewable Energy Test Station	Clean Cooking Alliance Nepal, Winrock International Nepal, Nepal Renewable Energy Programme (NREP), Partners of Modern Energy Cooking Services (MECS), Gender, Energy and Water Network (Genet), Indoor Air Pollution and Health Forum, GIZ, Practical Action, PEEDA, Centre for Energy and Environment Nepal, Local development organization and institutions	Federation of Nepalese Chambers of Commerce and Industry, Private and Business Group dealing with clean cooking technologies, Ajummary Bikas Foundation, Investment Board Nepal, Financial institution such as Banks promoting clean energy technologies, National Association of Community Electricity Users Nepal (NACEUN), Clean cooking manufacturing and distribution companies such as Chaudhary Group, Husk Power Pvt. Ltd

### 8.2 Stakeholder consultations for project implementation

Online stakeholder consultations were conducted to collect the feedbacks as it was impossible to move to the project location due to Covid 19 and the ongoing lockdown situation of the country. Altogether four stakeholder consultations were conducted at national and subnational level, private and banking sector, and supply chain stakeholders. In total over 150, people were consulted during project preparation. The detail of the stakeholder consultation is provided in Annex 1 and the feedbacks collected are summarized below.

#### Summary of Stakeholder Consultations

## **CCS supply chain Stakeholder e-consultation**

The stakeholder e-consultation was held on 11th June, 2020, from 3 to 5 pm Nepali time, with participation of 42 individuals from various relevant organizations. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Kushal Gurung, from Wind Power Nepal gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks.

Following were the key output from the meetings:

- Bulk tendering process need to be participatory to incorporate the need of end users and to provide as many options of technology for them to choose from.
- Fuel for tier3 stoves need to be affordable for the poorest households.
- The project should be technology neutral, providing room for variety of options in the procurement process. E-cooking stove should not be limited to induction stove, and other solutions such as infrared stove and electric pressure cooker also need to be incorporated in the option
- Private sector have the capacity to manufacture Tier3 stoves and fuels, however they need firm assurance of a market for them to increase their production capacity
- Focus on expanding market of e-cooking stoves from cities to rural areas and small towns, by interacting with the existing big wholesalers and distributors to see their challenge and requirement in expanding to other areas.
- After sales service is a must. There need to be quick availability of repair center at local level.
- To promote e-cooking stoves, house wiring need to be upgraded, the grid and transformer need to be able to support the load.
- Technical Assistance and Capacity Development should be concentrated in bringing behavioral change among the users. Activities like easy and affordable after sales service, training on operation and maintenance manual, e-cooking recipe book would accelerate the behavioral change process
- Capacity development program should also support innovation and R&D activities
- There need to be quantitative targets for technical assistance and capacity development activities
- Involving NGOs and other institutions already involved in CCS sector, in awareness raising program to accelerate the behavioral change, and create a technical network to reduce and response to accidents, such as short circuit and fire
- AEPC should focus on quality of specification for tender and monitoring, and let Local Governments do the product delivery

## **Sub-national Stakeholder e-consultation**

The stakeholder e-consultation was held on 22<sup>nd</sup> June, 2020, from 3 to 5 pm Nepali time, with participation of sixty individuals from various relevant organizations. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks.

Following were the major feedback from the meetings:

- Trainings and Awareness should target the female (users) and not the household head.
- Experience from the past should be analyzed to ensure financial, utility, commodity sustainability of the project.
- Value chain of ICS (Supply to target group users) should be analyzed to fulfil the gap
- Move forward by catching up bitter experience and golden experienced.
- Community should be mobilized in stove distribution (trust fund).
- Local government should be consulted to reach the poorest of the poor.
- We need to assure the quality of cookstoves and construction of biogas.
- Poverty rate in Terai region is very high and there are households and community who don't have NEA meter or the households who cannot keep the meter due to lack of land holding documents. Thus, we need to address these households and communities.
- People were hesitant to adopt the mud ICS may be due to cultural or social barriers. Biogas seems to have much demand compared to ICS so increase the numbers.
- Community forest spends 25% of their total income in forest conservation and they have been spending the money in biogas and ICS. 37% poor female and vulnerable community can be integrated in community contribution for the project.
- Previous World Bank funded, REED and other projects are more focused in Terai region so may need to consider other geographical area.
- Biogas and electric cooking does not benefit poorest of the poor. Therefore, we need to explore more on how to make these pro poor.
- Actual demand should be created while collecting demand and explore the supply side. Options of various technologies should be given to the user to ensure the use of the stoves after deployment.
- Coordination with local government, involvement of female in stove making, distribution, and financial contribution of user creates the enabling environment for stove promotion. At present, each local government has female representatives. They should be enrolled as a facilitator for the long run of the project.
- The poorest and most vulnerable communities cannot purchase the Tier 3+ ICS and even if the stoves are distributed free of cost, fuel wood is another major challenge. Most of them use cow dung as fuel which is not compatible with the available technologies. Research should be more focused to make technologies compatible with available local fuel sources so the most vulnerable can assess the technologies. Research development disseminations and delivery possibilities should be included in the project.
- Cooperation, collaboration, and coordination should be done with province level agriculture and forestry ministry.
- Activities relating to backward and forward linkage of the project should be carried out parallel along with technology installation. For example, installation of biogas should be linked with promotion of livestock farm and slurry management to promote the CCS.
- Strengthen supply chain by mobilizing the local workforce to provide after sales service.
- Stove design should meet the users' needs such as space heating, agro processing and commercial cooking.

- Access to finance, access to information (how are we giving information to the illiterate), low level of mobility of female should be included.
- Awareness campaign should focus on both male and female.
- Coordination, collaboration, and coordination should be strong enough. LG has allocated much budget in renewable energy and women empowerment. Thus, while identifying partners; criteria should be transparent to gain more weightage.
- Free distribution kills market. Project should not have contradicting policies. In addition, the concept of free distribution should be strongly eliminated.
- Monitoring has to be the part of implementation.
- Coordination with Province level ministries (Agricultural, Tourism, Forest and Environment) to include them in project implementation or monitoring.
- Conservation significant area such as buffer zone, vicinity of forest area should be priorities.
- ICS favorable for water heating and space heating to be focused in high altitude area.
- More budget should be allocated in technology deployment and should be given to users directly at local level and less in trainings and awareness.
- Extend the project to new geographical area to include Karnali Pradesh.
- NGO plays important role in Community mobilization, leadership and awareness campaign and demand creation. Collaborate with NGO to effectively implement the project.
- Women promoters to effectively implement the project and targeted to the female and most vulnerable communities.
- Service center at each province, repair maintenance center, development of local manufacturing company makes the project sustainable.
- Project should be demand driven and should be focused on need based.
- Training to women on electrical safety and basic technical skills on using induction stoves increases the use of stove and increase their confidence.
- Capacitate female to repair and maintenance to ensure sustainability and empower women.
- Research and development to make technologies more efficient rather to replicate the same old technologies
- Strengthen existing Network rather than establishing new ones and allocate more budget to users.
- Sustainability: after sales service and focus on user sensitive programs to increase the use
- Different financial package of support to poorest of the poor people to effectively implement the project
- Shifting to electric cooking may take long time, technical efficiency to user and private sector
- Focused on Socially adaptation of technologies
- Technological capacity development to ensure sustainability
- Provincial/local government should share the cost in technology
- AEPC budget should be focused on enabling environment including the development of
- Need to consider the technological barrier in adopting the electric cookstoves.

## Private and banking sector Stakeholder e-consultation

The stakeholder e-consultation was held on 23<sup>rd</sup> June, 2020, at 11 Am sharp (NST). In total, around thirty five people attended the meeting. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks.

