

Case study 2

Ecosystem revitalization: community empowerment through HIA in Tuscany, Italy

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Introduction

Political decisions often produce health impacts but sometimes they are difficult to predict. We describe one experience of a health impact assessment (HIA) dealing with the creation of a damp zone that could affect both the ecological system and citizens' health in a rural part of central Italy. This case was chosen because some of the procedures echo those defined as HIA good practice in the international literature. Also, the analysis of potential impact has been completed, allowing some consideration of efficacy and the discussion of limitations and critical points.

When an agricultural firm asked the City Council for permission to create a new damp zone, a year-long HIA was performed in order to inform the decision. The agricultural firm was granted permission with the condition that some post-monitoring procedures were in place.

The assessment activity will be discussed with consideration of context, input and process; particular emphasis will be given to expected and observed effectiveness. The following chapter is based on four interviews with the principal stakeholders and on the reports drafted by the commission (discussed below).

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Profiling HIA activity

HIA culture has solid roots in Italy, thanks to strong care for the environment and the presence of a public health school active since the end of the nineteenth century, but it has not reached the level of development suitable for a tool to help and support policy-makers' decisions.

Despite the fact that many laws (national, regional and local) refer to the attention that policies must pay to health impacts, no law provides HIA as a compulsory or strictly recommended tool.

Similarly, scarce financial resources are allocated ad hoc for this purpose; government agencies rarely develop HIA activities with a stated mission, especially at regional level. Most HIA activities are driven by public or private agencies that provide technical support to institutions in order to help them evaluate their policies. From time to time associations and universities are requested to carry out HIA evaluations, often with different objectives. The majority deal with activity planning and/or research implementation.

We cannot state that there is a real resistance to implementing HIA: the only resistance probably is due to the costs of implementation and the lack of standardized knowledge of the specific topic at overall decision-making and political levels.

At the beginning of 2003, an agricultural firm in Montalcino municipal district asked the City Council for permission to create a wet zone on their land. Montalcino is a rural area, close to Siena in south Tuscany, with low population density. This area is famous for its agricultural production: olive oil and grapes for the vintage Brunello di Montalcino wine.

Land reclamations and agricultural exploitation have reduced significantly Tuscany's previous environment, rich in marshes and ponds. Subsequent neglect and carelessness have seriously compromised the remaining lacustrine areas which are now, for the most part, unproductive and inhospitable even for animals.

The project to restore the wetland deals with requalification programme stated by the agricultural firm's delegate interviewee:

... Conservation and development of controlled natural areas are able to play an important role for landscape maintenance, and to contrast with the too intensive agricultural use ... with all the foreseen benefits of nature, science, education and tourism.

The intended wet zone was a marsh created specifically to build an ecosystem with elevated cultural value by restoring and enlarging it to 20 hectares for public access, and to help attract the fauna that had disappeared.

Permission to restore the wet zone could introduce other benefits:

- creation of a game reserve for hunting stock ducks (a common activity in Tuscany);
- partial deviation of a river course and consequent reallocation of water resources.

The decision about permission to create the wet zone concerned at least two sectors: environment and health. It had to consider any modification to the local ecosystem and the repercussions for the environment such as the entomological problem of the presence of mosquitoes. In order to consider the positives and negatives with regard to environment, health and quality of life, the Mayor nominated a commission to carry out an HIA activity. This was representative of all stakeholders and comprised delegates representing:

- the Mayor
- an agricultural firm
- citizens
- farmers
- science and public health, including an epidemiologist, entomologist and public health professional.

The objectives were to:

- evaluate possible problems deriving from the creation of a wet zone;
- find solutions for minimizing collateral effects on the health of the local population;
- identify direct and indirect costs of managing the wet zone and maintaining the population's good health and quality of life.

The conditions allowed the implementation of a prospective HIA that has been carried out without following an already defined and standardized model. The commission used the following definition of an HIA: "A methodology that allows identification and evaluation of possible changes on a defined population's health, both positive and negative, single or collective, of a procedure/programme/action". Changes taken into consideration can be direct or indirect, occurring within a short- or long-term latency.

At the beginning of 2005 the commission produced the final report. The public health delegate on the commission, a public health professor, stated:

A correct HIA procedure should take into account the latency between the implementation of an intervention and its effects on

health (etiological period). Moreover it requires the availability of the data at the beginning of the intervention and the continuing survey of the health of the population at risk for the whole latency period. As only a preventive evaluation has been planned, our evaluations can have a margin of uncertainty and incompleteness. Anyway the request of the Mayor shows the remarkable sensitivity, far-sightedness and modernity of his approach to citizens' health.

