

SELECTED BEST PRACTICES CASE STUDY

1. GENERAL INFORMATION

- a. **Case Study name:** Implementation of a heating network starting with the replace of the diesel boiler by a biomass one. Creation of a fuel supply circuit since the communal property mountain of the Municipality.

Implementation of a biomass boiler to supply various public buildings from the municipality (City Council, school, health center, community center, sports center, “pelota” court, Commonwealth Bureau and summer swimmingpool).

- b. **Location:** Ultzama (Navarra). City Council, Public School, Health Center, Community Center, Sports Center, Commonwealth of Social Services and Summer swimming pool.
- c. **Priority issue:** Change of the energy model replacing fossil fuel by own fuel, renewable, coming from mountains managed in a sustainable way. Use of local raw material for the creation of a short-circuit model.

2. CONTACT INFORMATION

- a. **Name.** Ultzama City Council, Larraintzar (Navarra).
- b. **Charge.** Multiple Service staff: Jon and Iñako.
- c. **Email:** ayuntamiento@ultzama.es

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:**

The facility has a 700kW power main boiler that accepts every kind of biomass (chips or pellet) supported by two 48kW boilers supplied by pellets.

The value chain foresaw to meet the needs of the public buildings. First years the raw material was bought abroad but since the third year working, local wood has been used.

With that purpose, the Development Project was updated distinguishing in its Special Plan three types of product to be obtained: timber, biomass and firewood. Always under the premise of sustainable Forest Management as the Forestry Administration assures.

Work is being done in the following strategy axis:

1- Forest Management Project Evaluation. The management Project of Mortua Mountain, property of Ultzama Municipality was expired so it was reviewed by Navarra Government. In the same project, and in its action Special Plan, three types of products to be obtained were distinguished: timber, biomass and firewood. They were also defined the different species, cutting zones, volumes and improvement actions in the territory. Always under the premise of sustainable Forestry Management as the Forestry Administration assures.

2- Sustainable Forest Management: the Management Project and its compliance assure that is acting under sustainable Forestry Management criteria, always under the limits of annual possibility of the mountain and assuring PEFC certified that confirms that sustainable management (communal mountain is certified under the PEFC certification).

3- Resource facilitation: the infrastructure construction or the improvement of the existing ones, planned in the Management Project or arisen by specific needs, are requested by the Municipality and the Environmental Department consents to conclusion. The objective may be to facilitate the access and extraction of forest products.

4- Promotion of the forest business sector with the aim of completing the value chain in first and/or secondary activity needed. The Municipality tenders to professionals of different sectors activities from the value chain when it cannot develop on its own but they are necessary for: extraction and stacked, transport and chipping (all of them from professional forest sector).

5- Promotion of the search of quality products, looking for the best efficiency of the boilers, the evaluation of all the parameters of the chip before the entry to the burn would be necessary: humidity values, size, presence of fines... are the factors to take into account for the obtaining of the final product.

6- Enlargement of the Heating Network: the Municipality has not previewed the enlargement of the Heating Network because they do not exist (except the "pelota" court) municipal buildings in the surroundings.

7- Creation of a short circuit biomass model. The Municipality foresees to continue with the self-sufficiency of the boiler because it owns raw material enough to do it. In addition, it is trying other kind of small size material that it was defined in the Management Project as cutting works with economy cost improvement. These works have been mechanized and very good results were obtained. Drying and chipping processes are working well nowadays, achieving the objectives for a good fuel.

8- Reinforcement of social acceptance. The Municipality is a role model to follow after completing successfully the process and using its own resource and it is perceived like that between the residents. One of the greatest successes between the populations has been the

increase of the temperature of the summer swimming pool. It was always cold before and now, with the increase of 4-5 degrees, the comfort achieved is highly valued. The generalization of this social acceptance and this positive vision of the renewable material raw and short circuit may be achieved in order to arise a change in the general model.

c. Structure: Local – public.