Following were the major feedback from the meetings:

- Clear criteria for involvement of private sector should be defined to collaborate with them as an implementation partner.
- Demand perspective should be properly analyzed and demand should be created at local level collaborating with local government
- Investment sharing from users, developers, suppliers and banking sectors should be clearly defined
- Microfinance finance users/beneficiaries and bank to finance developer, manufacturer and supplier
- Technological barriers for electric cook stoves should be properly addressed. For e.g. Up gradation of existing transformer is necessary to surge the use of electrical stoves
- Convincing bank to invest in biomass sector is a major problem. Challenge fund is necessary to flourish this sector.
- Subsidize biomass/ raw materials for processed fuel to make it affordable for the poor, as replacing firewood by processed fuel at household level is very costly. The project should also target Tier 3+ stoves at both household and commercial level. It is because the consumption of processed fuel at household level is very low while it is high at commercial sector such as hotels and restaurants. As pellets is 60% cheaper than LPG, replacing LPG with pellets would create a huge difference.
- Subsidize change over system for industries to strengthen biomass/fuel processing industry.
- Reduce subsidy for technologies and support challenge fund and technical assistance to strengthen the supply chain component to ensure the sustainability of the project
- Need to focus on development of credit financing mechanism for entire value chain actor
- Risk sharing model envisioning certain portfolio needs to be introduced to minimize the collateral issue
- Strengthen CREF
- The project should also include other geographical area such as hills and mountains
- Need to focus on Research and development of existing technologies and support private sector
- Percentage of biogas for the project should be increased
- Activities should be designed in such a way to aware user to shift to higher tier cook stoves
- Mechanism to create enabling environment and subsidize interest rate should be developed
- Targeted household number should be matched with stove durability



- Existing private sector should be strengthened to engage them in project implementation
- Activities should be designed to enhance post purchase behavioral change to ensure the long term use of the stove
- Fund handling mechanism should be transparent.
- Insurance should be done for CCS technologies
- Enhance manufacturing sector by providing risk grant
- Research and development should be prioritized to enhance the product
- Subsidy for technology should be reduced and mobilize the fund to strengthen private sector
- Enhance domestic industries and after sales service to make project sustainable

### **National Stakeholder Consultation Stakeholder e-consultation**

The stakeholder e-consultation was held on 23rd June, 2020, from 3 to 5 pm Nepali time, with participation of forty six individuals from various relevant organizations. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks.

- As the project is related to climate friendly cooking practices, coordinate with all other relevant ministry such as Ministry of Forest and Environment simultaneously with Ministry of Energy and Ministry of Finance to speed up the process.
- Detail process on financial flow mechanism should be clearly mentioned
- Need to comply with both GCF policy and strategy as well as country context
- Minimize management and administrative cost to 5% so as to provide maximum benefits to the users.
- Results should be tangible as much as possible
- Reduce subsidy as much as possible and encourage beneficiaries to invest in clean cooking technologies
- Biogas is proven technology in Nepal and has already been implemented in large numbers. So we need to justify why we need additional support for only 10,000 biogas plant. Also, we need to consider the number of Tier 3+ stoves as it is very high number to implement at household level.
- Achievement measurement should include the indicator to measure the number of users who will continue to use the CCS technology even after the project closure.
- As we don't have testing centers for Electric cook stoves and the standard has been newly developed, we have to pay special attention to ensure the quality of e cookstoves.
- Electric cooking is appropriate and cheaper in urban areas compared to firewood and LPG. But there are technological barriers to increase its use such as access to grid electricity and voltage fluctuations. Hence, coordination with relevant ministry and Nepal Electricity Authority is necessary for its successful implementation.
- Number of biogas to for project is very low. So we need to consider revising the number.

- Permanent structure should be established at LG level to ensure project continuation beyond project closure.
- Investment in TA support should be increased to create enabling environment.
- Role of supplier should be clearly defined.
- Need to develop policy to transit subsidy from LPG to e cooking.
- Consider revising target of 490,000 ICS because it requires processed fuel and chopped biomass which may increase work load for women and also may pose economic burden which may not seem practical for poor households.
- Female community health volunteers should be involved as clean cooking champions
- Awareness campaigns for behavioral change should be strongly included to fully transit to electric cooking.
- Gender equality and women empowerment should be strongly included.
- R & D works with emphasis on biomass cook stove should also be included
- Ensure easy access to repair and maintenance of electric cook stoves for successful implementation of the project.

### **Limitations to Stakeholder Consultation and way forward**

The project did multiple stakeholder meetings, key informant interviews and focal group discussions were made during the feasibility study (annex no. 2) and project design phase, which included representation from women groups, local NGOs and communities. However, our outreach was limited due to the COVID pandemic. Email and phone consultations were made with organizations like the Nepal Federation of Indigenous Nationality (NEFIN) and Dalit Welfare Organization. To fill the gap created by the impact of the 'digital divide' and our inability to do it physically, the project aims to conduct baseline surveys and inclusive stakeholder meetings before the implementation phase (while designing Project Operation Manual).

### **8.2 Disclosure**

Timely dissemination of information is must about the proposed activities and their expected results with the affected and interested parties to successfully implement the project. Meetings and workshops will be held to disseminate the information throughout the project cycle. At local level, CCs mobilizer, female community health volunteer, champions will be involved to provide information to users, women's group, illiterate or technologically illiterate people, indigenous peoples, people with hearing or visual disabilities and other groups with special needs.

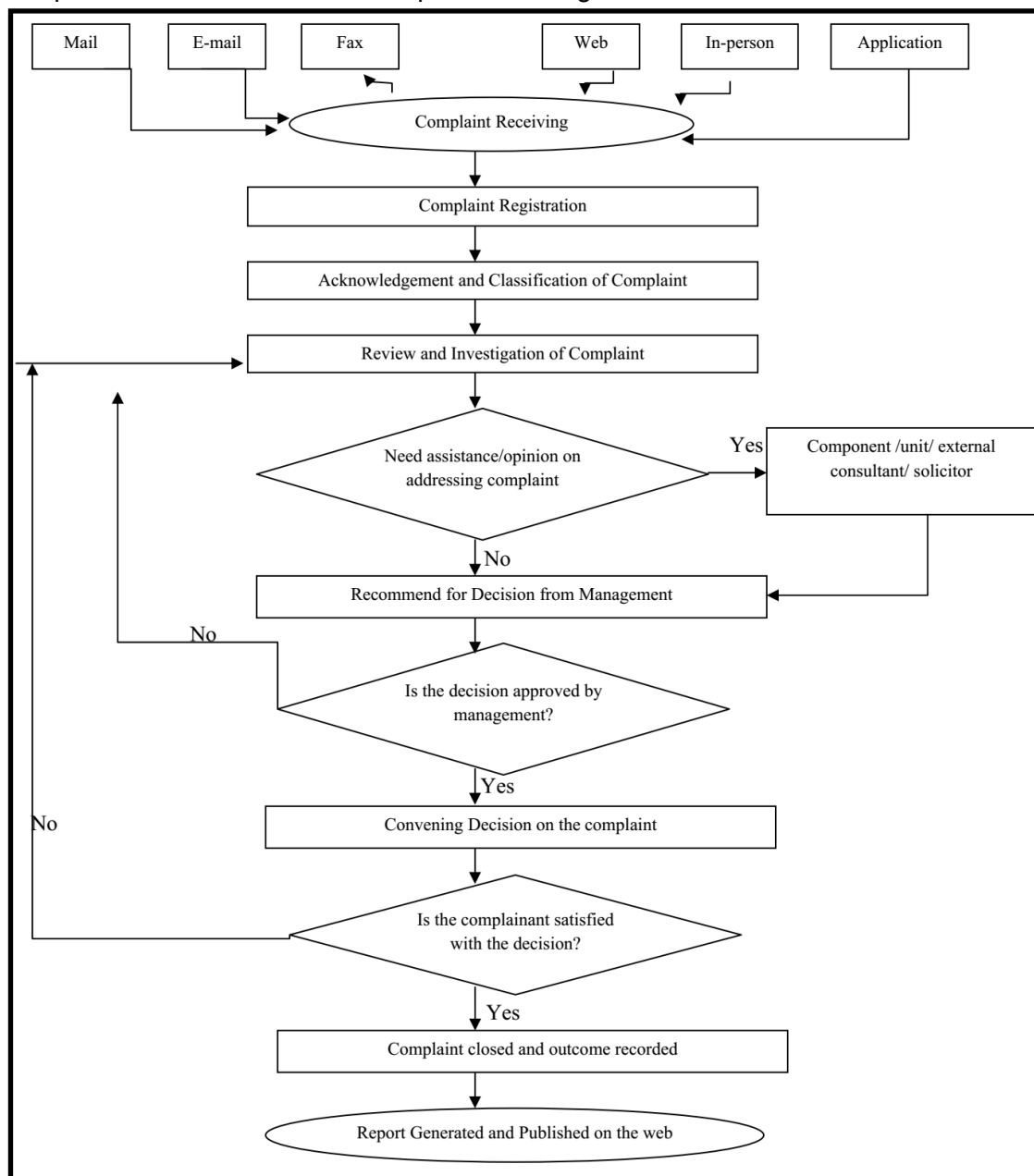
### **8.3 Grievance redress mechanism**

AEPC's Complaint Handling was developed to ensure that all complaints made by the public are handled in an effective and consistent manner. AEPC has established an internal committee for handling complaints and grievances led by one of the Directors. If there are complaints and grievances received for the coordinator, immediate senior official will lead the team and investigate it. The process for receiving and handling complaints is described below:

- Compliant/grievances are received through 3 major means; online, complaint box and register maintained in reception.
- Complaints boxes and register shall be open on 1st and 16th day of every month (Next working day in case of public holiday). The internal committee opens them with relevant invitees to the meeting and a minute is prepared and duly signed by the attendees.
- Register will be maintained by Administrative Officer where the details of complaints' from all means will be registered and will be transferred to Senior Administrative Officer for further action.
- The complaints received from Ministry or GoN will be directly received and dealt by Senior Administrative Officer
- Formation of discussion panel comprising of Director (Administration and Finance), Senior Administrative Officer and respective component manager on need basis to solve the issues and to

implement action to be taken. • Take legal opinion from AEPC legal expert on need basis.

- Prepare a trimester report mentioning action and progress made within the period.
- Complaints related to financial matters are handed over to the Compliance Unit which then follows its procedure from preparing investigation plan to completing the investigation. The reported complaints are treated confidentially and with respect for the person making report and the person(s) or organizations, about which there is suspicion. Generally, in house whistle blowers are encouraged to file complaints if s/he found any unlawful action /behavior within the organization. Figure below, provides a process flow-chart for the complaint handling mechanism.



In case of ESS complaints/grievance handling, AEPC's complaint handling mechanism provides people affected by any projects with an accessible, transparent, fair and effective process for raising complaints about environmental or social harms caused by any such project. The Grievance Mechanism applies to complaints received by stakeholders or any person who may experience adverse social or environmental effects of a project undertaken by AEPC or its partners. The process reflects the commitment of AEPC to the highest level of ethical behavior and accountability. AEPC perceives each grievance as an opportunity to properly address concerns raised with respect to a project, and to evaluate and improve the E&S and gender screening process.

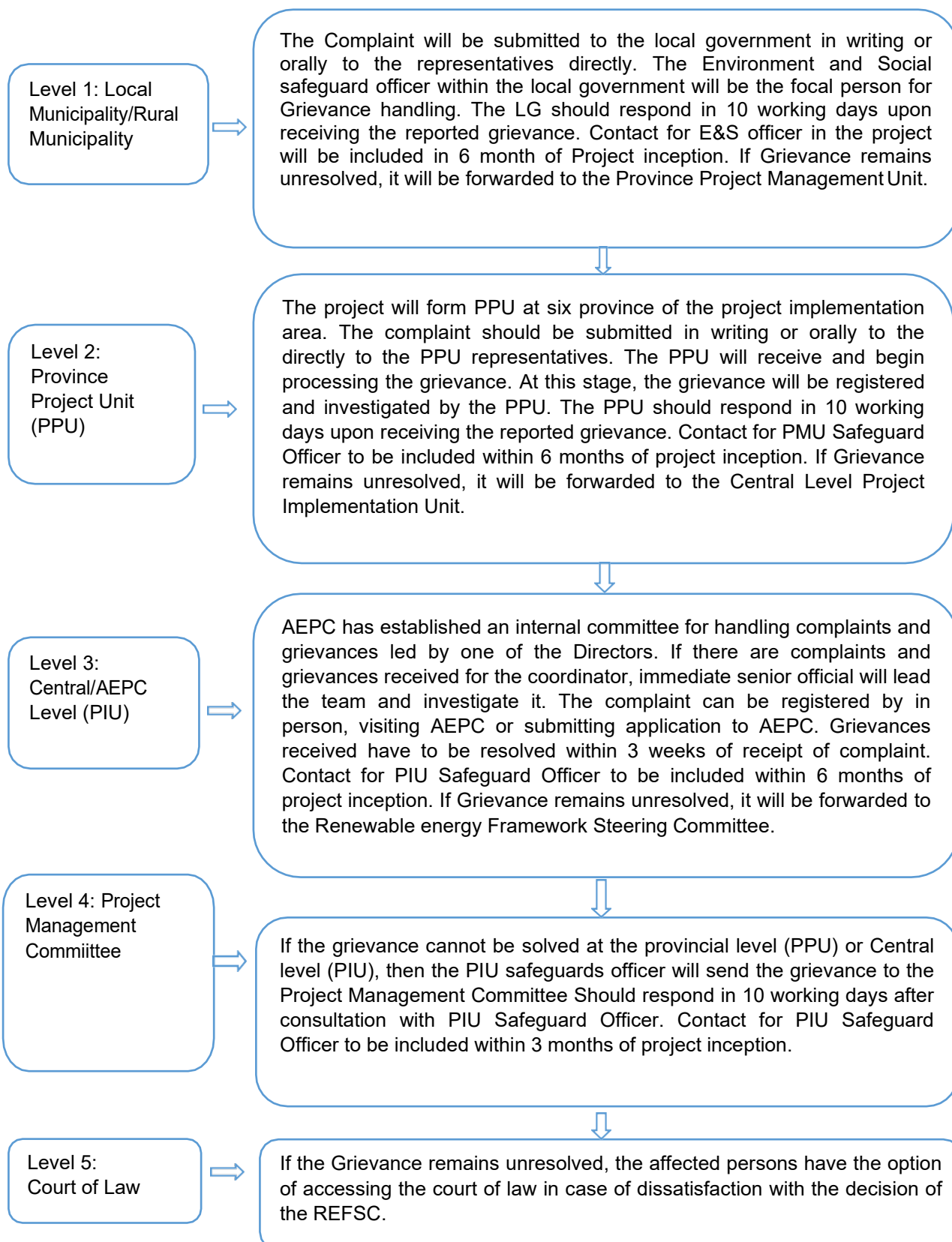
The E&S grievances are then forwarded to the Chief of Technology Promotion Division who will assign a relevant manager of the specific technical component to redress the grievance raised. The technical component manager will be supported by the experts from AEPC Environment and Social Safeguard (ESS) Section and AEPC Gender Equality and Social Inclusion (GESI) Section to settle the grievances.

During CCS project operation, the grievance redress mechanism shall ensure and allow information

and access to the GCF Independent Redress Mechanism in addition to the AE and the project's GRM.

### Grievance Redress Mechanism Process

The figure below describes the process that will be used to resolve any grievances related to this project:



## ANNEXES

### Annex 1: Documentation of Stakeholder Workshops and Consultations

#### **Sub-national Stakeholder Consultation Meeting for “Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)”**

AEPC had called for an interaction program on 22<sup>nd</sup> June 2020 with National Stakeholder and relevant stakeholders on the proposed project Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS) to collect their feedbacks on the project. The online consultation meeting started at 3 Pm sharp (NST) via Zoom. In total, around sixty people attended the meeting. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks. The meetings enabled interested and concerned parties to contribute their concerns, which might have been overlooked while preparing the concept note. Majority of the participants appreciated the project and wished for its smooth implementation. Additionally, meaningful consultation will be conducted periodically during the implementation phase with the concerned stakeholders with active participation of women's, Dalit's and vulnerable groups.

