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EUROPEAN NEIGHBORHOOD AND
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EAST COUNTRIES FOREST LAW
ENFORCEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA

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Program is funded by the Austrian Development Agency (ADA) with funds of Austrian Development Cooperation and implemented by the World Bank in partnership with IUCN and WWF

Environmental and Social Management Plan

for

***Briquette Production in Koghb Community of Tavush region, Armenia
(a pilot project aimed at sustainable use of forest resources and provision of
alternative livelihoods to communities)***

Prepared by WWF-Armenia

January 2016, revised in February to include WB comments

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1. FLEG II Program background

The European Union (EU) funded “*European Neighborhood and Partnership Instrument (ENPI) East Countries Forest Law Enforcement and Governance (FLEG) II Program*” (the “Program”) is aimed to support the participating countries strengthen forest governance through enhancing their forest policy, legislation and institutional arrangements, and implementing sustainable forest management models on a pilot basis. The Program is implemented in seven countries of the EU’s European Neighborhood and Partnership Instrument (ENPI) East region: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, and the Russian Federation.

The Program builds on initiatives undertaken under the first EU funded FLEG Program. Its implementation period is four years with end on December 31, 2016. The Program is supported by the European Commission contributing to a single-donor trust fund administered by the World Bank (WB). Austrian Development Cooperation (ADC) provides additional funds for complementary measures in Armenia and Georgia. Implementation of the Program is led by the WB, working in partnership with the International Union for Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF). The Program has three Development Objectives (PDO):

- 1) To make progress implementing the 2005 St. Petersburg FLEG Ministerial Declaration in the participating countries and support the participating countries commit to a time-bound action plan to ensure its implementation and follow-up activities (regional level).
- 2) To review or revise (or establish a time-bound action plan to review or revise) forest sector policies and legal and administrative structures; improve knowledge of and support for sustainable forest management and good forest governance (including the impact of related EU regulations) in the participating countries (national level).
- 3) To test and demonstrate best practices for sustainable forest management and the feasibility of improved forest governance practices at the field-level on a pilot basis in all participating countries (sub-national level).

The Program in Armenia deals with a number of issues according to the objectives above. In particular, it is mainly focused on the works supporting legal and institutional review and reforms, building human resource capacity to address FLEG issues, public awareness and public monitoring of the forests, strengthening sustainable forest management through activities with model forest units such as forest protected areas and activities on sustainable use of forest resources with involvement of adjacent communities as well as improving the FLEG planning and monitoring at the national, regional (local) and international levels.

2. Pilot project on sustainable use of forest resources

Location

A pilot project on sustainable use of forest resources and alternative livelihoods was developed in the frames of FLEG II. It is aimed at development of (wood) briquetting in Tavush Region of Armenia to make use of fuel-wood resources more efficient and reduce pressure on forest resources and land degradation caused by loggings for fuel-wood.

Only one briquetting unit is planned for establishment by the Program, as it is a pilot project and the Program budget allows only for one briquetting unit. Should the intervention prove successful, then efforts will be undertaken to replicate the practices in other areas of Armenia.

A business plan for the pilot project implementation was also developed, and an entity (firm/ NGO/LLC) will be selected to implement the project.

Selection criteria applied for selection of target communities

The criteria applied for selection of the beneficiary communities for the project are as follows:

- 1) Government of Armenia encourages and prioritizes implementation of social projects in the bordering villages to mitigate people's psychological and social conditions.
- 2) Communities are dependent on forest products and are resident communities at the edge/bordering the forests.
- 3) Presence of facilities for the smooth functioning of the briquetting unit.
- 4) Acceptability of the community to pilot this intervention without disturbance of their regular livelihood activity.
- 5) Transportation of raw material should be minimal to avoid increases in cost of production.
- 6) Close distance to and good relations with FE to facilitate continued access to forest residual waste and supply of waste wood being the primary raw material for the activity.
- 7) Access to availability of large quantities of straw and other agricultural remnants.

Social background of the beneficiary community

Three communities were selected as target communities for the pilot project so that to have examples of use of briquettes in three different locations (communities), which shall contribute to wider dissemination of the experience and effectiveness of briquettes and stoves. The selected communities are Koghb, Dovegh and Berdavan, they meet the selection criteria.

