

Green Entrepreneurship

Successful business cases of Green Entrepreneurs in the Mediterranean



Regional Activity Centre
for Cleaner Production



Aquafil Spa: Sustainable production of synthetic fibers in Italy

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| Name: | Aquafil Spa |
| City, country: | Trento, Italy |
| Name of entrepreneur/ founder: | Giulio Bonazzi, President and CEO |

Description

The Aquafil Group operates in the chemical-textile sector, producing Polyamide 6 polymers used to produce yarn for carpet flooring (BCF), yarn for the textile sector (NTF) and engineering plastics (EP). The Group has always pursued a strong sustainable path and in 2007 it started implementing a strategy to reduce its environmental impact. In 2008 a fourth Business Unit, named Energy & Recycling, was set up. Its mission is:

- To develop recycled products.
- To promote the diffusion of renewable or low-impact energy.
- To promote a culture of sustainability inside and outside the Group.

Thanks to a very deep assessment phase, the Group identified some useful process innovations in some areas, such as water, air emissions, waste and recycling, energy and fuel consumption. On these issues, the action of Aquafil was very effective leading to a remarkable impact reduction. Fully in line to its mission, the Econyl Recycling System was implemented: a recycled raw material coming from industrial and consumer waste. To produce it, Aquafil made an important investment in Ljubljana, boosting its R&D activities, building a completely-dedicated plant and defining a worldwide supply chain, named Econyl Reclaiming Program. The ERP allows to collect and recover Polyamide 6 waste - such as fishing nets, parts of carpets, textiles and other types of industrial waste. These materials are then stored in a warehouse near Ljubljana, where they are handled and prepared for recycling. Regarding cultural aspects, the Group has been publishing every year since 2007 a sustainability report describing the most relevant news, innovations and results regarding the Group's sustainability worldwide.

Investment

From 2007 till 2010, the expenditure and the investment for the process innovation amounted about to EUR 13,8 Mio. At the same time, the construction of the Econyl Recycling System cost up today EUR 17 Mio.

Stakeholders

Customers, suppliers, employees, local communities. Aquafil also cooperates with various universities both in Italy and abroad.

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| Employment generation | <p>The integrated innovation process generates different skill-intensive jobs: About ten people are employed for the analysis and the elaboration of the data on the sustainable development. Further, there are several specialized employees that are working in each productive site to implement the concrete process innovation, focusing their attention on the reduction of their environmental footprint (energy saving, reduction of the water consumption and raising the amount of recycled waste).</p> <p>Ten employees are working in the R&D department, particularly to test the operations and the results of a pilot plant improving recycling mechanisms.</p> <p>More than forty employees are working in the different phases of the Econyl Recycling System: collection, transportation, pre-handling and preparation of polyamide 6 waste, as well as the management of the chemical-mechanical process that transform them in new raw material.</p> |
| Timeline | Not available. |
| Feasibility study | <p>The Aquafil Group identifies some areas where it would be possible to further reduce its environmental footprint and improve the Econyl Recycling System. As matter of fact, Aquafil is considering to double the size of the Econyl plant in Ljubljana, which will allow it to increase its capability to handle Polyamide 6 waste, and to raise the quantities of Econyl produced. In addition, the research team is working on a pilot plant that could allow important improvements in the productive process. Aside from the above-mentioned process improvements, Aquafil is planning the construction of solar and geo-thermal powered plants, which would increase the firm's ratio of energy coming from renewable sources.</p> |
| Geo-social-economic setting | <p>The borders of Aquafil's action follow the geographical localization of its production plants, which are located in three continents: Europe, Asia and North America and in seven countries –Italy, Germany, Slovenia, Croatia, the US, China and Thailand–. These countries are characterized by different socio-economic conditions, as well as different labour and health legislation.</p> |
| Key features | Not available. |
| Overall rational and motivation | <p>The Aquafil Group is paying a lot of attention towards harmonising life conditions in the different communities in which it operates, guaranteeing everywhere the same juridical, working and health protections. To reach this important result, the Aquafil Group identified in every plant the most important actions to implement, in order to reduce both the environmental and the socio-economic problems that could rise in the local communities.</p> |
| Strenghts | <p>The growing innovation capability is an important characteristic for a firm that operates everyday on the international markets. It opens incredible opportunities for future transformations, preparing the firm, the employees and all stakeholders to the next challenges that will emerge in the economic world. This innovation drive is one of the most important characteristics of the Aquafil Group, a real and concrete cornerstone that characterizes the past, the present and the future of the firm.</p> |

