

Title of abstract: Participated assessment of the health, environmental and socio-economic impacts on urban waste handling

Context

The Arezzo Municipal solid waste (MSW) incinerator now burns about 40,000 tons of MSW per year, however this figure is expected to increase to 80,000 tons on the completion of the expansion programme. The incinerator is in an industrial area, where the local population reported high pollution levels and requested a health survey. In Italy the construction of a plant of this type requires an Environmental Impact Assessment but not a Health Impact Assessment. Nevertheless the Municipality of Arezzo decided to take part in the Health Project promoted by the National Research Council.

This HIA project, the only one financed by the EU-LIFE, was launched in 2011 by the Arezzo Local Health Unit, Arezzo Municipality, the CNR (Italian National Research Council), the ISDE (International Society of Doctors for the Environment), the Local Agenda 21 (LA21) and other national and regional research agencies.

The project involves the Municipality of Lanciano too (in South Italy) in which a landfill may be enlarged. The municipal solid waste landfill site located in Lanciano (Chieti) is the main landfill site in Abruzzo; 54,000m³ of waste per year are disposed there; its surface has an extension of 13 ha; its disposal capacity is 2,050,000m³, while the residual capacity estimated for 2012 ranges from 200,000 – 550,000m³, depending on the strategies used for the separate collection of waste; it has operated since 1995.

The methodology adopted is the same in the two Municipalities. I will only speak about Arezzo's experience.

The LIFE programme is the EU's funding instrument for the environment. The general objective of LIFE is to contribute to the implementation, updating and development of EU environmental policy and legislation by co-financing pilot or demonstration projects with European added value.

In the waste sector, LIFE projects play an important role in developing and testing solutions to specific technological challenges, particularly with regard to waste treatment in the manufacturing sector. Integrated methods for better waste management, awareness-raising campaigns, better ways of using resources and treating waste are just some of the issues addressed by LIFE.

Rationale

The purpose of the project is the application of the HIA procedure integrated to that of LA21 for the evaluation of the existing and future impacts, as well as for the policy planning of waste cycle management. The involvement of the local communities interested in the project is already an aspect of the HIA process. Anyway the inclusion of LA21, with its specific forums for each item related to the setting up, operation, management and impact of the works for the waste handling, will allow the population to be better informed and focused. The inhabitants, in particular the disadvantaged ones, can actively participate in the decision-making regarding the building, location and operation of the waste handling plant as well as the reuse and recycling of waste. According to the EU Directorate-General for the Environment, 200 million tons of waste per year are produced in the EU, most of which is disposed in landfill sites or, as an alternative, by incineration. Both disposal methods have adverse effects on the environment and health.

Description

The project consists of six main steps in which specific actions will be developed in each.

- Step A. The first step concerns the agreement of the LA21 forum of both the Arezzo and Lanciano zones chosen with the HIA Working Group (WG). The two groups will then meet to start the partnership and identify the environmental, health and socio-economic critical factors related to the plant. For each of the planned items, meetings with all the local stakeholders will be organized and started up.

At the end of this step, sets of indicators to be evaluated by the HIA WG for the scoping achievement will be obtained. The screening step, which usually goes before the scoping one with the aim of deciding whether going on with HIA or not, is in this specific case overridden by the presence of LA21. In case of the lack of data on the state of the health of the communities involved in the project, the results from a rapid context analysis is justified.

- Step B. The HIA WG will proceed to the scoping step, that is, it will carry out all the actions necessary for the characterization of the structure, on the basis of defined indicators. Then, it will gather the pre-existing data (literature, technical documents, previous studies) and extrapolate new data by specific monitoring with regards to the environmental impact, as well as using information from questionnaires on the socio-economic data.

- Step C. The HIA WG will show the LA21 forum the scoping results, including criticisms and recommendations previously made by the forum and the stakeholders participating, and will share with them the outline of the next steps. As usual, thematic meetings will also be held in this step.

- Step D. This is the step in which the various impacts will be evaluated. These will be carried out with the continuous cooperation between HIA WG and LA21 forum. The quantification of the critical factors related to the plant is the main objective in this step. All the items, and all the relevant indicators for each of them, will be considered.

- Step E. In this step, recommendations to the decision-makers will be developed. The LA21 forum and HIA WG will provide recommendations for the proper management of the plant which includes mitigation and compensation measures to be taken in relation to all the items of the project. In addition, indicators for the environmental and health monitoring and suggestions on management policies of the whole waste cycle and territorial planning policies will be established.