Dimensions of effectiveness

In commissioning the HIA activity, Montalcino Municipality City Council sought to obtain a cost evaluation in terms of risks and long-term benefits of the wet zone project. More specifically, they wanted to gather information about the likely environment and health effects of the wet zone in order to support the Mayor's decision with scientific and objective data. The mayoral delegate on the commission stated: "Each decision, moreover if dealing with a political responsibility, should be characterized by a cost-benefit evaluation."

In order to assess the potential risks for human health, including hypothetical issues and environmental aspects with secondary effects on health and quality of life, the HIA focused on:

- potential risk of infection for humans and domestic animals
- inconveniences due to potential exhalations
- inconveniences due to *Culicidae* (mosquito) infestations
- chemical acute risk (workers' exposure)
- chemical chronic risk (surface water, groundwater, agriculture).

Effectiveness of the HIA activity has been evaluated by analysing the three key dimensions contextualized by the literature: health, equity and community.

Health effectiveness

For health, the HIA addressed all the essential hypothetical aspects in order to avoid unwanted environmental and health-related side-effects. Such side-effects included the association between wet zones and infectious diseases, prevalence of respiratory diseases and prevalence of animal diseases. All the preventive measures of potential threats have been described contextually.

Mosquito control appears to be the most relevant aspect. This should be integrated within the project in the creation and management of the wet zone. Although it is possible to assert that the water depth in the proposed intervention

does not produce environmental conditions suitable for mosquito development, health risks are difficult to quantify since they depend in part on the building and management of the project.

The comparative evaluation between the risks and preventive measures has not highlighted particular problems related to creating the wet zone, or whether some important parameters would be monitored. Following the HIA results, a list of parameters was included as an integral part of the resolution to allow the creation of the wet zone. However, the wet zone is very new, and therefore so health impact evaluations of effectiveness have not been implemented yet.

Equity effectiveness

The HIA highlighted how different communities (e.g. agricultural versus suburban communities) were exposed to potential risks in Montalcino Municipality and the area affected by the project. In some areas, the expansion of the damp zone does not necessarily present significant problems for local residents, but in other areas less accustomed to mosquitoes the creation of an artificial damp zone could lead to social conflict.

Guaranteed actions specific to different intensities of risk exposure have been adopted further to the HIA evaluations. Mayoral consent to the creation of the wet zone is conditional upon a *fidejussio* from the agricultural firm. This is a guarantee for any health damages that may affect the most exposed population (including long-term effects) or the need to restore the proposed wet zone to its original environmental condition.

Community effectiveness

We can affirm that HIA activity has helped to develop empowerment of the population. The project area is relatively small, with the population mostly involved in agricultural activities in the same region. With relative geographical isolation and strict links of social relations, they must be considered communities with a high information exchange level. The small size of the municipal population increases the likelihood of high civic involvement in council decisions, as the City Council is elected by this same population.

HIA implementation has enabled the population to be aware of scientific and not subjective evaluations of the socioeconomic repercussions of the wet zone project. It has also stimulated a higher concern and attention for future public decisions and a better modulation of interventions. For instance, the community is now more aware of the risks of mosquitoes. As a result they have focused more on these issues in urban areas and stimulated the City Council to adopt the proper interventions.

The implementation of HIA activity led to unexpected administrative and economic results. As a programmed activity with fixed costs it eliminated unnecessary expenditure at the planning and monitoring stage. Economic aspects linked to health repercussions, particularly long-term risks, are not easy to quantify without a correct ex post evaluation.

Input and process of HIA

Input

Following the agricultural firm's request and the doubts arising about the wet zone's possible impacts on population health, a public health professor was commissioned to produce a formal proposal, following in-depth study of the problem and its context. While there was no specific awareness that an HIA-related activity was being undertaken, the City Council wanted to be supported by objective, scientific data in the event that their decision was criticized or attacked by political or community opposition (for this reason no screening process has been performed). The public health professor proposed an HIA activity and asked the City Council to form an ad hoc commission.

Initially the commission comprised a mayoral delegate and two experts: an entomologist and a public health professor. This was expanded to include an epidemiologist and delegates of the agricultural firm and from the population. The commission nominated a steering group involving the mayoral delegate, the three experts and the director of the agricultural firm proposing the project.

Process

The steering group's tasks involved scoping and reporting: meeting three times during the year to define the action plan and task for each component and, at the end, to discuss results and prepare the final report.

