

SELECTED BEST PRACTICES CASE STUDY

1. GENERAL INFORMATION

- a. **Case Study name:** Implementation of a Heating network starting with the replacement of the diesel boiler by a biomass boiler supplied by local material raw.
- b. **Location:** Bera (Navarra); Toki Ona High School, Public Sports Center, Nursery School, Public School and Labiaga Ikastola School.
- c. **Priority issue:** Change of the energy model replacing fuel fossil by own, renewable and proceeding from sustainable managed mountains. Use of local material raw for the creation of short circuit model.

2. CONTACT INFORMATION

- a. **Name:** Bera Municipality.
- b. **Charge:** Mayor.
- c. **Email:** bera@bera.eus

3. CONTENT: Information gathering and analysis

En la primera fase se analiza la información disponible de las buenas prácticas seleccionadas. Ello incluirá:

a. **Type of practice:**

Extraction

Transformation

Demand

b. **Position in the value chain:**

At first, with this facility, it was planned to cover the needs of the 4 municipal buildings, the fifth one was added after. The chain value foresaw to cover the group of tasks needed to close the circle of the Heating cycle. For that, at first, chips were bought outside but in the last two years, procurement tasks are being done through local wood self-sufficiency, drying processes in common land, transport until consuming place, dry material chipping, boiler supply and heating distribution.

It has been working in the following strategic Axis:

- 1- Current Management Project evaluation to get to know the own resources susceptible to be used as material raw for supply. Species, cut areas, volumes, etc. definition always under

the criteria of that Management Project. Control and follow-up from Navarra Government staff.

2- Sustainable Forestry Management: the management Project and its compliance ensure that it is acting under sustainable Forestry management, always under the annual limits of the mountain possibility and guaranteeing the PEFC certification (common mountain is certified with PEFC label.

3- Resource facilitation: the Municipality applies for the permission and Navarra Government approves it, always under sustainable criteria in order to implement and improve infrastructures that facilitate the access to cut areas planned in the Management Project or proposed and accepted by Forestry Administration.

4- Forest industry Sector fostering, in order to complete the value chain in primary and/or secondary activities needed. Some activities as cut works, transport, chip works, etc. cannot be done by the Local Entity so they foster the professionalized private sector.

5- Quality products research fostering, looking for the best performance of the boilers for what it would be necessary the evaluation of all the parameters of the chip before its entrance to be burnt: humidity values, fines presence, etc. are the factors to take into account when obtaining the last product.

6- Heating network enlargement: the Municipality, seen the good performance and operation of the facility, is looking for new extensions for new public buildings so these could reduce their use of fossil fuel.

7- Generation of a biomass short circuit model. The Municipality has begun, and is going to continue, with this self- sufficiency Project for the boiler. For that, a good material raw needs preview is required, a better specialization in the forest aspects and a better coordination between different actors. It may not be exclude the option of achieving agreements with other Local Entities to ensure that sufficiency.

8- Social acceptance reinforcement. The Municipality has advertised as a significant improvement the use of the boilers and the use of the own biomass. It may be achieved that this acceptance and this positive view of the use of renewable material raw and short circuit may be generalized and provokes a model change at general level.

c. Structure:

- **Size of the company:** Public Administration
- **Existence of other business lines:** no
- **Required investment:** 430 000€
- **Funding sources:** Rural Development Programme, Navarra Government, Municipality.

- **Task Force:** Municipality staff, one responsible for the forest tasks and other for the boiler. External supporting staff.
- **Actors involved:** Local Administration and Navarra Government.

d. Field of:

- Disadvantaged groups integration**
- Entrepreneurship and company start up**
- Social responsibility of the company**
- R&D Research**
- Equal opportunities between women and men**
- Others:** Sustainable Forestry Management for gathering needed resource to supply the Heating network.

e. Implemented business model:

- **Idea / business opportunity**
- **Marketing model**
- **Customers profile**

f. Economic impact: So far, 15 000€ have been shaved.

g. Degree of innovation:

- **In products or services: Innovative products or services (they do not exist yet).**
- **In products or services: Improved products or services.** The innovation in this case was the implementation of a biomass boiler as the start of a Heating distribution network to supply various municipal public buildings.
- **In organization methods.** The innovation in this case was the organization of the forest actors involved in order to use an existing own resource to transform it until be able to supply the biomass boiler. In addition, a good organization of the maintenance technician to make the boiler work in its best performance according to needs.
- **In marketing and commercialization.**

4. RESULTS

- a. **Effectiveness or degree of compliance of the objectives:** The main goal of closing the circle in an effective way it is not achieved yet. It has been demonstrated that it is possible, and the tests done provide it, but it is necessary to step up efforts mainly referring to the use of its own forest material for obtaining guaranteed product.
- b. **Effectiveness or degree of compliance in relation to used resources.** Foreseen goals have been achieved regarding to the implantation of the Heating network with renewable fuel but it is necessary to improve in order to get better products logistical, internal organization and subcontracting in order to improve the economic return.
- c. **Scope or extinction of the influence of the practice.** This action has influenced in: launching of the Heating network fuelled by forest biomass, that is previewed to be locally produced in the short-term, that as a result it would improve the forest conservation, the fire prevention and the promotion of the local labor.
- d. **Efficiency rate:** the village knows the way of working of its Municipality, the possibility of heating generation through a non-fossil, renewable and proper fuel, the meeting of expectations and the aim of extending it.
- e. **Degree of sustainability:** forestry management and actions derived are environmentally sustainable since they are meeting the Management Project planned. The performance of the boilers is sustainable too and an enlargement is searched in order to get a better one because currently the heating production outperforms the demand.
- f. **Transferability:** a model to show and visit.
- g. **Products:** the heat obtained and used in the public buildings.

5. CONCLUSIONS

a. Impact and utility of the best practice

The Best Practice has contributed to get to know the biomass in the rural area, begun in 2014 and implementing extensions for the utilization of the plant because its own capacity. It is a project developed little by little, sized following the capacity of the Municipality, with public funded investments but without big expenditures and with a positive economic impact.

At present, there is an employee of the Municipality in charge of the forest issues and other in charge of technical aspects of the boiler in addition to have Technical Advising by Eolimer (boiler installer). The practice has allowed to get to know how they are working, strengths and weaknesses.

b. Main lessons learned

It is necessary to have a technical advising that integrates all the processes involved since the beginning of this type of projects.

The Management Project planned does not include the biomass as a resource from the mountain. The unique products to be obtained are timber and firewood. It would be necessary a redesign of the Special Plan to take into account, with the same annual possibility, a distribution according to needs. In the case of not being able to meet the demand, it can be considered the possibility of agreements between other close Local Entities.

The main issue that emerges when talking about self-consumption is the dry of the wood. It is necessary to test different species and locations in addition to improve the measures with the aim of achieving better results in humidity content of the products. All this will be done with the appropriate consulting with competent specialists in the field. It is also necessary to consider new investments that may improve the final results.

Chipping is done by external companies. It would be convenient to achieve arrangements, agreements or any other kind of collaboration with close Local Entities that are developing this kind of actions with the aim of optimizing resources (minimize transport cost, improve performances...).

The storage hopper is not ready to be supplied by gravity so production costs are higher. Nowadays, after the chipping work done on the floor it is moved until the hopper with forklifts that introduce it. It is necessary to develop other ways of supplying less costly in time and money.

Taking into account the power of the boiler, it is feasible the enlargement of the heating network to other near municipalities: Retirement House, Health Center, Culture Center (2 building), Library, "pelota" court and Music School. For that, it is necessary to carry out a needs and possibilities study for the enlargement of the Network with the aim of optimizing resources.

It is important and necessary to establish synergies and to share experiences with other owners of this kind of facilities with the aim of learning from mistakes and correcting issues that may occur in the better way possible. It is necessary to have fluent communication with Public Administration to foster the implementation of new facilities in its buildings and in other Local Entities.

PHOTO GALLERY



Boiler room



Facilities: boiler room and storage room