The number of selected communities was limited and no more communities could be selected as it is a pilot project and its actions are limited by the FLEG II Program budget. Moreover, the other communities are located rather far from Koghb community, which implies higher transportation costs; it could become an obstacle for successful implementation of the pilot project.

The briquetting unit will be established in Koghb community, where there are respective facilities. Two other communities Berdavan and Dovegh are located in close distance to Koghb, which shall make easier transportation of raw material to the briquetting unit and transportation of ready briquettes back to the communities. All three communities are located in the forested area and these are bordering communities.

In total 15 rural households from the target communities (5 households per community) will be selected to get on free of charge basis ready wood briquettes for use as heating material; they will be provided with special stoves supported by FLEG II (see Annex 1. Procedure and draft criteria for selection of pilot households). Each household will get briquettes equivalent to 8 m³ of wood. They are expected to participate in production processes upon defined needs.

Purchase and provision of the equipment by WWF-Armenia will be organized during the first half of 2016 so that the briquetting unit is functional by autumn 2016. The list of respective activities is given in Annex 2.

Foreseen process of implementation

Final decision on the entity to implement the project on wood briquettes should be made through selection based on requirements for being able to operate the briquetting unit. The selection procedure started in January 2016 by WWF-Armenia (see Annex 3 for selection of the entity to operate the briquetting unit). There will be a trilateral Memorandum of Understanding signed between WWF-Armenia, “Hayantar” SNCO and the implementing entity to define the roles and responsibilities. Some functions of the entity are mentioned in Annex 2. In particular, the partners should guarantee the legal bases of the supplied raw material. WWF-Armenia will support the project by provision of the needed equipment for briquettes production in the frames of FLEG II.

The briquettes will be produced from wood and agricultural residuals (straw) on half-half basis. The wood raw material will include residual waste wood from sanitary/maintenance activities implemented by the FE (to be provided by “Hayantar” SNCO free of charge) and some additional amounts of wood sold by the FE. The residual straw from agricultural fields from the communities adjacent to the briquettes production unit will be used. The table below shows respective amounts of raw materials.

Table 1. Raw material to be used for the briquette production

Type of raw material	Amount (annually)
Residual waste wood from sanitary/maintenance activities	264 m ³
Wood sold by the FE	616 m ³
Wood from households for production of briquettes free of charge	120 m ³
Straw	528 tons

The production unit will serve as an additional work place for the local population of nearby communities. The population will be involved in operations of the production unit, as well as in the activities on collection, preparation and transportation of raw material. The workforce to be involved include 2 workers and 1 guard (permanent staff) as well as a number of seasonal workers to ensure supply of raw material.

ESMP background

This activity was rated as B category (moderate impact), which according to the Environmental Assessment and Management Framework (EAMF) requires a limited Environmental Assessment (EA) and/or an Environmental and Social Management Plan/ESMP (only the most evident issues to be addressed; some standard mitigation measures and monitoring needed).

The ToRs for environmental and social safeguards was approved by the WB in October 2015 and disclosed on FLEG 2 web-site (<http://www.enpi-fleg.org/news-and-events/public-consultations/>) and WWF-Armenia web-site

(http://wwf.panda.org/who_we_are/wwf_offices/armenia/projects/ongoing/fleg_ii_program/). It

was also disclosed to the target communities during the meetings with them in October 2015 (see section 5 below).

Based on the ToRs and community consultations, Environmental and Social Management Plan (ESMP) has been prepared for this activity. The ESMP consists of a set of mitigation and monitoring measures to be taken during the implementation of the pilot project, in order to eliminate possible adverse environmental, economic and social impacts, reduce them to acceptable levels or offset them, as applicable. The ESMP will be implemented by WWF-Armenia and the entity to be selected for operating the briquetting unit. The WB will oversee its implementation.