Challenges and constraints

The Aquafil Group will have to cope in the near future with some stimulating challenges, particularly related to concrete improvements of the Econyl Recycling System process, to the rationalization of its waste supply chain and to the diffusion, inside and outside the firm, of a deeper cultural awareness of what it is trying to achieve. These three subjects are strongly linked to each other, because they create the best environment in which to promote innovation processes and to transform activities.

Direct activities and Impacts

The Aquafil Group has developed some specific policies and activities that help it achieve its sustainability targets. With regards to the economic argument, the Aquafil Group is conscious that sustainability for a firm is not a cost, but a way to reduce costs. With this in mind, the Aquafil Group is implementing several projects: it is introducing renewable energy in all its Italian plants, it is installing solar panels in Italy and geo-thermal plants in the US, and it is improving its waste-management, packaging and water-consumption. From a social point of view the Aquafil Group is working carefully to guarantee the same rights, health & safety environment in all of its plants worldwide. At the same time, it is working to promote the reduction of injuries, accidents and sickness, but also to boost internal knowledge and respect for the cultures where its plants are located.

Use of innovative Technologies

The Aquafil Group created a new technology to recycle and to up-cycle Polyamide 6 polymers derived from various types of waste. After some years of research and experimental tests, Aquafil's technicians, together with scientists from around the world, were able to build a new plant in Ljubljana, allowing Aquafil to achieve the incredible results described so far.

Evidence of a holistic approach/world view

The Aquafil Group strongly believes in the opportunity offered by the development of new business models that increase the well-being of firms and all stakeholders. Aquafil acts to maximize the firm's financial, social and environmental returns. Financial success is no longer the only measurement of the firm's performance, as it is now on a par with social and environmental impact: it is a guiding principle of Aquafil that a good firm will demonstrate strong performance in all three of these fields. This conceptual theory stems from the conviction that there are strong links and connections between a firm's action and the well-being of the citizens, local communities and environment where it is based. Every industrial activity is based in a defined socio-geographical space, and has to learn how to live in positive harmony with it.

Scale of benefits

From 2007 to 2010, the Aquafil Group collected a lot of data about its environmental footprint. Between these years, externally-purchased energy decreased by 3,7% and natural gas by 10,5%, while CO₂ emissions were cut by 31,2%. The same positive trend was showed by a reduction in water consumption and in the share of non-recycled waste, both of which dropped considerably in these four years. At the same time, waste recovery through the Econyl Reclaiming Program meant that tons of Polyamide 6 materials did not end up in landfills, in the environment or in the incinerators. In addition, the use of recycled raw materials, instead of virgin one, also allowed to save 7 barrels of oil for each ton of polymers produced.

Policies, incentives and regulations needed

The Aquafil Group, in order to support its sustainability drive, could benefit from incentives directed towards its R&D activity, towards the use of low-impacting or renewable energy, and towards developing energy-saving technologies.

Lessons and recommendations

To promote real and concrete change in today's business models, based on technological innovation and sustainability principles, it is necessary that all elements of a firm be convinced about this transformation. From the head –the corporate management that defines the overall strategy– to the arms –the factory workers– everyone has to be committed to the objective of increasing the sustainability of the firm. It is fundamental in order to achieve these results to promote cultural change amongst all workers and employees, so as to make it easier to implement the necessary change in all production processes and behaviors.

References

www.aquafil.com