



Urban waste treatment: HIA21 and the new participatory evaluation of health, environmental and socio-economic impacts

Thanks to HIA21, there is a new approach to waste management. The project was developed in three parallel lines of action: to provide the local population with information and knowledge needed to participate more actively in the decision making process; to improve the focus of scientific research on the protection of public health and the environment; and to support the establishment of policies by decision makers through comprehensive and appropriate data, based on scientific evidence.

Thus HIA21 included several partners who, thanks to their complementarity, identified completely different problems and devised the best solutions by identifying possible new forms of optimization and collaboration between actors who were already impacting on Italy with their different roles. The following specifically contributed to the project: the Institute of Clinical Physiology, of the CNR, Pisa; ARPA Emilia-Romagna CTR Environment and Health, the Italian Local Agenda 21 Association; the Mario Negri Sud Foundation; ISDE Doctors for the Italian Environment; the Municipality of Lanciano; and the local health authority of Arezzo and the Province of Chieti.

A participative Health Impact Assessment (HIA) in two Italian case studies

The project examined the municipalities of Lanciano and Arezzo, and developed the study and assessment of the environmental, health and socio-economic impacts of two different waste treatment plants, an incinerator and a landfill in these two municipalities. At the start of HIA21, an authorization process for expansion that included an increase in capacity was underway for both plants. This generated widespread concern, not based however on reliable information but on superficial knowledge of the topic. The European project HIA21 thus arrived at a perfect point in this important phase for both communities, supporting them in identifying the best option.

In order to involve the public in decision-making, in parallel to the scientific collection and analysis of data, information was disseminated to create greater awareness among citizens, to increase their participation and improve the understanding of issues related to waste management. Meetings were initiated in both municipalities with the technical and administrative components of the local institutions, focus groups of citizens, and the assemblies of the local forum of Agenda 21 and information specific to these participants was distributed.

The new approach developed with HIA21 then put the population at the center by providing pathways for community participation at a local level. Thus, citizens have gone from being simple users of information and services, to active players with a key role in the identification of the impacts and evaluation of choices taken. Thus the system created has supported local policies in waste management by assigning to the population both the role of a critical analysis of the possible alternatives and in the monitoring. Thus they have achieved the ultimate goal of creating a long-term monitoring system to minimize impacts.

The scientific activity in support of decision making

In parallel to the participatory process, a way of supporting local administrators was also studied to guide them in the identification of the best choices for protecting human health and the environment based on the specific knowledge of the local area. At the end of the supporting phase, there was an increased awareness and knowledge of the problems associated with the generation of waste. Project HIA21 has thus led to the transfer of the scientific evidence and opinions of the community to local policy-making, with the aim of contributing to the planning of a system of management and disposal of waste that promotes health and minimizes the impacts on the environment. In fact, the outcomes of the project were: in Arezzo rather than doubling the capacity of the incinerator it was decided to increase the percentage of

recycling to 70%. In Lanciano, it has led to the definition of a new framework for waste management as an alternative to the landfill.

The activities carried out over the 3 years of the project, from late 2011 until 2014, were organized in six stages. For example, the identification of the pressures on the environmental, health and socio economics factors related to the plants, with aim of obtaining sets of indicators that were then subsequently evaluated. Other work included identifying actions needed, reviewing and collecting existing data, obtaining new data thanks to specific monitoring in the environmental field, and questionnaires on socio-economic issues for local populations.

The work also involved sharing information gathered in the preliminary stage with the public, decision makers and stakeholders; the assessment of impacts and their pressure by identifying specific indicators for each area of study: health, environmental and socio-economic indicators. In addition the following were developed: reports for policy makers, collection of documents of recommendations addressed to the managers of the areas of waste treatment regarding mitigation measures and / or compensation, and suggestions for management policies and local planning. Finally, in the typical HIA process , actions to monitor the pressure factors were put in place, and the results obtained were presented to the population, and the strategies adopted following the implementation of the suggestions were evaluated.

In Lanciano the impact has been very positive, general awareness has changed and the synergistic action of the evidence from scientific research together with the pressure of citizens has led the municipality to stop the expansion of the landfill. In Arezzo, by crosschecking information from municipal registries with mortality and hospitalization data of the municipalities of Arezzo and Civitella in Val di Chiana (AR) a profile was built of the environmental exposure to pollutants for each subject included in the sample within a decade of individual residential history. Risks were calculated by comparing the classes of highest exposure with the lowest, taken as a comparison, also taking into consideration the socio-economic status of the people. Each street number was then attributed with the amount of exposure of each pollutant. From the identification of the cohort, it was possible to calculate and attribute each person with their history of exposure to a particular source and to the main ones in the area.

In general, the need to adopt an integrated approach was highlighted, which enables comprehensive analyses of the area to be performed, taking into consideration all sources of exposure. In particular, the verification of the impacts of new plans and projects conducted by the HIA should be carried out prior to the approval of all individual actions that could have a potential impact on health and the environment, from business plans to those regarding transport or urban planning. Only in this way it is possible to identify and prevent the concomitant effects on populations affected by those decisions.

The perception of risk: complex data to investigate

The conclusions of project HIA21 supported decision makers in deciding interventions on health protection in the local area and specifically to identify areas and population groups with a different perception of risks. Interventions are most effective when tailored to the characteristics of the different areas or population groups. Participatory health impact assessments can support appropriate communication of the risks and a better interpretation of data.

HIA21 set up a questionnaire to examine factors such as involvement in the issue of waste, lifestyles, the employment rate, the degree of knowledge of policies on local waste management. The municipalities of Arezzo and Lanciano, including the neighbouring areas involved in the study, showed different levels of interest and participation with an increasing trend during the project. The questionnaire was completed by a total of over 3,000 people, and brings together the various data in order to explore what social factors and risk perceptions characterize the population living in the study areas. The results confirmed the assumption that an assessment of the impacts on health cannot be separated from the specific socio-economic context and participation tool should be tailored according to the different perceptions of reality.

In general a greater perception of environmental risk was found among residents closer to the plants, with a tendency to evaluate the overall situation as serious in these areas. The same subjects deemed the information provided by the municipalities as insufficient and perceived there to be an absence of communication officers. One of the most useful results in planning future activities is therefore the need for information and knowledge of those who live in the vicinity of the plants. In addition, the positive

response of the community in terms of awareness and receptivity, especially compared to the criticality of waste disposal and waste collection, offers a real opportunity for the future improvement in the waste management system.

A project that can be replicated

HIA21 has contributed to the European objectives for pollution control by highlighting the need for participatory planning in waste management, towards the reduction of waste production and disposal in accordance with the priorities set by the European Directive on Waste.

Its importance also lies in the fact that it can be replicated. Thus, protocols developed for studies on health and the environment and regulations for a participatory approach, can be adopted anywhere. These are available at: www.hia21.eu.