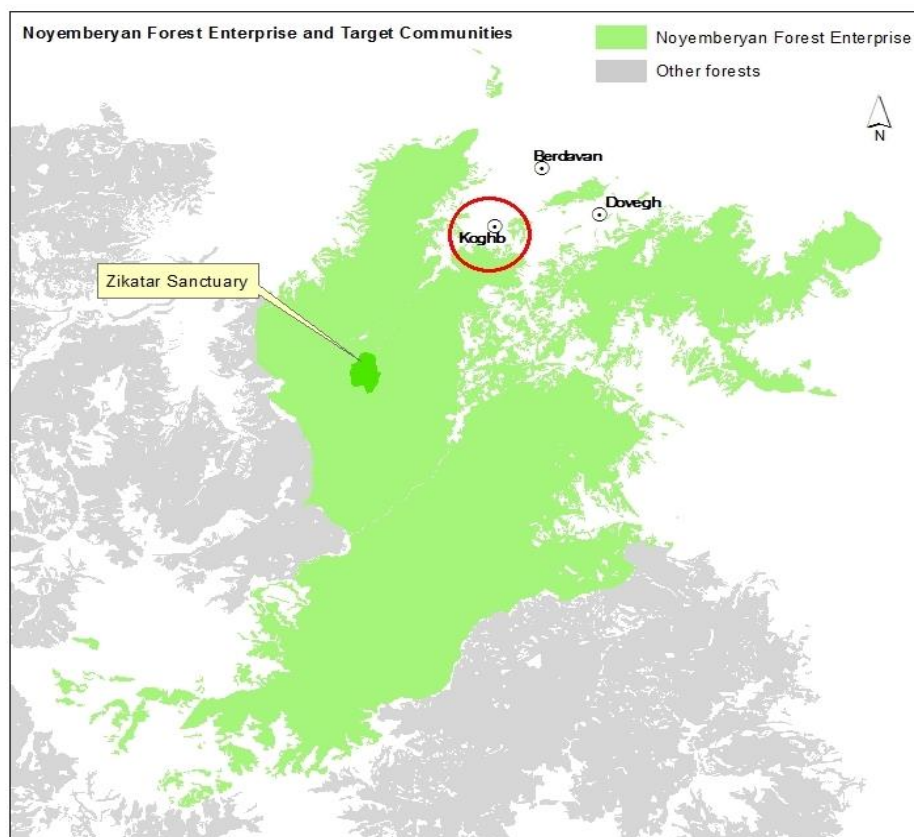
The approved ESMP will be disclosed on both FLEG 2 and WWF-Armenia web-sites as well as to the target communities through further meetings with them during implementation of the pilot project.

3. Pilot project area

The pilot project area is located in Noyemberyan FE of “Hayantar” SNCO (Tavush Region, Northern Armenia). It includes the communities Koghb, Dovegh and Berdavan. The wood briquetting unit will be located in Koghb community, in all three communities selected households will be provided with special stoves to test and demonstrate the effectiveness of briquettes in comparison with wood.

The Figure 1 below shows Noyemberyan FE and pilot project area with 3 pilot communities.

Figure 1. Map of Noyemberyan FE and Target Communities



As the wood for briquetting will come from various parts of Noyemberyan FE, below some details on it are presented.

Noyemberyan FE is located in Tavush region of Armenia (Northern Armenia). Forests and forest lands of Noyemberyan FE make 29245 ha out of which 27001 are forested areas.

Noyemberyan forest region is fully located in Ijevan floristic region, where forests make the main type of vegetation and only tiny proportion of areas is occupied with dry open woodlands and sub-alpine communities. In Ijevan floristic region 160 woody species belonging to 45 families have been registered (77 tree and 83 bush and liana species). About 80% of the mentioned species occur on the territory of FE. Rich biodiversity and well-developed forests with domination of oak and beech stands are typical for the FE.

Figure 2. Views of Forests of Noyemberyan FE





The main tree species include beech (*Fagus orinetalis*), oak (*Quercus iberica* and *Q. orientalis*) and hornbeam (*Fraxinus sp.*). The main accompanying species include ash, lime-tree, maple, elm and others, which accompany mixed or complex beech and oak stands. In some cases they occur as small homogenous stands. In the forests there are fruit and berry species such as apple, pear, plum, cornel cherry, hawthorn, dog-rose, blackberry, medlar and others.

In the lower mountain zone (up to 1000 m above sea level) forests are represented by hornbeam coppices with considerable mixture of oak, ash, maple and elm. Hornbeam stands are of secondary origin and they have appeared after the original oak stands have been logged.

On southern slopes at the altitudes of 700-1400 m there are juniper open woodlands with mixture of hackberry, buckthorn and other species resistant to dry conditions. Walnut in this area is represented by individual trees or small groups of trees.

In the middle mountain zone (1000-1700 m) the northern slopes are mainly occupied by beech stands and the southern slopes – by oak communities. The beech stands have a mixture of hornbeam, oak, lime-tree and ash.

