Participatory evaluation of the health, environmental and socioeconomic impact of urban waste treatment – an overview of the "HIA21" project

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Abstract

The production of waste and its disposal is one of the hottest topics at a national, European and global level, directly related to the actions of society. The patterns of consumption and production observed are not sustainable and the main causes are inadequate strategies for waste management and lack of citizen engagement. The objective of project "HIA21, Health Impact Assessment and Agenda 21" (website: hia21.eu), was to implement a model of the participatory assessment of impacts, to include health, knowledge and citizens' expectations in the decisions related to municipal waste management. The aim was to produce best practices based on the analysis of two case studies: an incineration plant (in San Zeno, Arezzo) and a landfill (in Lanciano, Chieti province) using citizen participation tools in the two areas (as a social component, with professionals and local players). HIA21 provided a path that guides the political and administrative component to the best choices for human health and the environment.

European guidelines on waste

Currently, waste production and waste disposal are under a national, European and global spotlight, for their implications with the environmental modifications, the population health conditions and therefore with the human rights to healthy living. Current patterns of consumption and production are not sustainable and directly relate to the behaviour adopted by society [1]. The two main reasons for this are a lack of adequate waste management strategies, as well as a lack of awareness in the population. The European Commission faced the first point publishing the "Roadmap on the Review of Waste Policy and Legislation" on March 26, 2013[2], which reviews the current regulatory framework in Europe. The review states that there is a need to update the guidelines and the economical instruments that incentivize re-using production chains. The aim is thus to align the overall management of waste to the meet the guidelines provided by the European Agency for the

Environment in the report, "Towards a Green Economy in Europe ", which was issued in July 2013 [3]. Furthermore, answer to the second point was provided by the DG Environment European Commission to the lack of awareness in the population, enhancing the inclusion of stakeholders and communities in the decision-making process. Outcomes were described in the report, “Preparing a Waste Management Plan” (2012) [4]. Also, with reference to this point, the European Directive Framework on Waste 2008/98 / EC [5] stated that "a consultation should be included in each stage of the planning process, in order to allow public authorities to make informed decisions”. Another important Convention is the Aarhus Convention [6]. Although regional in nature and not specifically related to the waste management activities, it is by far the most impressive elaboration of Principle 10 of the Rio Declaration; it stresses the need for citizens’ participation in environmental issues and for access to information on the environment held by public authorities and it dates back to 1998.

The HIA21 approach and aims

The adoption of a participatory and transparent approach in the Life+ Project, “HIA21” - Participative assessment of the health, environmental and socioeconomic impacts resulting from urban waste treatment - constitutes the methodological framework for assessing the impacts of two different management options (Figure 1). The HIA21 project is aimed at increasing knowledge, through monitoring and researching, and at transferring the evidence gathered in the decision-making process, in order to create a more informed political activity. The transfer of knowledge and the possibility of receiving recommendations from the health impact assessment (HIA) require a network of collaborators to develop a basis of trust between the parties involved, which is usually not easily achieved. Moreover, the HIA21 project aims to integrate Health Impact Assessment (HIA) procedures into the Local Agenda 21 practices in order to develop a tool for the impact assessment of the waste cycle management.

This approach is innovative and integrates the democratic participation of the communities in strategy planning at the local level. Demonstration of the methodology feasibility was provided assessing the health status, the levels of environmental exposure and exposure to different socio-economic conditions of the populations residing near an incinerating plant and a landfill site, in two different Italian regions.

In particular, the HIA21 project contributes to the prevention of medium and long-term adverse effects on health and the environment by promoting the adoption of guidelines for the use of a model of stakeholders’ participation in impact assessment. This is intended to facilitate well-informed decision making at the local level concerning waste management.

Figure 1. The HIA21 project: processes and participation stages

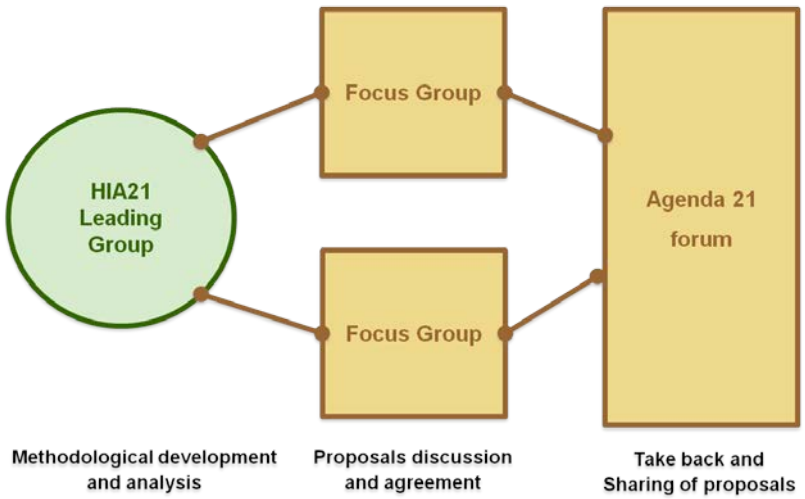
The model of participation applied in two local HIAs

The overall goal of the participative process in the HIA21 project is to integrate the local knowledge within the impact assessment of the current local waste cycle management. Therefore, two waste treatment plants in Italy were selected for case study development: the municipal solid waste landfill located in Lanciano (CH) and the municipal solid waste incinerator in Arezzo. HIA procedure was carried out retrospectively at both plants, with the support of Agenda21 participatory processes. The five stages of HIA were applied during the project: Screening and Scoping of impacts (phases 1 and 2), which were analysed with local stakeholders; Impact assessment (phase 3), whose findings were presented to decision-makers and citizens; Recommendations and Reports (phase 4), which were developed during meetings with stakeholders; Monitoring (phase 5) activities, which were designed during four focus group sessions. These sessions involved stakeholders who assessed the trends of selected indicators and evaluated the implementation of the recommendations over time.