The tentative topics for discussion includes but not limited to:

##### **1. Role of LGs and involvement of NGOs at local level**

- Awareness on climate change at local level
- Energy planning and Role of local government in CCS promotion including funding (Municipal Energy Plans, Implementation, Any CCS program ongoing or implemented, what %of budget is usually allocated for CCS projects?)
- Any new policy/plans for CCS?
- NGOs currently working on CCS at local level and possibilities to engage them for the project

##### **2. ESS Risks/issues and mitigation measures**

- Key social, environmental, gender, economic and culture risks and issues with respect to CCS
- Possible mitigation measures

##### **3. Local level supply Chain**

- Baseline fuels for cooking,
- Capacity of local supply chain in meeting local demand,
- Any information of supply and demand of CCS at local level
- Expectations to improve the supply chain

## Quarries

### 1. Why the project targets only Terai region and no other geographical area (Hills and Mountains)?

The project is specially designed for Terai region to address their cooking needs and fuel wood problems. We will try to reach other geographical region during up scaling of the program with support from other development partners, Government of Nepal, provincial and local Governments.

### 2. Do the project cover whole district or only the selected municipalities? What are the criteria for household selection?

As we are planning to implement the project in partnership model, interested local and provincial governments will be selected based on their demands. Out of 284 local governments in the target area, we planned to reach at least 150 local governments and if the demand exceeds, we will try to address their needs too. The selection criteria will be defined at the project implementation phase.

## Feedback

- It is very good idea to involve Provincial Energy Coordination Committee (PECC) in province 2, Province 5 and Karnali Province for prioritizing the demand as this committee includes representative from provincial ministries, provincial planning commission, NEA province office, AEPC province team, NARMIN and MuAN.
- Trainings and Awareness should target the female (users) and not the household head.
- Experience from the past should be analyzed to ensure financial, utility, commodity sustainability of the project
- Value chain of ICS (Supply to target group users) should be analyzed to fulfill the gap
- Move forward by catching up bitter experience and golden experienced
- Community should be mobilized in stove distribution (trust fund).
- Local government should be consulted to reach the poorest of the poor.
- We need to assure the quality of cookstoves and construction of biogas.
- Poverty rate in Terai region is very high and there are households and community who don't have NEA meter or the households who cannot keep the meter due to lack of land holding documents. Thus, we need to address these households and communities.
- People were hesitant to adopt the mud ICS may be due to cultural or social barriers. Biogas seems to have much demand compared to ICS so increase the numbers.
- Community forest spends 25% of their total income in forest conservation and they have been spending the money in biogas and ICS. 37% poor female and vulnerable community can be integrated in community contribution for the project.
- Previous World Bank funded, REED and other projects are more focused in Terai region so may need to consider other geographical area.
- Biogas and electric cooking does not benefit poorest of the poor. Therefore, we need to explore more on how to make these pro poor.
- Actual demand should be created while collecting demand and explore the supply side. Options of various technologies should be given to the user to ensure the use of the stoves after deployment.
- Coordination with local government, involvement of female in stove making, distribution, and financial contribution of user creates the enabling environment for

stove promotion. At present, each local government has female representatives. They should be enrolled as a facilitator for the long run of the project.

- The poorest and most vulnerable communities cannot purchase the Tier 3+ ICS and even if the stoves are distributed free of cost, fuel wood is another major challenge. Most of them use cow dung as fuel which is not compatible with the available technologies. Research should be more focused to make technologies compatible with available local fuel sources so the most vulnerable can assess the technologies. Research development disseminations and delivery possibilities should be included in the project.
- Cooperation, collaboration, and coordination should be done with province level agriculture and forestry ministry.
- Activities relating to backward and forward linkage of the project should be carried out parallel along with technology installation. For example, installation of biogas should be linked with promotion of livestock farm and slurry management to promote the CCS.
- Strengthen supply chain by mobilizing the local workforce to provide after sales service.
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- Coordination, collaboration, and coordination should be strong enough. LG has allocated much budget in renewable energy and women empowerment. Thus while identifying partners; criteria should be transparent to gain more weightage.
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- Women promoters to effectively implement the project and targeted to the female and most vulnerable communities
- Service center at each province, repair maintenance center, development of local manufacturing company makes the project sustainable
- Collaborate with private sector, microfinance, NGOs,
- Project should be demand driven and should be focused on need based.
- Training to women on electrical safety and basic technical skills on using induction stoves increases the use of stove and increase their confidence

- Capacitate female to repair and maintenance to ensure sustainability and empower women
- Research and development to make technologies more efficient rather to replicate the same old technologies
- Strengthen existing Network rather than establishing new ones and allocate more budget to users.
- Sustainability: after sales service and focus on user sensitive programs to increase the use
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- Shifting to electric cooking may take long time, technical efficiency to user and private sector
- Focused on Socially adaptation of technologies
- Technological capacity development to ensure sustainability
- Provincial/local government should share the cost in technology
- AEPC budget should be focused on enabling environment including the development of
- Need to consider the technological barrier in adopting the electric cookstoves.

#### List of participants:

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## Photographs

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Recording

Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
**Alternative Energy Promotion Centre**  
Making Renewable Energy Mainstream Supply in Nepal

### Green Climate Fund

- Financial Mechanism within UNFCCC, established (COP 16- Cancun) to help developing countries to invest in low carbon resilient development.
- Acts as operating entity for implementing Paris Agreement
- Can access funding through different three windows.
- Half of the adaptation pool for LDCs, SIDS and African states.
- International Channel or Direct access by country.
- Direct access through Direct Access

Adaptation

GCF funding windows

Mitigation Private sector facility

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3:18 PM 6/22/2020

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Debu KC	Gopal Sharma	Vidya Deo Joshi	Pradeep Budhat...	pankaj kumar
Dil Bahadur Ayer	Jagdish pathak	ROBIN SHARMA	K	Ayush Acharya
Arun Dongol	Rajeev Shrestha	Subik Shrestha	Kushal Gurung	Parbata Bhatta
Tufel Khab	AThapa	AKumarKarna	Kimon Silwal	Pratima KC

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## **Private and banking sector stakeholder Consultation Meeting for “Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)”**

AEPC had called for an interaction program on 23<sup>rd</sup> June 2020 with National Stakeholder and relevant stakeholders on the proposed project Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS) to collect their feedbacks on the project. The online consultation meeting started at 11 Am sharp (NST) via Zoom. In total, around thirty five people attended the meeting. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks. The meetings enabled interested and concerned parties to contribute their concerns, which might have been overlooked while preparing the concept note. Majority of the participants appreciated the project and wished for its smooth implementation. Additionally, meaningful consultation will be conducted periodically during the implementation phase with the concerned stakeholders with active participation of women's, Dalit's and vulnerable groups.

The tentative topics for discussion includes but not limited to:

#### **4. Private Sector**

- Microfinance Institution, Finance, and Banking Sector Working in ICS and CCS
- Provision of loan to Beneficiaries or private sector for CCS
- Markets for CCS products in Nepal
- Business risk related to CCS and ways to minimize it
- Plans to expand CCS business

#### **5. Banking Sector**

- Microfinance Institution, Finance, and Banking Sector Working in ICS and CCS
- Provision of loan to Beneficiaries or private sector for CCS
- Financing and investment prospective, effect of taxes in RE financing
- Barriers in financing the market

Following were the major feedback from the meetings:

- ☐ Clear criteria for involvement of private sector should be defined to collaborate with them as an implementation partner.
- ☐ Demand perspective should be properly analyzed and demand should be created at local level collaborating with local government
- ☐ Investment sharing from users, developers, suppliers and banking sectors should be clearly defined
- ☐ Microfinance finance users/beneficiaries and bank to finance developer, manufacturer and supplier
- ☐ Technological barriers for electric cook stoves should be properly addressed. For e.g. Up gradation of existing transformer is necessary to surge the use of electrical stoves
- ☐ Convincing bank to invest in biomass sector is a major problem. Challenge fund is necessary to flourish this sector.