The southern slopes up to 1200 m are occupied by mixed oak forests (*Q. iberica*). At the altitudes of 1200-1400 m oak forests are often represented by both oak species (*Q. iberica* and *Q. macranthera*). Above 1400 m up to the upper timberline the oak forests are represented by *Q. macranthera*. The oak stands are characterized by mixed structure with accompanying species of hornbeam, ash, maple, lime-tree, apple and pear.

Among the Red Listed species, which occur on the territory of Noyemeryan FE, the followings can be mentioned: *Galanthus alpinus*, *Aristolochia iberica*, *Gladiolus italicus*, *Gladiolus tenuis*, *Asphodeline dendroides*, *Colchicum umbrosum*, *Smilax excels*, *Alcea Sosnovskyi*, *Clematis vitalba*, *Verbascum formosum*.

Usually, lots of small branches and residual wood remains in the logging areas after completion of loggings. Generally, it is not used and remain in the logging areas due to the far distance from communities and difficulties of their transportation by community inhabitants.

Figure 3. Remaining residual wood in the logging areas



4. Pilot communities

The pilot project area includes 3 communities: Koghb, Berdavan and Dovegh. The data on the communities with the number of inhabitants and main sources of their income are presented in the table below.

Table 2. Information on communities in the pilot project area

N	Community	Number of inhabitants	Main sources of income for households
1	Koghb	4530	Livestock breeding, horticulture, growing of vegetables
2	Berdavan	3278	Livestock breeding, horticulture, growing of vegetables
3	Dovegh	570	Livestock breeding, horticulture, growing of vegetables

All of the communities are dependent on forests and forest resources in terms of wood and non-wood forest products (fruits, berries, mushroom, edible plants and others). Though the communities have gas supply, the majority of households still use fuelwood for heating and cooking as cannot afford high price for gas (and electricity).

5. Community consultations

The pilot project implementation involves intensive consultations with communities. In particular, WWF-Armenia through FLEG II funds will supports:

1. Meetings with local population during development and implementation of the pilot project.
2. Addressing all potential problems and/or grievances with the local population.
3. Monitoring the project implementation to implement necessary socio-economic and environmental safeguards.

Initial meetings and consultations with communities started in 2014 when development of the pilot project was commenced by WWF-Armenia. They included an initial round of meetings with some communities to discuss the pilot project idea and feasibility of its implementation.

Later in more advanced stages of the pilot project development more formal meetings were organized with some communities to discuss social, environmental and economic issues, further steps and the ways of community engagement in the project implementation.

The round of meetings with the target communities Dovegh, Koghb and Berdavan was implemented in October 2015. One meeting was organized also in Noyemberyan town as it is the administrative center of Tavush Region and located very close to the target area (see Figure 4 below).

Among others the ToRs for environmental and social safeguards was disclosed to the communities during the meetings.

Figure 4. Meetings with the communities in October 2015



Meeting in Noyemberyan, 27 October 2015



Meeting in Dovegh, 28 October 2015

The meetings with the communities revealed the following main findings:

1. All the communities use fuelwood for heating and cooking as cannot afford high prices of gas and electricity. The average proportion of households using fuelwood is about 70% (in some communities up to 90%). In average, each household uses up to 15 m³ of fuelwood annually (Figure 5). However, recently there is a trend of installing centralized boilers in private houses and in such cases the fuelwood consumption increases up to 25 m³ annually.

Figure 5. Use of fuelwood by communities



2. There are various agricultural remnants in the communities suitable for use to produce briquettes. The remnants of corn, sunflower and other crop cultivation can be provided for briquetting. In some cases the community inhabitants would be glad to get rid of these remnants on their fields, which create problem for them. Very often they have to burn the remnants, which causes environmental problems.
3. It was mentioned by the communities that reduction of forest loggings for fuel-wood (which is planned by the pilot project) is important for improvement of the health of forests and their livelihoods through use of non-wood forest products.
4. The community inhabitants do not use residual wood from maintenance/sanitary logging areas as they are too far from communities. Besides such remnants are not good as fuelwood due to their low calorific value. They collect waste wood from closer forest areas (up to 8 m³ of free of charge waste wood per household for heating and cooking purposes as per the RA Government decision N1535-N dated 27 October 2011). The use of residual wood from logging areas for briquetting purposes cannot restrict their access to fuelwood.
5. The residuals from sawmills were suggested for consideration as another sources of raw material.
6. It will be needed to show in practice the advantages of briquettes in comparison with traditionally used fuelwood. This relates both to the efficiency and price. As soon as it is proved that briquettes are more efficient, the market for it will rise. It was suggested to consider provision of the stoves to some public entities, such as schools and kindergartens. In

case they prove their efficiency, they could serve as good examples for numerous employees for use of briquettes in their houses.

