

NS-229 - Efficient use of biomass for equitable, climate proof and sustainable rural development

Georgia

NAMA Seeking Support for Implementation

A Overview

A.1 Party

Georgia

A.2 Title of Mitigation Action

Efficient use of biomass for equitable, climate proof and sustainable rural development

A.3 Description of mitigation action

About 400,000 households and public buildings in rural areas of Georgia use on average about 9 m³ firewood per household for heating and cooking (7 m³) and for hot water (2 m³). In total firewood consumption is about 3.6 million m³. 57% of used biomass or about 2,000,000 m³ is non-renewable. This leads to about 2,300,000 tCO₂ GHG emissions annually. Georgian forests are considered as unsustainably managed, thus this practice causes serious forest degradation. Rural households suffer from widespread energy poverty, spending average 30% of their income on energy. They lack access to finances and technologies to implement cleaner and more economic alternatives.

The **objective** of the NAMA is to foster climate resilient, low-carbon, sustainable rural development and poverty reduction in an inclusive way through building capacities and enhancing cooperation between stakeholders for promoting the use and up-scaling of Solar Water Heaters (SWH), Fuel Efficient Wood Stoves (FEWS), Energy Efficient Insulation (EEI) Measures in rural households and public buildings and sustainable forest management. Planned measures within pilot project are the installation of SWH and FEWS and implement EEI measures in 11,500 households, supported with a financial mechanism and sustainable forest management in 6 rural areas of Georgia.

The NAMA will contribute to **transformational change** in the energy supply of rural areas, which is based on inefficient use of biomass. The NSP aims for efficient use of biomass, by providing access to appropriate, innovative technologies through economically viable enterprises, who will continue production after the pilot project end in combination with a financial mechanism and a political mechanism for up scaling. An estimated 60,000 FEWS, SWH and EEI can be installed potentially until 2030.

Average 60% of the costs of the 11,500 SWH and FEWS and 100% of EEI will be contributed by households (est. 7,360,000 Euro) and state funding (est. 260,000 Euro). Additionally, at least 85,000 Euro will be private investment of the commercial production unit.

Through the NAMA, about 36,000 tons of CO₂ are mitigated per year (during the project lifetime about 360,000 tCO₂), with a potential for up to 188,000 tons of CO₂ annual emissions (during the project lifetime 1,880,000 tCO₂ in total) through up scaling. As co-benefits, rural people will reduce energy poverty and improve livelihoods in terms of that their energy needs are met, increased comfort and reduced labour burden.

Forest is protected from degradation due to reduced fuel wood consumption. 135 local jobs are created, and national energy dependency is reduced.

A.4 Sector

<input type="checkbox"/> Energy supply	<input type="checkbox"/> Transport and its Infrastructure
<input type="checkbox"/> Residential and Commercial buildings	<input type="checkbox"/> Industry
<input type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Forestry
<input type="checkbox"/> Waste management	

Other

A.5 Technology

<input type="checkbox"/> Bioenergy	<input type="checkbox"/> Cleaner Fuels
<input checked="" type="checkbox"/> Energy Efficiency	<input type="checkbox"/> Geothermal energy
<input type="checkbox"/> Hydropower	<input checked="" type="checkbox"/> Solar energy
<input type="checkbox"/> Wind energy	<input type="checkbox"/> Ocean energy
<input type="checkbox"/> Carbon Capture and Storage	<input type="checkbox"/> Low till / No till
<input type="checkbox"/> Land fill gas collection	

Other

A.6 Type of action

<input type="checkbox"/> National/ Sectoral goal	<input type="checkbox"/> Project: Investment in machinery
<input type="checkbox"/> Strategy	<input type="checkbox"/> Project: Investment in infrastructure
<input checked="" type="checkbox"/> National/Sectoral policy or program	<input type="checkbox"/> Project: Other

Other

A.7 Greenhouse gases covered by the action

<input checked="" type="checkbox"/> CO2	<input type="checkbox"/> CH4
<input type="checkbox"/> N2O	<input type="checkbox"/> HFCs
<input type="checkbox"/> PFCs	<input type="checkbox"/> SF6