The commission was subdivided into groups which involved at least one expert and other stakeholders (farmers, citizens, managers of the proposed construction firm, ecologists and hunters involved in area management). The sub-commissions' tasks generally related to the assessment stage: participants evaluated the topics related directly to their specific competencies.

Briefly, the three experts carried out the evaluation and assessment process through individual analysis, supported by collective discussions. These experts reported results to the Commission from time to time. At the end of the process, the Mayor received four reports: one from each expert and one prepared by the whole Commission. The individual reports were totally bound to their own competencies, based on evaluations focusing on specific aspects (entomology,

health and environment). The final report delivered by the Commission tried to interpret the assessment results from different perspectives, including the medical definition of health and broader socioeconomic determinants.

During the assessment phase different tools and methodologies were employed, including:

- literature research
- focus groups
- on-the-spot investigations
- entomological sampling
- water sampling
- agricultural product sampling (olive trees, grapes)
- bacteriological and chemical analysis
- life-quality evaluation with psychometric tools
- interviews
- retrospective epidemiological survey
- entomological analysis
- comparison with similar cases.

The Commission also decided to use collateral plant engineering, and hydrodynamic, botanic and zoological surveys performed by technicians contacted ad hoc. A specific deadline for presenting HIA results was never set up but the formal process concluded in one year.

Following the previous discussion it should be clear that the Mayor took the decision to ask for expert advice in order to avoid problems with the community. Nevertheless the mayoral delegate had a secondary role in the Commission, almost always acting as a facilitator between experts and community stakeholders. The HIA activity was led by the public health professor who had recognized the need for a more in-depth intervention – an HIA which took account of not only the scientific evidence but also the opinions, experiences and expectations of the population.

Community involvement was strong from the beginning. Apart from direct involvement in the work of the Commission, the potentially affected population attended several meetings during the HIA and their opinions were given great consideration. Moreover, the community was constantly informed about the consequences and impacts of the project, and how to control the collateral effects. At the end of the process the City Council gathered in a public assembly

at which the Commission's experts presented the final report to the community. This community involvement most likely favoured the fact that both decisions and community dynamics proceeded in parallel with the HIA activity process.

From the beginning, politicians have expressed their positive opinion of the HIA activity; indeed some of them were particularly involved. This did not influence the Commission's work as the elected politicians did not intervene either in favour or against the HIA, neither did they try to influence the stakeholders or the experts. They were privileged witnesses, motivated to push the Commission towards achieving the best possible results for health and economics.

HIA is not a legal requirement in Italy; here the need to solve a community's problem triggered a good practice. Only the first expert contacted was aware of the need to carry out an HIA activity and it is not by chance that this was promoted by a professor of public health, with a significant background in evaluation processes.

All the interviewees agreed that politicians, the community and all the other stakeholders brought irreplaceable contributions to the decision, never competing but always trying to bring their best experiences and competencies to maximize the efficacy of the process and reach the best resolution. There is no clear difference between what was stated by the Mayor and the agricultural firm delegate.

The decision was reached according to the HIA results, as discussed with all the stakeholders. The creation of the wet zone has been planned to run concurrently with the continuous monitoring of environmental and health changes.

Conclusion

Although implemented in a very local setting, the HIA activity produced several results. We hope that this experience will change the approach on the political level (even in a small local setting) to pending decisions, taking into account that each policy has an influence on health that should be considered with proper scientific tools. All the interviewees, from many different points of view, underscored its effectiveness in:

- enabling more thorough deliberations about whether to permit the wet zone;
- increasing community empowerment;
- focusing attention on populations at major levels of risk and taking guaranteed measures (e.g. monitoring and controlled biological parameters)

but also health indicators) in order to maintain and improve current environmental and health conditions. Monitoring systems were put into action before the damp zone construction, and are carried out at fixed intervals.

It seems that an HIA's effectiveness is influenced positively by the leadership of a well-trained expert who is able to give the HIA direction; continuous involvement of the community; and politicians who facilitate the process but never pressure for one specific decision. However, we should emphasize that the health aims addressed initially by the HIA activity have been the least evaluated for effectiveness: the wet zone is very new and planning of an ex post evaluation study was missed.

This localized experience can bring some considerations to the Italian context, where HIA is very far from being a decision-making tool. Decision-making can be pushed towards an HIA culture with small but effective examples, by working together rather than competing with the population. Moreover, public health has the duty to stimulate this process and to manage the possible criticisms of HIA regarding stakeholder participation and the different aims of science and politics.