7. In general, the meetings revealed that the local communities are in favor of the pilot project, which is going to provide more efficient type of fuel and reduce forest degradation.

More meetings (in the frames of the EA process) are envisaged with the local communities, to address all possible socio-economic issues and to avoid possible negative impacts.

6. Potential positive and negative impacts of the planned pilot project on the environment

Critical Natural Habitats

Critical Natural Habitats will not be affected by the pilot project. The raw wood material will come from residual waste wood/ remnants from sanitary/maintenance activities implemented by Noyemberyan FE, also some amounts of wood sold by the FE. The annual allowable cut (AAC) is defined for Noyemberyan FE (as well as all the other FEs of “Hayantar” SNCO) on the basis of the management plan and other conditions. Wood is obtained from defined areas out of protected areas or valuable forest areas in terms of biodiversity and ecosystems. Thus, no negative impact is expected on valuable forest areas of Noyemberyan FE.

Use of wood as raw material

There is a risk that excess use of raw wood material or some amount of wood resources from illegal sources can be offered to the briquetting unit to be used as raw material. However, in general the prices for agricultural remnants are cheaper than for wood especially as in some cases the communities would be glad to get rid of such remnants on their fields and ready to provide it for free if someone arranges their collection and transportation. Therefore, if properly organized there is a possibility to increase the proportion of agricultural raw material for briquetting.

The MoU signed between WWF-Armenia, “Hayantar” SNCO and the entity responsible for operating the briquetting unit will clearly define the requirement on exceptional use of legal raw material. The provision of using legally obtained wood should be a part of donation documentation to be signed between WWF-Armenia and the entity responsible for operating the briquetting unit.

Forest degradation

By the pilot project the half of the raw material will come from agricultural lands. It means that a new type of fuel (briquettes based on agricultural remnants) will be offered with the price equivalent to fuelwood. If the pilot project with provision of stoves to 15 pilot households proves their efficiency, then the pressure on wood resources should be reduced (in a longer term) with consequent reduction of forest degradation due to use of wood forest resources as fuelwood. Thus, in a long-term perspective the pilot project has a potential to have a positive environmental impact through decreased forest degradation. No other negative consequences are expected for forests in the pilot project nearby areas.

Possible environmental pollution

The briquetting equipment planned for the pilot project implementation includes 2 shredders, drying complex and briquetting machine. All the equipment will work on electricity and the emissions from their functioning are minimal. The emissions from transportation of raw material

(wood or others) to the briquetting unit will be similar to those coming from transportation of wood or other types of fuel to the households (if the briquetting unit does not operate). Therefore, no additional or extra emissions are expected from functioning of the briquetting unit.

No additional substances will be used at any stage of the briquetting including its last stage when the briquettes are assembled through pressing the ready (small enough) particles. This will ensure no emission of any harmful substances in the process of burning of briquettes.

7. Potential positive and negative socio-economic impacts of the planned pilot project

Access restriction

Implementation of the pilot project will not restrict the access of local population to fuel-wood, as the amount of raw wood material includes: 264 m³ of residual waste wood from sanitary/maintenance activities (which usually is not used and remain in the activity area due to far distance from communities and low calorific value of wood remnants), 616 m³ of wood sold by FE (out of total AAC for Noyemberyan FE of about 6300 m³, which makes less than 10%) and the rest is straw from agricultural lands. Therefore, no negative impact is expected in terms of restriction of access to wood used as fuel-wood.

Provision of alternative fuel

The pilot project implies provision of a new type of fuel (briquettes) based not only on wood, but also agricultural remnants. It was calculated that the price of briquettes will be equivalent to the price of fuelwood (considering respective calorific values). Therefore, there will be a positive impact through provision of alternative fuel to communities.