Other

B National Implementing Entity

B.1.0	Name	Women in Europe for a Common Future (WECF)
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B.1.5	Contact Person 2	
B.1.6	Address	
B.1.7	Phone	
B.1.8	Email	
B.1.9	Contact Person 3	
B.1.10	Address	
B.1.11	Phone	
B.1.12	Email	
B.1.13	Comments	

C Expected timeframe for the implementation of the mitigation action

C.1	Number of years for completion	6
C.2	Expected start year of implementation	2016

D Currency

D.1 Used Currency

AED

Conversion to USD: 1

E Cost

E.1.1 Estimated full cost of implementation 12700000

E.1.2 Comments on full cost of implementation

E.2.1 Estimated incremental cost of implementation

E.2.2 Comments on estimated incremental cost of implementation

F Support required for the implementation the mitigation action

F.1.1 Amount of Financial support 2700000

F.1.2 Type of required Financial support

Grant

Loan (sovereign)

Loan (Private)

Concessional loan

Guarantee

Equity

Carbon finance

Other

F.1.3 Comments on Financial support

The implementing partners need funding for human resources to facilitate the set up of the private service providers and production, for capacity building of stakeholders and for campaign about the NAMA and its benefits in the target areas through direct community mobilization and an outreach campaign. Already implemented small scale projects have demonstrated the effect of this approach, resulting in villages with 30% of the household owning a SWH and a growing demand.

F.2.1 Amount of Technological support 2300000

F.2.2 Comments on Technological support

The local population cannot afford the proposed technologies without the financial mechanism, which foresees subsidies starting with max. 50% of technology costs and reducing that share each year, in addition with cheap accessible loans. Additionally, the private sector needs some initial investments in order to increase their production capacity.

F.3.1 Amount of capacity building support

F.3.2 Type of required capacity building support

Individual level

Institutional level

Systemic level

Other

F.3.3 Comments on Capacity Building support

F.4 Financial support for implementation required

F.5 Technological support for implementation required

F.6 Capacity Building support for implementation required

G Estimated emission reductions

G.1 Amount 360000

G.2 Unit MtCO2e

G.3 Additional information (e.g. if available, information on the methodological approach followed) **Baseline CO2 emissions** by rural households:

11,500 rural households and public buildings use on average about 9 m³ of firewood for heating, cooking and hot water, in total 103,500 m³ from which 57% is non-renewable. Wood average density is 685 kg/m³, calorific value 14.8 MJ/kg and GHG emission factor (0.112 kgCO₂/MJ)

Baseline emissions are estimated as:

67,045 t CO₂ = 103,500 m³ X 0.57 X 685 kg/m³ X 14.8 MJ/kg X 0.112 kgCO₂/MJ. From this amount 52,146 from 14,908 from hot water

Replacement of existing wood stoves (average efficiency about 35%) with efficient wood stoves (at least 70% efficiency) will reduce firewood consumption and GHG emissions by 26,073 tones. Installation of solar collectors will reduce firewood consumption by 67%. GHG emissions are reduced by Solar collectors 9,938. Emission reduction in total, 36,011 t. During 10 years (wood stoves and solar collectors lifetime) GHG emission reduction is about 360,000 tones of CO₂.

The reduction NAMA scenario is based only on technologies and not on forestry measures, because no data are available yet on reduction potential of improved forest management.

The Emission reduction potential for Energy Efficient Stoves has been determined by laboratory experiments, literature study and practical experience with pilot stoves in households. The promoted stoves have an efficiency of 70 % and thus save more than 50% of wood use and thus emissions.

The potential for Insulation measures depends on which measures are taken. Energy audits of typical rural buildings and practical experience have shown that by double glazing and sealings of windows and by insulating the roof about 20% energy can be saved. To be conservative, the GHG reduction potential has been neglected.