When defining the community's participatory model in the HIA21 project, an adaptation of the Local Agenda 21 practice was required (Figure 2). A model composed by three main subjects with different roles was identified.

Besides the HIA21 leading group a forum and a focus group were created (specifically two different working group were settled in Arezzo and one in Lanciano). The roles of each subject were defined as described below. The HIA21 leading group of researchers and HIA21 project local partners provided the evidence on impacts and the terms of reference of the process. The forum, constituted by individuals from the community, aimed at sharing processes, results and final recommendations. The focus groups of local experts worked on targeted themes. They integrated the content of the work done by the forum and the HIA21 leading group. The first group evaluated processes and results from the start to the end of the assessment of impacts. In the final phase the second focus group members participated in the definition of the monitoring plan and the identification of indicators. Overall about 700 people participated in the process from more than 120 categories of stakeholders. They were involved in different kind of meetings: thirteen public forums with the community, one technical meetings of local experts, six technical meetings of stakeholders, seven focus group meetings of citizens and technicians.

Figure 2. The HIA21 model of participation. The Arezzo case study.



Translating evidence into action: the condition of success

Carrying out the Lanciano case study was problematic. The political and administrative context, involving the government institutions from regional to municipal level, represented an obstacle to collecting and providing the best available information during the impact assessment and the monitoring phases. However, positive output was a clear emphasis on the relevance of the reduction of waste production and the improvement of recycling for local waste management policies. Relevant impacts of the project were one public educational event and one legal act of address on waste door to door collection including the provision of an educational campaign. Moreover, a large-scale consultation of the communities by questionnaires provided a description of the feelings

about the current waste policy in the area and the knowledge about the attitude to waste management service. About 250 questionnaires on the risk perception and more than 2700 questionnaires on the socioeconomic conditions were completed. Findings proved that the perception of the health status was strongly influenced by age, level of education and income and that waste policies were insufficient to address common feeling and behaviours.

The Arezzo case study demonstrated that the HIA21 participative model was effective in supporting the decision making about the new interprovincial waste plan. A number of public events focusing on the issues of waste cycle were developed in collaboration with the Municipality, attracting a varied audience. The assessment of the environmental, health and socio-economic impacts was conducted through a participatory process that involved local stakeholders since the scoping phase of the impacts. In particular, evidences were built by a cohort study on 37.000 subjects. Demographic and health data, collected for 10 years, were linked to environmental exposures levels of relevant pollutant, to provide the risks estimates for 12 groups of causes for mortality and morbidity and 4 adverse reproductive outcomes. Based on to the findings recommendations were drafted that included the indicators for the long term monitoring of impacts. Local administration and policy makers, from the municipal and provincial govern institutions, became key players in the achievement of project objectives. Output of the supporting actions to the local government were: two urgent questions at the Regional office, one act of commitment on waste sustainability, one public educational event, one waste summit, one legal act of address on waste door to door collection. Short term result from the project was the production of observations from civil associations and from the local department of health prevention to the draft of the new waste plan. The contribution of citizens and stakeholders during the project provided also a midterm result, fostering the rejection of the choice of doubling the incinerator's capacity in favour of increase of differentiated waste collection target stated at 70% in the new waste plan objective from previous 65%.

Conclusions

The network of collaborators, which was built since the start of the project involving the community, the govern institutions and the local administrators, was fundamental to collecting new data, sharing project results and transform them in political actions. Findings of the health and socioeconomic studies supported the selection of sustainable waste cycle management in Arezzo and Lanciano. In Arezzo the transparent approach adopted also pushed the plant owner to provide a more comprehensive analysis of impacts from different waste management scenarios and to set a stable dialogue with the local public health department. The HIA21 approach facilitated the building of trust among relevant parties – citizens, administrators, owners, local actors - and the implementation of impact assessments. Also, it increased awareness within the community. The setting up of a systematic channel for communicating and informing citizens is desirable to improve the knowledge of local

community members. Decision makers can use it to address social equity in favour of an adequate perception of the local environmental problems especially in the waste sector. This is helpful for planning targeted interventions to population residing around the plant sites in particular in areas with more than one environmental pressures.

Acknowledgments. All the HIA21 team contributed to the realization of the project and it is composed as follow. *Environmental analysis:* Stefania Caporale, Marcello Desiderio and Tommaso Pagliani, Fondazione Mario Negri Sud, Lanciano (Chieti), Italy. *Health study:* Nunzia Linzalone, Alessio Coi, Fabrizio Minichilli, Michele Santoro and Fabrizio Bianchi, Institute of Clinical Physiology National Council of Research, Pisa, Italy; Maria Teresa Maurello and Domenico Sallese, Local Department of Health Prevention, Arezzo, Italy. *Socioeconomic study*: Meri Scaringy and Paolo Lauriola, Regional Agency for the Protection of the Environment, Emilia-Romagna, Modena, Italy. *Participation arrangement*: Maria Elisa Zuppiroli and Daniela Luise, Coordinamento Nazionale Agenda 21, Modena, Italy; Roberto Romizi, ISDE – International Society of Doctors for the Environment, Arezzo, Italy.

The HIA21 project was funded by the European Commission under the Life+ programme.

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