Impact on livelihoods

The main sources of income for the communities adjacent to Noyemberyan FE come from agriculture (see Table 2). Meanwhile, implementation of the pilot project cannot have negative impact on agricultural practices. On contrary, it can have certain positive impact as the community inhabitants will have a chance to sell the residuals from their agricultural lands to the briquetting unit to be used as raw material. This can create an additional source of income for the communities.

Employment opportunities

The pilot project will offer new (permanent and seasonal) employment opportunities. The briquetting unit will need at least 3 permanent positions. But the main part of employment opportunities is connected with the need for workforce to prepare and transport residual waste wood from logging areas as well as agricultural residuals to the briquetting unit. Therefore, it is expected that more people will be engaged in seasonal work with additional sources of income.

Provision of stoves and briquettes to pilot households

According to the pilot project 15 households from 3 communities will be provided with fuel briquettes and energy-efficient stoves. They will bring up to 8 m³ of waste wood (what they usually get for free as per the governmental decision N1535-N dated 27 October 2011) to the briquetting unit and get respective amount of briquettes to be used in respective energy-efficient stoves to be provided by FLEG II. Certainly, this is a positive impact expected from implementation of the pilot project.

The selection of pilot households will be done through contacting the community administrations to get information about the most vulnerable households in the communities' dependent on the annually 8m³ of free wood. The opinion of the community councils will be taken into consideration. Details on selection of pilot households and criteria are presented in Annex 1.

In summary, the livelihoods of local inhabitants nearby the pilot project area will not be significantly affected by implementation of the pilot project. The probability of positive impacts on the livelihoods of local people is higher than the risk of negative impacts.

There is some probability that might be complaints from other than target communities. If such case happens, then meetings shall be organized with the community to explain the pilot character of the project and possibility of its replication if successful.

Labor safety

Safety of the labor to be engaged in the pilot project will be ensured through hiring field staff experienced in collection and transportation of wood resources from forests. There are many such people in the target communities as this has been a common practice for almost all households in the region during decades. The personnel engaged in operation of the briquetting unit will be trained beforehand by the provider of the briquetting equipment.

8. Environmental and Social Impact Mitigation Plan

Although no significant negative impacts are expected from the pilot project implementation, certain measures are planned to avoid potential problems, difficulties or grievances. Efforts will also be made to maximize the positive impacts. Table 3 below lists the components of the pilot project implementation, which can have potential negative impacts as well as respective mitigation efforts.

The entity operating the briquetting unit and WWF-Armenia will be responsible for implementing safeguard and impact mitigation measures. This will include periodic visits by WWF-Armenia to the pilot project area and meetings with the communities (including the households provided by the stoves) to discuss the outcomes of the project and possible problems and difficulties. In case of problems, they should be discussed jointly with the entity operating the briquetting unit and possibly "Hayantar" SNCO to find a solution and resolve the problems in a timely manner.

Table 3. Environmental and Social Impact Mitigation Plan

No.	Components of the pilot project	Expected impact	Mitigation measure	Estimated cost of mitigation	Responsibility for mitigation	Responsibility for supervision and reporting
	Use of wood as raw material	Excess use of wood as raw material and use of illegal wood resources	MoU between WWF-Armenia, "Hayantar" SNCO and the entity responsible for operating the briquetting unit Donation contract between WWF-Armenia	Briquetting equipment will be purchased in the frames of FLEG II (budget is available)	Entity responsible for operating the briquetting unit; WWF-Armenia (provision of	WWF-Armenia; "Hayantar" SNCO

No.	Components of the pilot project	Expected impact	Mitigation measure	Estimated cost of mitigation	Responsibility for mitigation	Responsibility for supervision and reporting
1			<p>and the entity responsible for operating the briquetting unit with specifics of supply quantities during the duration of the project.</p> <p>The arrangements for supplies beyond the project period and for replication of activities will be drawn up before closure of the project, depending on the success of the intervention.</p> <p>Briquetting equipment suitable for use of remnants from agriculture as raw material.</p>		respective equipment through FLEG II)	
2	Use of waste wood as raw material	Access restriction to fuelwood for communities	Use of residual waste wood from logging areas, which are not too far and inaccessible for the communities	No additional costs	Entity responsible for operating the briquetting unit	WWF-Armenia; "Hayantar" SNCO
3	Employing workforce	Employing workforce out of the pilot area communities, which might create grievances among the locals	<p>Employing workforce from the communities nearby the pilot project area, which will reduce the cost of employment.</p> <p>No child labor will be used for this livelihood program</p>	No additional costs	Entity responsible for operating the briquetting unit. WWF will monitor, report and ensure that child labor is not used/applied in this project	WWF-Armenia
4	Labor safety	Unsafe occupational environment	<p>Hiring experienced personnel for raw resource preparation and transportation</p> <p>Training of the personnel</p>	No additional costs	Entity responsible for operating the briquetting unit; WWF-Armenia	WWF-Armenia