- ☐ Subsidize biomass/ raw materials for processed fuel to make it affordable for the poor, as replacing firewood by processed fuel at household level is very costly. The project should also target Tier 3+ stoves at both household and commercial level. It is because the consumption of processed fuel at household level is very low while it is high at commercial sector such as hotels and restaurants. As pellets is 60% cheaper than LPG, replacing LPG with pellets would create a huge difference.
- ☐ Subsidize change over system for industries to strengthen biomass/fuel processing industry.
- ☐ Reduce subsidy for technologies and support challenge fund and technical assistance to strengthen the supply chain component to ensure the sustainability of the project
- ☐ Need to focus on development of credit financing mechanism for entire value chain actor
- ☐ Risk sharing model envisioning certain portfolio needs to be introduced to minimize the collateral issue
- ☐ Strengthen CREF
- ☐ The project should also include other geographical area such as hills and mountains
- ☐ Need to focus on Research and development of existing technologies and support private sector
- ☐ Percentage of biogas for the project should be increased
- ☐ Activities should be designed in such a way to aware user to shift to higher tier cook stoves
- ☐ Mechanism to create enabling environment and subsidize interest rate should be developed
- ☐ Targeted household number should be matched with stove durability
- ☐ Existing private sector should be strengthened to engage them in project implementation
- ☐ Activities should be designed to enhance post purchase behavioral change to ensure the long term use of the stove
- ☐ Fund handling mechanism should be transparent.
- ☐ Insurance should be done for CCS technologies
- ☐ Enhance manufacturing sector by providing risk grant
- ☐ Research and development should be prioritized to enhance the product
- ☐ Subsidy for technology should be reduced and mobilize the fund to strengthen private sector
- ☐ Enhance domestic industries and after sales service to make project sustainable

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Participants (16)

Find a participant

- AO AEPC Online Meeting
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- AD Arun Dongol
- AA Astha Aryal
- AA Ayush Acharya
- BA Bhumika Acharya
- DD Dinesh Dulal
- KG Kushal Gurung
- MA manu arial
- RB Rana Bahadur Thapa
- SK Sushant KC
- TP Tanka Prasad Timsina
- YR Yub Raj Guragain

Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
Alternative Energy Promotion Centre  
Private and banking sector stakeholder Consultation Meeting for "Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)"

Date: 23<sup>rd</sup> June 2020  
Time: 11:00 AM to 1:00 PM (NPT)  
Venue: Zoom (Online consultation)

Program Facilitator: Mr. Prem Kumar Pokhrel, Climate and Carbon Financing Expert, AEPC

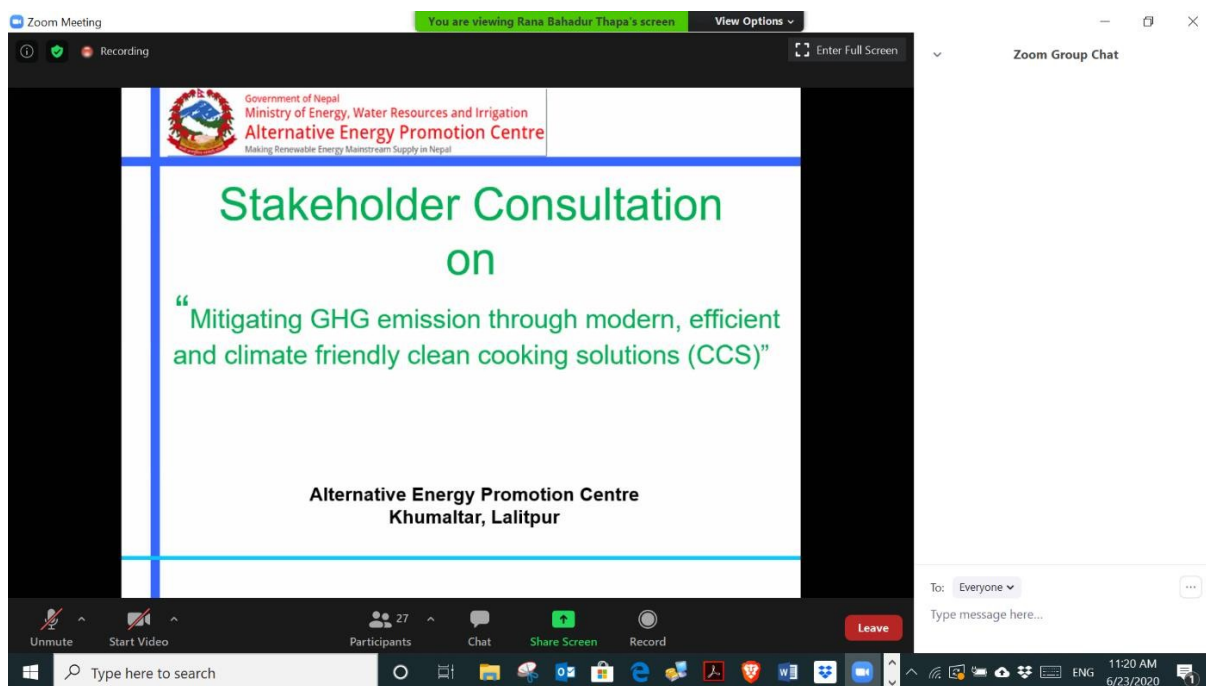
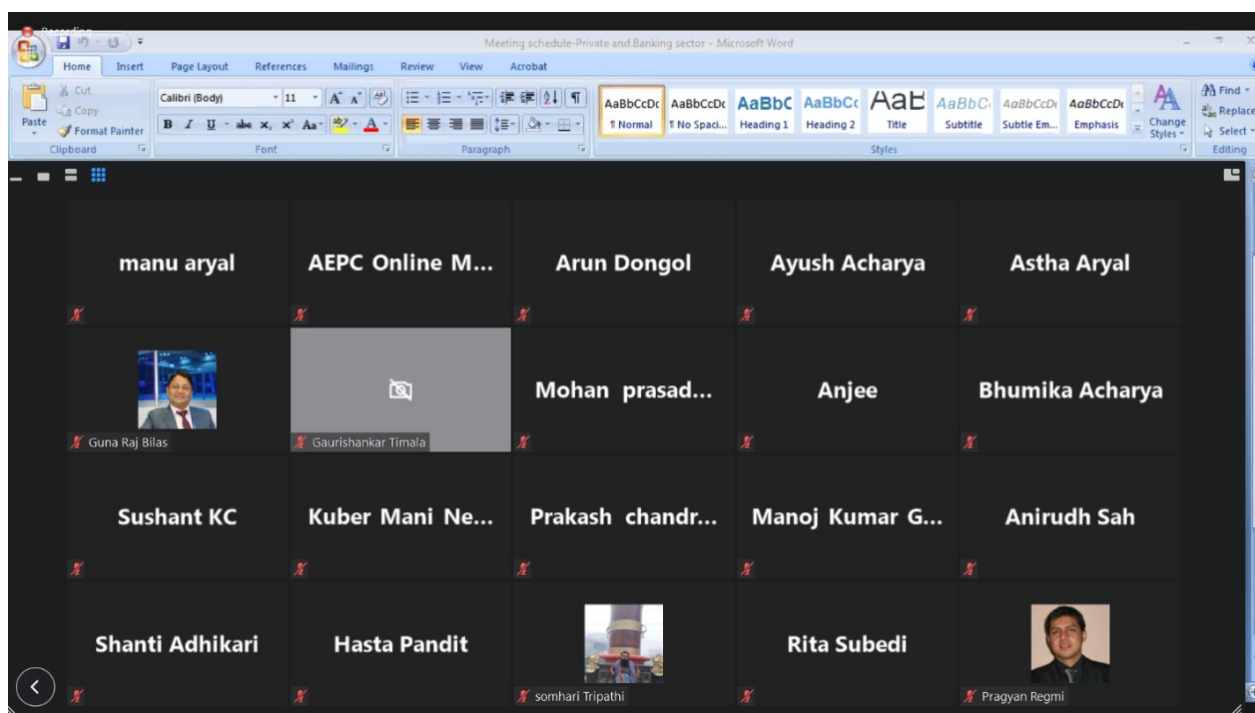
Schedule	Activities	Responsibilities
11:00-11:05	E-registration through zoom	All, Administered by AEPC
11:05-11:10	Welcome remarks and brief update on the context	Mr. Navaraj Dhakal, Deputy Executive Director, AEPC
11:10-11:30	Brief presentation on proposed project	Mr. Rana Bahadur Thapa, Sr. Officer, AEPC
11:30-12:55	Guided discussion among stakeholders: 1. Private Sector (60 Minute) • Microfinance Institution, Finance, and Banking Sector Working in ICS and CCS • Provision of loan to Beneficiaries or private sector for CCS • Markets for CCS products in Nepal • Business risk related to CCS and ways to minimize it Plans to expand CCS business 2. Banking Sector: (25 Minute)	Facilitator: Mr. Mukesh Ghimire, Assistant Director, AEPC