- Step F. This will be the monitoring step. The LA21 forum and the HIA WG will meet quarterly to develop measures to monitor the critical factors and to show the results of measures already taken. In this step, if the management of plants and the planning policies are not compliant with the recommendations suggested to the decision-makers, strategies will be planned. In this step, LA21 forum commits to continuing the meetings with the stakeholders of the area.

During all the meetings, particular care will be devoted to the involvement of groups of disadvantaged citizens and those which are sensitive to the impact of the plant, taking care to include in the LA21 procedure those people which are not represented, i.e. usually nonparticipants.

One of the aims of the project is to reduce the quantity of waste to be processed as much as possible by the end of the project itself. In order to guarantee the adequate communication of the results to the stakeholders and technical-scientific communities on a national and communitarian level, a series of instruments have been planned to classify project results and produce guidelines useful for environmental, health and socio-economic evaluation of the MSW treatment plant.

The main instrument will be a report for the decision-makers that will represent the starting point for the elaboration of HIA guidelines applied to waste treatment. All the information collected during the project will feed the specific Data Base that will be useful for various elaborations. The guidelines will contain, in addition to the methodologies adopted, practical suggestions to resolve difficulties that similar future projects could face: these include tools for sampling and data collecting programmes depending on plant typology and extension, the number of people directly involved, waste management local politics, health data availability etc.. Moreover, this handbook will contain questionnaires for the population together with suggestions on how to modulate them according to specific requirements. The general guidelines or manual will be released on the website of the project. Its synthetic version will be distributed through newsletters to all possible interested Bodies, in particular Regional EIA committees, so they have a new instrument to evaluate the projects submitted and so can give an informed opinion, an opinion which will also take into consideration the results and methodologies proposed in the HIA21. A copy, in electronic format, will be uploaded on their website. The document will also be translated into English for the European municipalities interested in applying this tool in their policies of waste management. Such tools will also be included in existing HIA documents such as Abruzzo Region guidelines, Emilia-Romagna "Monitor project monography" etc.

Achievements

- to create and develop a new tool, involving the local population, for the investigation and evaluation of health, environmental and socio-economic effects due to incinerators;
- to provide recommendations and, if possible, guidelines for the application of HIA and LA21 to the waste cycle. This will allow a comparison between waste treatment methods, pointing out the advantages and disadvantages according to the best available technologies and the costs connected to the realization and management;
- to spread assessment methodologies at a local, national and community level, creating strong territorial expertise and knowledge;
- to create a set of health, environmental, economic and social indicators for the study area, which is to be updated yearly during the entire project;
- to test the efficiency of the interventions relating to the degree of trust created in the citizens and the success in the ability to actively share in the decision-making process;
- to draw up two reports for the decision-makers, one for each kind of plant, which will be a new tool to aid local public administrators in the definition of the planning of future territorial policies;
- to create an international network to share the results obtained in similar projects and for the realization of a network of links and expertise which can be extended even after the established end of the project.

No less than 16 thematic meetings with the local stakeholders will be held, with an average presence of at least 50 participants for each meeting, according to the catchment areas where the chosen plants are located. At least 2 technical reports for each assessment procedure will be drawn up, for a total of at least 4 reports. Three main databases for each procedure will be created, for a total of 6 databases. Moreover, among the expected results, the improvement of the waste treatment industrial cycle in the pilot plant is to be included. Since 2008, the incinerator in Arezzo has treated 34,343 tons of MSW, with an energetic recovery rate of about 17,495 electric MWh. This does not include thermic energetic recovery. In fact, one

of the aims of this project is to estimate the feasibility of implementing a thermic energetic recovery attested on 12,000 MWh. In addition, the Arezzo incinerator also treats dry waste, and is authorized to treat 44,000 tons per annum. Considering the total amount of waste produced in this area, the purpose of this work is to increase the quantity of dry material treated by at least 20% with respect to the present situation, reaching 41,200 tons per annum thus approaching the limit of the quantity authorized. Such improvements would lead to an increase in energy production (that should take place with technologies that do not increase atmospheric emissions) and a reduction of the waste quantity discharged in the landfill site.

Other anticipated results

- to set up, apply and optimize an innovative investigation tool for Italy, combining scientific rigour in the application of environmental and health assessment and actions;
- to present a monitoring system to be adopted by the population, as well as – to evaluate how the two kinds of treatment impact both environment and management;
- to test a tool for the health, environmental and socio-economic assessment of two different kinds of municipal solid waste (MSW) treatment, which could be applied to other national and European contexts;
- to provide new and more efficient guidelines for the political planning of waste cycle management.

Conclusion

The project is still ongoing but it is already possible to positively evaluate the choice made by the administrators to involve the population concerned, thus creating a valid participation tool.