No.	Components of the pilot project	Expected impact	Mitigation measure	Estimated cost of mitigation	Responsibility for mitigation	Responsibility for supervision and reporting
5	Use of briquetting equipment	Environmental pollution	Purchase of equipment using electricity and no use of additives for the last stage of production to ensure assembling (gluing) of briquettes	Briquetting equipment will be purchased in the frames of FLEG II (budget is available)	WWF-Armenia (provision of respective equipment through FLEG II)	WWF-Armenia
6	Selection of target communities	Complaints from other than target communities	Meetings (in case of complaints) with the community to explain the pilot character of the project and possibility of its replication if successful. A Grievance redressal mechanism will be put in place for addressing concerns /complaints of community	No additional costs	WWF-Armenia	WWF-Armenia
7	Selection of target households	Complaints from other households	Transparency of the selection process as per Annex 1. Minutes from the evaluation process according to the defined criteria.	No additional costs	WWF-Armenia	WWF-Armenia
8	Operation of an entity for operating the Briquette unit	Mismanagement of operation and financial management	WWF to provide handholding support to train and build capacities of the constituents of the unit on operation, procurement and financial management. Annual audit of the expenditure in compliance with local laws, and included in the progress report.	<ul style="list-style-type: none"> ➤ Grant funds provided to the project; ➤ Earnings from the project; ➤ Equipment costs 	WWF-Armenia	WWF-Armenia

9. Monitoring plan

Monitoring will be conducted by WWF-Armenia throughout the implementation of the pilot project activities as per Annex 2 to ensure that all socio-economic and environmental safeguards are implemented properly. Should any problem or grievance emerge, these will be documented and measures to address them will be undertaken immediately.



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Regular meetings will be held with the pilot communities, briquetting unit, “Hayantar” SNCO and other possible actors to address any emerging problems/grievances on time. Below Table 4 presents the monitoring plan.

Table 4: Environmental and Social Monitoring Plan

Components of the pilot project	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	What (Is the target value for a parameter?)	Who (Is responsible for monitoring and reporting?)
1. Use of wood as raw material	Amount of wood purchased from Noyemberyan FE	Briquetting unit in Kogh community	Documentation of the briquetting unit; interviews with Noyemberyan FE staff	Quarterly	Zero paths are blocked	WWF-Armenia
2. Use of waste wood as raw material	Amount of waste wood coming (for free) from the logging areas of Noyemberyan FE	Briquetting unit in Kogh community	Interviews with the community inhabitants and Noyemberyan FE staff. FE staff /the entity established shall maintain record of the inflows and source of supply	Quarterly	No waste wood from other sources is used for briquetting	WWF-Armenia
3. Employing workforce	Registration of workers	Briquetting unit in Kogh community	Register containing the List of workers; record of payments made to workers; interviews with the workers	Twice a year	Workers only from project area communities are employed	WWF-Armenia
4. Labor safety	Hiring experienced personnel and beforehand training	Briquetting unit in Kogh community	Interviews with the workers; Register containing the List of workers; record of payments made to	Twice a year	No personnel affected (injured) during work	WWF-Armenia

			workers			
5. Use of briquetting equipment	Use of electricity for briquetting unit functioning	Briquetting unit in Koghb community	Visits to the briquetting unit, record of electricity bills received and charges paid	Quarterly	No use of any additional substance	WWF-Armenia
6. Operation and management of the Entity	Procurement, revenue & Financial management	Maintenance of records and documentation	Regular checking and annual audits	Quarterly and audits annually	No adverse audit observation	Bi- annual progress reports by WWF-Armenia

Annex 1. Procedure and draft criteria for selection of pilot households

Committees will be established for selection of pilot households in each of 3 target communities. Each committee will consist of WWF-Armenia, head of community and community council representatives, other community organizations (CBO or NGO or other relevant stakeholders).