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## **National Stakeholder Consultation Meeting for “Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)”**

AEPC had called for an interaction program on 23<sup>rd</sup> June 2020 with National Stakeholder and relevant stakeholders on the proposed project Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS) to collect their feedbacks on the project. The online consultation meeting started at 3 Pm sharp (NST) via Zoom. In total, around forty six people attended the meeting. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Rana Bahadur Thapa, Sr. Officer, AEPC gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks. The meetings enabled interested and concerned parties to contribute their concerns, which might have been overlooked while preparing the concept note. Majority of the participants appreciated the project and wished for its smooth implementation. Additionally, meaningful consultation will be conducted periodically during the implementation phase with the concerned stakeholders with active participation of women's, Dalit's and vulnerable groups.

The tentative topics for discussion includes but not limited to:

### **1. Role of GoN and involvement of NGOs at national level**

- Awareness on climate change at national level and relevance of the CCS in respective working area
- Any CCS program ongoing or implemented, Any new policy/plans for CCS?
- Experience of Relevant project implementation modality of similar projects?
- Quality assurance, certification etc
- Financing options for CCS
- NGOs currently working in CCS at national level and possibilities to engage them

### **2. ESS Risks/issues and mitigation measures**

- Key social, environmental, gender, economic and culture risks and issues with respect to CCS
- Possible mitigation measures
- Any experience on ESS requirement for micro activities.
- Disadvantage group and indigenous peoples expectations

### **Feedbacks:**

- As the project is related to climate friendly cooking practices, coordinate with all other relevant ministry such as Ministry of Forest and Environment simultaneously with Ministry of Energy and Ministry of Finance to speed up the process.
- Detail process on financial flow mechanism should be clearly mentioned

- Need to comply with both GCF policy and strategy as well as country context
- Minimize management and administrative cost to 5% so as to provide maximum benefits to the users.
- Results should be tangible as much as possible
- Reduce subsidy as much as possible and encourage beneficiaries to invest in clean cooking technologies
- Biogas is proven technology in Nepal and has already been implemented in large numbers. So we need to justify why we need additional support for only 10,000 biogas plant. Also, we need to consider the number of Tier 3+ stoves as it is very high number to implement at household level.
- Achievement measurement should include the indicator to measure the number of users who will continue to use the CCS technology even after the project closure.
- As we don't have testing centers for Electric cook stoves and the standard has been newly developed, we have to pay special attention to ensure the quality of e cookstoves.
- Electric cooking is appropriate and cheaper in urban areas compared to firewood and LPG. But there are technological barriers to increase its use such as access to grid electricity and voltage fluctuations. Hence, coordination with relevant ministry and Nepal Electricity Authority is necessary for its successful implementation.
- Number of biogas to for project is very low. So we need to consider revising the number.
- Permanent structure should be established at LG level to ensure project continuation beyond project closure.
- Investment in TA support should be increased to create enabling environment.
- Role of supplier should be clearly defined.
- Need to develop policy to transit subsidy from LPG to e cooking.
- Consider revising target of 490,000 ICS because it requires processed fuel and chopped biomass which may increase work load for women and also may pose economic burden which may not seem practical for poor households.
- Female community health volunteers should be involved as clean cooking champions
- Awareness campaigns for behavioral change should be strongly included to fully transit to electric cooking.
- Gender equality and women empowerment should be strongly included.
- R & D works with emphasis on biomass cook stove should also be included
- Ensure easy access to repair and maintenance of electric cook stoves for successful implementation of the project.

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## Photographs

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Talking: Nawa Raj Dhakal

Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
Alternative Energy Promotion Centre

## National Stakeholder Consultation Meeting for "Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)"

Date: 23<sup>rd</sup> June 2020  
Time: 3:00 PM onwards (NST)  
Venue: Zoom (Online consultation)

**Program Facilitator: Mr. Prem Kumar Pokhrel, Climate and Carbon Financing Expert, AEPC**

Schedule	Activities	Responsibilities
3:00-3:05	E-registration through zoom	All, Administered by AEPC
3:05-3:10	Welcome remarks and brief update on the context	Mr. Nawa Raj Dhakal, Deputy Executive Director, AEPC
3:10-3:30	Brief presentation on proposed project	Mr. Rana Bahadur Thapa, Sr. Officer, AEPC
3:30-4:55	<b>Guided discussion among stakeholders:</b> <ol style="list-style-type: none"> <li><b>Role of GoN and involvement of NGOs at national level (60 Minute)</b> <ul style="list-style-type: none"> <li>Awareness on climate change at national level and relevance of the CCS in respective working area</li> <li>Any CCS program ongoing or implemented, Any new policy/plans for CCS?</li> <li>Experience of Relevant project implementation modality of similar projects?</li> <li>Quality assurance, certification etc</li> <li>Funding options for CCS.</li> </ul> </li> </ol>	Facilitator: Mr. Mukesh Ghimire, Assistant Director, AEPC

Activate Windows  
Go to Settings to activate Windows.

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The screenshot shows the Zoom application window during a meeting titled "National level stakeholder Consultation for Clean Coal". The left sidebar contains several icons: a headset icon labeled "Join Audio" below which it says "Computer Audio Connected"; two overlapping screen icons labeled "Share Screen"; and a person icon partially visible.

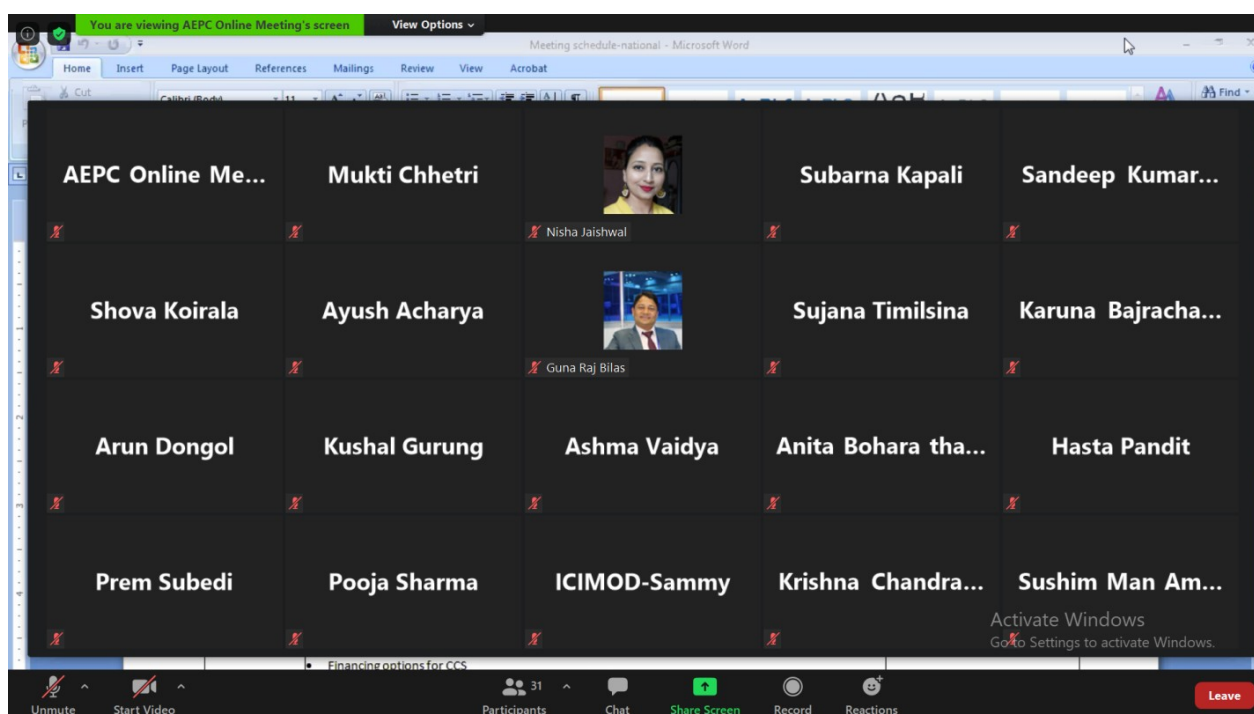
The main area displays the following information:

- Talking: [Redacted]
- Meeting Topic: National level stakeholder Consultation for Clean Coal
- Host: AEPC Online Meeting
- Password: 172684
- Invite Link: <https://us02web.zoom.us/j/85211018628?pwd=ZnpkZWVkdUo5eDdScEYydzBldjRlckFkbz09>
- Participant ID: 353124

A "Zoom Group Chat" panel is open on the right side, displaying messages from participants:

- From Badri Baral to Everyone: Congratulation Team AEPCL!
- From Hasta Pandit to Everyone: No subsidy for any type of CCS device or if we go that should be less than 20%.
- From Hasta Pandit to Everyone: NEA ko load time kasto xa? Kun time overload ra no load ko awstha xa?
- From Nisha Jaishwal to Everyone: Securing widespread adoption and sustained use of clean and efficient fuels and stoves is a big challenge  
So dissemination only is not important, we can attain our goal if these CCS technologies are adopted and used

At the bottom of the zoom window, there's a status bar showing system tray icons and the taskbar with various applications like File Explorer, Edge browser, Word, etc., along with the date and time: 4:24 PM, 6/23/2020.



## CCS supply chain Stakeholder e-consultation 11th June, 2020

### Overview:

AEPC is preparing a full funding proposal on “**Mitigating GHG emission through modern, efficient and climate friendly clean cooking solutions (CCS)**” for GCF. The project will contribute to mitigate GHG emissions and strengthen the resilience of most vulnerable communities to adapt to climate change. The project will address the specific barriers from transitioning traditional inefficient cooking practice to an efficient and climate friendly cooking solutions. Scaling up the government initiative on CCS, the proposed project aims at reducing an estimated 7.48 million tons of CO<sub>2</sub>eq by bringing transformative change in cooking pattern with wider usage of modern clean cooking solutions via Electric Cook stoves, Tier 3 Improved Cook Stoves and biogas.

The main objective of the proposed project is to surge the use of Clean Cooking Solutions by instigating the concepts of (i) bulk tendering via reverse auctioning for cost effectiveness (ii) result based financing for de-risking of investments and (iii) mainstreaming and capacitating local governments in the renewable energy (RE) sector

### Consultation objectives:

To understand the status, challenge of supply chain stakeholders in CCS sector and their expectations from the project.

The tentative questions for discussion includes but not limited to:

1. Are tier 3+ stoves manufactured in Nepal?

- If yes, could you please provide type of Tier 3+ stoves available in Nepal and their technical specifications?
- If not, what type of tier 3+ stoves are imported and in what volume?



2. Efficiency, Lifespan and Market price of Tier 3+ stoves
3. Fuel used in tier 3+ stoves and their availability (locally manufactured or imported), fuel manufacturer and sufficiency
4. After sales service and the warranty period of tier 3+ stoves
5. Existing repair center
6. Are their sufficient repair center and skilled technicians?
7. Support received from government
8. Expectations from government
9. Market Risk factor
10. Barriers in ICS sector
11. Emission profile, proven health and economic benefits, fuel savings obtained after shifting from lower tier to tier 3+ cook stoves

### **The Stakeholder consultation:**

The stakeholder e-consultation was held on 11th June, 2020, from 3 to 5 pm Nepali time, with participation of 42 individuals from various relevant organizations. It was facilitated by Mr. Mukesh Ghimire, Assistant Director of AEPC, where Mr. Kushal Gurung, from WindPower Nepal gave a brief overview of the project and solicited necessary information from the participants. Mr. Nawa Raj Dhakal, the Deputy Executive Director of AEPC, gave the concluding remarks.

Following were the key output from the meetings:

- Bulk tendering process need to be participatory to incorporate the need of end users and to provide as many options of technology for them to choose from.
- Fuel for tier3 stoves need to be affordable for the poorest households.
- The project should be technology neutral, providing room for variety of options in the procurement process. E-cooking stove should not be limited to induction stove, and other solutions such as infrared stove and electric pressure cooker also need to be incorporated in the option
- Private sector have the capacity to manufacture Tier3 stoves and fuels, however they need firm assurance of a market for them to increase their production capacity
- Focus on expanding market of e-cooking stoves from cities to rural areas and small towns, by interacting with the existing big wholesalers and distributors to see their challenge and requirement in expanding to other areas.
- After sales service is a must. There need to be quick availability of repair center at local level.
- To promote e-cooking stoves, house wiring need to be upgraded, the grid and transformer need to be able to support the load.
- Technical Assistance and Capacity Development should be concentrated in bringing behavioral change among the users. Activities like easy and affordable after sales service, training on operation and maintenance manual, e-cooking recipe book would accelerate the behavioral change process
- Capacity development program should also support innovation and R&D activities
- There need to be quantitative targets for technical assistance and capacity development activities
- Involving NGOs and other institutions already involved in CCS sector, in awareness raising program to accelerate the behavioral change, and create a technical network to reduce and response to accidents, such as short circuit and fire

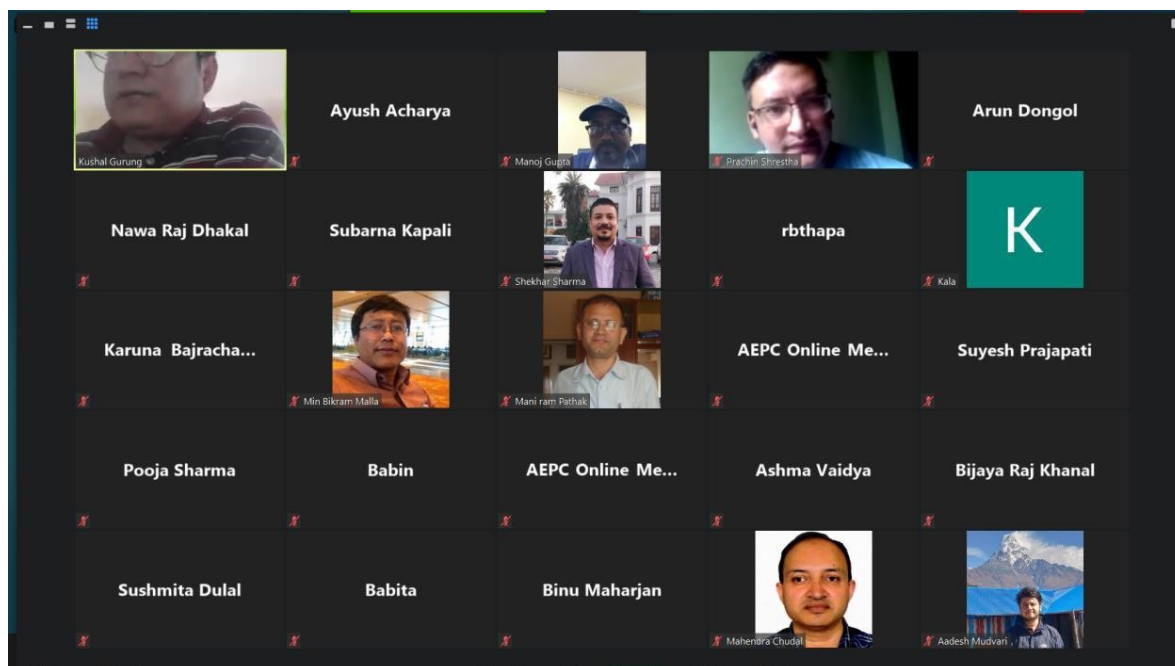
- AEPC should focus on quality of specification for tender and monitoring, and let Local Governments do the product delivery