- **Size of the company:** Public Administration.
- **Existence of other business lines.** No.
- **Required investment.** 735 400€
- **Funding sources.** Navarra Government, Cederna Garalur.
- **Task Force.** Two members from the Municipality multiple services staff who coordinate the work. One of them is in charge of the work related to forest and the other one, to the boiler maintenance works. There is also support from other professionals: maintenance of the boiler, chippers, carriers, etc). En el Ayuntamiento trabajan dos empleados de servicios múltiples que coordinan las labores. Uno se encarga más de la parte forestal y otro de la parte de caldera.
- **Actors involved:** Local Administration, Cederna- Garalur, 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 to collect resource to fuel the Heating network.

e. Implemented business model:

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

f. Economic impact: So far, the facility has saved 15 000€.

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 has been the implementation of biomass boilers as the basis of a distribution heating network in order to supply different municipal buildings and the self-sufficiency with own raw material.
- **In organization methods.** The innovation is the constant coordination between different actors involved in order to achieve a good quality product that makes the implemented boiler work in the optimal way.
- **In marketing and commercialization.**

4. RESULTS

- a. **Effectiveness or degree of compliance of the objectives.** The objectives of closing the circle and consuming own wood with the transformations needed have been accomplished on time and optimizing resources. It is necessary to continue with new strategies and managing ways in order to move forward in every link in the supply chain.
- b. **Effectiveness or degree of compliance in relation to used resources.** The resources needed in order to make the heating network working have been numerous. However, the results have been accomplished in the best efficient way.
- c. **Scope or extention of the influence of the practice.** The practice has influenced in: improvement of the forestry management and supply through its own material raw that influence in the better preservation of the forests, in the fire prevention, in the local labor force promotion and in the perception of the society that this kind of actions can be done in a sustainable way.
- d. **Efficiency rate:** population know now the way of working of its Municipality and the management done of its mountain; Management Project is been monitored always under sustainable principles, obtaining a resource that makes possible to generate heating through a renewable, proper and non-fossil fuel that it is meeting the expectations
- e. **Degree of sustainability.** This best practice is sustainable because the obtention of the material raw is done following the principles of sustainable Forestry Management endorsed by the current Management Project and its execution Special Plan that guarantees the process. The PEFC certificate also verifies it as an external agency.
- f. **Transferability:** The Project is transferable because both in Navarra and outside the region they exist a lot of Local Entities with the need of Heating networks (supplied nowadays by fossil energy source) and, at the same time, owners of common forests that are sources of material raw to fuel that networks.
- g. **Products:** the product is, on one side the chips produced and, on the other, the heating obtained and used in the municipal public buildings.

5. CONCLUSIONS

a. Impact and utility of the best practice:

The utility of the practice has been to get to know the process followed since 2009 when the Heating Network of Ultzama was launched; starting with the change of boilers (diesel to biomass). At first, that material raw to fuel the boiler came from overseas purchases but bit by bit different processes were developed that nowadays allow the supply of fuel deriving from own forests managed in a sustainable way and with PEFC certificate.

The coordination between the two employees of the Municipality, one in charge of the areas of forest until the collection of the chip ready to be burnt, and the other one, in charge of the operation of the boiler, in addition to the maintenance done by the installer, Lavenger, has been the key for this practice to be a role model.

The utility of the practice is to verify that the circle can be closed and that a Heating Network can be launched since a sustainable management of its own material raw.

b. Main lessons learned

Before any investment is necessary to have an appropriate technical advisory that integrates all the processes needed to implement the project successfully. It is necessary that the sizing of the boiler meet the anticipated requirements.

It is necessary that the Management Project contemplate the biomass as a resource to be obtained from the mountain, with the aim of not shrinking the other products (firewood for dwellings) in volume because it would impact in the scene of the whole.

Drying process has much to do with the moment of the cut and transport of the material raw. It is important to continue investigating in order to minimize time and optimizing resources for the gathering of wood with the minimum humidity level before chipping works. The technical advisory in this field is very important too.

The chipping work is done by an external company that transports machinery for a very short period of time (1 day). It would be convenient to set up arrangement, agreements or any other collaboration ways with Local Entities or individuals. Chips are storage in an indoor plant built for that purpose.

It is important and necessary to establish synergies and to share experiences with other facility owners with the aim of learn from mistakes and correcting problems that may arise in the best way. It is necessary the constant communication with Public Administration with the aim of fostering the implementation of new facilities in their buildings and in other Local Entities.



Boiler Room with supplying hopper



General view. In the foreground, chips storage plant. On the right, acces to the fidding chute together with the boiler room.