The transparency of the selection will be ensured by public announcements to be made in each community to include also the selection criteria for the interested households to apply (with a deadline). In addition, in communities there are lists of socially unsecured and vulnerable households, which will also be considered. The committees will evaluate the applications by the criteria, the outcomes of evaluation will be protocolled and made public.

The following draft criteria are suggested for selection of pilot households:

1. Socially unsecured household.
2. Household using stoves for heating and cooking (no gas or electricity or boiler with use of wood as fuel).
3. Household able to bring 8m³ of waste wood (free of charge waste wood per household for heating and cooking purposes as per the RA Government decision N1535-N dated 27 October 2011) to the briquetting unit and prepare it (chop it) to the size suitable for the first shredder, also to help as per needs in the whole briquetting process.

Note. This is based on the concept of the pilot project and business plan. The households will not pay for the briquettes production, but should ensure delivery of wood, support during production and transportation of briquettes to their homes. This should not put additional burden on the briquetting unit, it should only be responsible for production costs (specialized staff, electricity, equipment, facilities).

4. Household with more or less decent condition of windows and doors to have at least some insulation so that the efficiency of use of special stoves provided by FLEG 2 and briquettes as above is more obvious.

Note. The idea is that these pilot households should serve as examples for the others and if satisfied, then share their successful example with the others and encourage them to use efficient stoves and briquettes.

5. (optional) The preference will be given to the families having a member deceased during the Armenian-Azerbaijan conflict.

Note. All three target communities are borderline communities and this criterion could be applicable, also useful in case there are too many eligible households as per the above criteria.

6. (optional) The preference will be given to the families having more than 4 children.

Note. The same logic as for criterion 5.

Annex 2. Plan of activities in the frames of the pilot project on briquette production in Koghb community of Tavush region.

No.	Activity	Time-frame	Responsible party(ies)
1	Development of a pilot project on alternative livelihoods aimed at sustainable use of forests and forest resources	Completed in February 2015	WWF-Armenia Contracted consultant
2	Selection of an entity to operate the briquetting unit in Koghb community	Q1-Q2, 2016 (ongoing)	WWF-Armenia
3	Procurement of needed equipment for briquette production and energy-efficient	Q1-Q2, 2016 (ongoing)	WWF-Armenia through FLEG II (EC component)
4	MoU between WWF-Armenia, “Hayantar” SNCO and an entity to be hired to operate the briquetting unit with defined responsibilities for each party	Q2, 2016 (development of MoU ongoing)	WWF-Armenia “Hayantar” SNCO Entity to be hired to operate the briquetting unit
5	Provision of wood briquette producing equipment on free of charge basis to the entity selected to operate the briquetting unit	Q2, 2016	WWF-Armenia Entity to operate the briquetting unit
6	Selection of 15 pilot households in 3 pilot communities and provision of energy-efficient stoves to pilot households	Q3, 2016	WWF-Armenia Pilot community authorities
7	Production of wood briquettes	Q3, 2016	Entity to operate the briquetting unit
8	Distributing ready product to selected pilot households and selling briquettes	Since Q4, 2016	Entity to operate the briquetting unit
9	Analyzing first income vs. costs	2017	Entity to operate the briquetting unit WWF-Armenia
10	Making necessary adjustments in production cycle: production volumes vs. resources used	2017	Entity to operate the briquetting unit WWF-Armenia
11	Finding new potential markets	2017	Entity to operate the briquetting unit
12	Evaluating projects sustainability and impacts	Since Q4, 2016	WWF-Armenia Entity to operate the briquetting unit
13	Ensuring ongoing maintenance of equipment	Since Q4, 2016	Entity to operate the briquetting unit

Annex 3. Selection of the entity to operate the briquetting unit.

An announcement for selection of an entity (firm/NGO/LLC/other) to operate the briquetting unit will be posted on WWF-Armenia web-site with a deadline to receive the expressions of interest (EoI). The EoI will be evaluated by the evaluation committee according to the following criteria:

1. State registration: Company registered in the Republic of Armenia. Registration in Tavush Region of Armenia is an advantage. Certificate on state registration should be attached.
2. Financial reports for the last two years with positive balance.
3. At least three years of experience in forest related field activities. Experience in the field of wood processing is an advantage.
4. Information on respective human and technical resources needed for functioning of the briquetting unit.