H Other indicators

H.1

Other indicators of implementation

I Other relevant information

I.1 Other relevant information including co-benefits for local sustainable development

Social:

- a. **Improved living standards** because increased availability of heat and comfort, energy needs are met, improving the status of rural life;

Importance: High, Georgia aims for integrated rural development targeted on small holders, and it reduces rural outmigration

- a. **Reduced labor burden** for women, as they are responsible for keeping the house warm, and for men as they are responsible for bringing and chopping firewood.

Importance: high, especially women suffer from a double work burden.

- i. **Increased gender equality** due to awareness raising and empowering women to play key roles in the local implementation of the NSP

Importance: High, the full potential of women is not used.

Economic:

i. **Reduced rural poverty by decreasing energy costs.**

Beneficiary households have to buy less firewood, gas and electricity and save around 30% of total energy costs.

Importance: High, rural people suffer from (energy) poverty. More available money is combating outmigration and enhancing sustainable development

a. **Enhanced economic development and strengthened private sector** by creating jobs and attracting investments in rural areas. Also the input suppliers will experience growth of their businesses

Importance: High, most development efforts are neglecting rural areas

f. **Reduced national energy dependency** as also gas and electricity use will be reduced

Importance: Medium, as Georgia has the possibility to import cheap gas and has clean electricity.

Environmental:

a. Save 241534 m³ of wood per year by 2021, **avoiding overcutting of forests**

Importance: high, as sustainable forest management is high on the national agenda and with current wood use rates impossible to achieve.

a. **reduced exposure to indoor air pollution**

Importance: high, because quality of life will increase and medical costs decrease

Protection of biodiversity due to improved forest management and habitat conservation

J Relevant National Policies strategies, plans and programmes and/or other mitigation action

J.1 Relevant National Policies

Georgia is non-annex 1 country to the UNFCCC . Thus, yet it doesn't have the quantified obligation to reduce greenhouse gas emissions from its territory. In June 2014, the Association Agreement has been signed with EU which explicitly points out collaboration on preparation of LEDS, as well as NAMAs.

There are several on going processes of major importance in this direction:

- The Government of Georgia (GOG) develops a LEDS, which is intended to represent a long-term, whole-of-economy plan to reduce the growth of GHG emissions while promoting economic prosperity.
- Georgia is implementing a NAMA on forestry. Additional to this NAMA, two NAMAs are under preparation; 1. On energy efficiency in the building sector and 2. On public transport
- In 2008, the EU launched the Covenant of Mayors (COM) process where signatory cities pledge to decrease emissions by 20% from the territory of city by 2020. The cities have to develop a Sustainable Energy Action Plans (SEAP), and monitor their implementation to report reduced emissions. 13 cities are currently signatories in Georgia.
- From the very start Georgia has been involved in Clean Development Mechanism (CDM) and has registered and

implemented six projects. These projects annually reduce 1 768 639 tons of CO2 eq. emissions.

- The Third National Communication project has prepared the disaggregated GHG inventory and mitigation strategy for Adjara Autonomous Republic (AR) and simplified SEAPs for Batumi and Poti. It also closely collaborates with GoG and other donors in preparation of LEDS.

Sector policies and strategies:

The contribution of renewable energy sources (including hydro and excluding biomass) to total primary energy increases from 16% to 23% over the years 2015-2030.

The high consumption of gas in the end-use sectors reflects the criticality of the need for energy diversification and shows the vulnerability of economic and social development to external factors. Natural gas is major fuel imported and its import increases by 57% in 2030 compared to 2012 levels.

J.2 Link to other NAMAs

K Attachments

K Attachments

Title	Description
GIZ-casestudy_finalnonlayout2015.pdf	Case study: Lessons from creating access to low-cost solar water heaters as the basis for the first gender-sensitive Nationally Appropriate Mitigation Action (NAMA) in Georgia

K.1 Attachment description

K.2 File

L Support received

L.1 Outside the Registry

L.2 Within the Registry

Support provided	SupportType	Amount	Comment	Date
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