### List of invited organisations

1. Ajummary Bikas Foundation
2. Biomass Energy Association of Nepal
3. Centre for Rural Technology, Nepal (CRT/N)
4. Clean Cooking Alliance (CCA)
5. Foundation for Sustainable Technologies
6. Husk Power Nepal
7. Institute of Engineering, Pulchowk Campus
8. Kathmandu Alternative Power and Energy Group (KAPEG)
9. Minergy Nepal
10. Namuna Biomass
11. National Association of Community Electricity Users' Nepal (NACEUN)
12. Nepal Academy of Science and Technology (NAST)/Renewable Energy Test Station (RETS)
13. Nepal Biogas Promoters Association (NBPA)
14. Nepal Energy Foundation
15. People, Energy & Environment Development Association (PEEDA)
16. Practical Action Nepal
17. Rural Technology Promotion Association Nepal (RuTPAN)
18. Shekhar Sharma
19. Shubha Biomass
20. Urja ra Batabaran ko Lagi Mahila Sanjal

### Photographs





## Annex 2: Environmental and Social Screening Checklist

## Environmental and Social Screening Checklist

## Part A: Risk Factors

The questions describe the “risk factors” of activities that would require additional assessments and information. Any “Yes” response to the questions will render the proposal not eligible for the Simplified Approval Process Pilot Scheme. Proposals with any of the risk factors may be considered under the regular project approvals process instead.

Exclusion criteria	YES	NO	Remarks
Will the activities involve associated facilities and require further due diligence of such associated facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No. As the project associated facilities donot have high risk, further due diligence is not required.
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to downstream riparian states?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project doesnot involve any kind of transboundary impacts
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women, child labour?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No the project will not have any adverse impact on working conditions and health and safety of workers. The project will capacitate the vulnerable community by providing skill development trainings and creating awareness on health and economic benefits of CCS.
Will the activities potentially generate hazardous waste and pollutants including pesticides and contaminate lands that would require further studies on management, minimization and control and compliance to the country and applicable international environmental quality standards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No the project will not generate any sort of hazardous waste.
Will the activities involve the construction, maintenance, and rehabilitation of critical infrastructure (like dams, water impoundments, coastal and river bank infrastructure) that would require further technical assessment and safety studies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No. Since the project would only involve the construction of domestic biogas plant, the project would not require any further technical assessment and safety studies
Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No. The project will not allow any Land acquisition, resettlement and dispossession, and economic displacement of persons and communities
Will the activities be located in protected areas and areas of ecological significance including critical habitats, key biodiversity areas and internationally recognized conservation sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	There are seven Protected Areas in whole Terai belt namely Koshi Tappu Wildlife Reserves, Parsa National Park, Chitwan National Park, Banke National Park, Bardiya National Park, Blackbuck Conservation Area, Sukhlaphaant National park and three Ramsar

			<p>sites such as Ghodaghodi Lake Area, Beeshazari and Associated Lakes, Jagdishpur Reservoir. In addition, the GoN has declared whole upstream Churia range as conservation area.</p> <p>The project do not have any direct linkage with the protected areas and will not affect any of these protected area as our beneficiaries settlement/household is far from the protected areas.</p>
Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No. The major beneficiaries of the project are indigenous people as the project aims to enhance their adaptive capacity. Thus, the project is not expected to adversely affect the indigenous peoples or ethnic communities. Instead, the project will bring about positive impacts as it will contribute to resource conservation and reduce potential conflicts over resources.
Will the activities be located in areas that are considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contains features considered as critical cultural heritage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No. The project do not pose any threat to cultural heritage sites.

## Part B: Specific environmental and social risks and impacts

Assessment and Management of Environmental and Social Risks and Impacts	YES	NO	TBD	REMARKS
Has the AE provided the E&S risk category of the project in the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Based on the GCF's and AEPC's Environment and Social Policy, the project in principle be categorized as C (Low risk).
Has the AE provided the rationale for the categorization of the project in the relevant sections of the concept note or funding proposal?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The Rationale for categorization of the project in C category has been mentioned in section G.1 (Environmental and social risk assessment) of Full funding proposal.
Are there any additional requirements for the country?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No. The project do not trigger any international commitments and national obligations.
Are the identification of risks and impacts based on recent or up-to-date information?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Yes. The risk are identified based on the recent information.
Labour and Working Conditions	YES	NO	TBD	

Are the proposed activities expected to have impacts on the working conditions, particularly the terms of employment, worker's organization, non-discrimination, equal opportunity, child labour, and forced labour of direct, contracted and third-party workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>No issues expected as the project promotes equal participation of male and female workers and there will not be any sort of gender discrimination.</p> <p>In addition, people from disadvantaged group (DAG), vulnerable community, ethnic minority, Indigenous people will be given priority in awareness raising campaigns and skill development training.</p> <p>Women will be given priority for the post of CCS facilitator at the local level.</p>
Will the proposed activities pose occupational health and safety risks to workers including supply chain workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No issues expected as Occupational health and safety (OHS) activities will be taken into account for the implementation of the project activities.
<b>Resource Efficiency and Pollution Prevention</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Are the activities expected to generate (1) emissions to air; (2) discharges to water; (3) activity-related greenhouse gas (GHG) emission; and (5) waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>No expected issues.</p> <p>In fact, the project has a very significant positive impact on resource efficiency and pollution prevention by mitigating GHG emission, saving fuel and reducing Indoor air Pollution. Implementation of the project would reduce 7.48 million tons of</p>
Are the activities expected to utilize natural resources including water and energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>No expected issues.</p> <p>The project would reduce the use of firewood by replacing inefficient stoves by tier 3+ ICS and Biogas.</p> <p>The project would also reduce the use of non-renewable imported fuel (LPG) replacing it by electric cookstoves.</p>
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not an issue as the project will not employ any polluting technologies, instead it promotes sustainable use of resources through implementing efficient and clean cooking technologies.
<b>Community Health, Safety, and Security</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Will the activities potentially generate risks and impacts to the health and safety of the affected communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The project contributes to community health safety by reducing indoor air pollution through replacing lower tier cookstoves by Tier 3+ ICS and biogas, and LPG by electric cookstoves.</p> <p>Use of clean energy source will reduce the workload of women in collecting firewood and leads to better life and improved health condition.</p>
Will there be a need for an emergency preparedness and response plan that also outlines how the affected communities will be assisted in times of emergency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No. As the project is of low risk and do not have negative impacts on community people, it is not required to prepare emergency preparedness and response plan.

Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>No issues expected as the projects will ensure the equal participation of male and female, and representatives from disadvantaged group, vulnerable community, single women and ethnic minority community reducing the conflicts at the project site.</p> <p>Safety risks from firewood collection can also be reduced by the implementation of biogas plant and Electric Stove.</p>
<b>Land Acquisition and Involuntary Resettlement</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Will the activities likely involve voluntary transactions under willing buyer-willing-seller conditions and have these been properly communicated and consulted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No issues expected as the project will not allow any Land acquisition and involuntary resettlement.
<b>Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Are the activities likely introduce invasive alien species of flora and fauna affecting the biodiversity of the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No issues expected as the project does not have any linkage with introduction of invasive alien species of flora and fauna affecting the biodiversity.
Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No issues expected.
<b>Indigenous Peoples</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Are the activities likely to have indirect impacts on indigenous peoples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues expected as the project anticipates generating numerous additional benefits to the indigenous and the most vulnerable people by reducing the pressure on forest resource and conserving their natural resource.
Will continuing stakeholder engagement processes and a grievance redress mechanism be integrated into the management / implementation plans?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The project will continue stakeholder engagement throughout the project period.</p> <p>A Grievance redress committee is established at central level (AEPC) and effective grievance redress mechanisms established to ensure that all complaints made by the public are handled in an effective and consistent manner.</p>
<b>Cultural Heritage</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>	
Will the activity allow continuous access to the cultural heritage sites and properties?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The project activity will not pose any threat to cultural heritage site.
Will there be a need to prepare a procedure in case of the discovery of cultural heritage assets?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project will be implemented at house level and do not have any linkage with the discovery of cultural heritage assets.