

The Swiss NEHAP: why it ended

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SUMMARY

While European countries tend to increase the importance given to their national environmental health action plan (NEHAP), Switzerland stopped implementing its NEHAP in 2007. This study investigates the reasons for this surprising decision. The results provide an explanation of a relatively unique case and should inform any person interested in understanding common obstacles in the making and implementation of coordinated environmental health policies and programs. Data used in this study have been obtained from interviews conducted among experts of the Swiss environmental health policies and from survey results provided by the WHO Regional Office for Europe. Findings show that financial constraints were only partly responsible for the

abandonment of the NEHAP and that many of the shortcomings observed arose from the creation and the functioning of the Environmental and Health Section at the Federal Office of Public Health, which was devoted to the NEHAP. Lack of scientific knowledge and capacity to build intersectoral collaboration, compounded by a limited conception of environmental health, resulted in a lack of political awareness of environmental health issues. In consequence, the study highlights the necessity of a true interdisciplinary and intersectoral approach for environmental health policies. Policy makers should also be concerned with the creation of relevant systems of indicators, since they appear to be fundamental to the success of environmental health policies.

Key words: environmental health; interdisciplinarity; NEHAP; Switzerland

INTRODUCTION

The emergence of environmental health as an integrated field of public policy is relatively new and notably followed the publishing of the report 'Our planet, our health' (WHO, 1992). At the European level, efforts to develop national strategies of environmental health were mainly driven by the WHO Regional Office for Europe (WHO/Europe) and based on the results of the Second European Conference on Environment and Health in Helsinki (WHO/Europe, 1994).

From 1997 until 2007, the Swiss federal government developed and implemented a national environmental health action plan (NEHAP) that was then abandoned officially for budgetary reasons. A dedicated unit entitled Environment and Health Section (EHS) had been created within the Federal Office of Public Health

(FOPH) in order to manage a program mainly based on three pilot regions, each of them devoted to a specific theme: mobility in Crans-Montana, nature in Thal and housing in Aarau.

The Swiss decision not to pursue the implementation of a NEHAP raises at least two questions. First, is there an added value for a European country developing a NEHAP? The few studies comparing NEHAPs' results across Europe tend to consider them as mostly positive. Often cited are the better political attention received by environmental health issues, the increase of the collaboration between public sectors (mainly environment and health) and private actors (NGOs and firms) and the acceleration of legislative production (Kleinjans *et al.*, 2003; Perlstadt, 2003; Martuzzi, 2006). Secondly, what are the reasons that can be put forward in order to explain the abandonment of environmental health policy by

the Swiss federal government? At least four interconnected issues can be mentioned. First, environmental health, being a relative new and scientifically complex topic, requires a strong interdisciplinary approach for which Switzerland was not prepared, at least at the administrative level, since few resources were invested in the development of an 'environment-and-health-network' (Kahlmeier *et al.*, 2002). Second, most European countries, including Switzerland, are missing a sufficient intersectoral collaboration, in order to implement efficient environmental health policies, as the health sector alone cannot reach an integrative approach (Ziglio, 2000; Kahlmeier *et al.*, 2002). Third, the development of substantial sets of environmental health indicators dealing with 'effects such as: cocktail effects, combined exposure, and cumulative effects' is still in its infancy (Briggs, 2008). Thus, countries implementing environmental health policies face serious limitations when it comes to assessing them. Finally, environmental health suffered from a very limited attention by the political authorities, which were mainly focusing on sustainable development as a new field in public policy, be it at the national or international level (Mebratu, 1998).

This article starts by presenting the relevance of the debate around the Swiss NEHAP process, notably by arguing that its existence/absence may have a consequent impact in terms of results reached by public policies related to environmental health. Then it reviews the different reasons that explain the failure of a continuation of the Swiss NEHAP. Finally, it proposes some recommendations aimed at revitalizing a process almost completely abandoned, whether the NEHAP itself or, more generally, environmental health policies.

CONCEPTUAL FRAMEWORK

The use of qualitative methods to analyze public policy process has been long discussed and is closely linked to case study. Indeed, case study defined as 'the intensive study of a single unit or a small number of units' tends to favor research goals, such as 'internal validity', the investigation of 'causal mechanisms' or a 'deep scope of proposition' (Gerring, 2009, pp. 1139–1140), for which qualitative methods appear particularly relevant. In this regard, interviews are considered as a very efficient way of collecting information about variables that cannot be measured

directly or only in a very limited way (Foddy, 1993), especially when secondary data is rare as in the case of environmental health policy processes. Among the most common criticisms of qualitative research and interview methods, the 'lack of control in the selection of data for analysis and the 'difficulty of replicating findings' are often cited [(Foddy, 1993) p. 16].

Using a 'stagist' approach (Jenkins, 1978; May and Wildavsky, 1978) to describe the policy cycle may limit these shortcomings by providing a relatively standardized model of the policy cycle, reducing its complexity into a few manageable stages (Parsons, 1995). This study will retain four stages of the policy cycle: the agenda-setting phase, the formulation phase, the adoption phase and the implementation phase. Given that every model simplifies real-world complexity, it is necessary to acknowledge some important drawbacks of the stagist model, notably the fact that it is creating the illusion of distinct phases in the policy process, whereas the reality is more intertwined (Sabatier and Jenkins-Smith, 1993).

The stagist model offers a first structuring of the policy cycle analysis. However, it is also needed to determine more precisely what type of information should be gathered for every stage identified. Recently, the 'new institutionalism' paradigm has gained much attention in the political science field, corresponding to a renewed interest in the role of institutions following the domination of the behaviorist model in the 1960 and the 1970 (Hall and Taylor, 1996). In fact, according to Hall and Taylor, the new institutionalism encompasses three analytical approaches, each of them focusing on a particular aspect of the political world: distribution of power within institutions and path dependency in the historical institutionalism, actors' interests in the rational choice institutionalism and cultural aspects of institutions, including symbolic, cognitive or moral elements in the sociological institutionalism (Hall and Taylor, 1996). In consequence, new institutionalism allows taking into account groups of variables from generally distinct policy theories, such as the five identified by John (1999). In this study, three groups of variables will thus be used: first, variables concerning traditional institutional configuration; second, variables dealing with the actors' interests; third, variables reflecting the 'ideas' of actors (be it values, cognitive concepts, etc.).

Turning now to the policy analysis of NEHAP process, it is interesting to note that, contrary to

national strategies for sustainable development [for which a considerable corpus of academic studies exists; see, for example (Swanson *et al.*, 2004); (Schubert and Störmer, 2007)], most of published works is produced by international institutions and governmental agencies [for example (WHO/Europe, 2010a)], even if some academic studies exist (Kleinjans *et al.*, 2003). In this regard, a study of the Swiss NEHAP policy process appears to be largely original, not to mention the fact that Switzerland is unique due to its abandonment of the NEHAP process. In fact, there were several official reports published after the end of the NEHAP (Environment and Health Section, 2007; Mauch and Balthasar, 2007; Thommen *et al.*, 2007; Oetterli and Balthasar, 2011), but they were mainly focusing on the concrete evaluation of the programs and projects and did not take into account the broad political context. It is also worth mentioning a study of the first years of implementation of the NEHAP (Kahlmeier *et al.*, 2002), which described the perceived weaknesses of the plan at that time, in particular ‘the lack of involvement of the economy and the general public’ and the institutional separation between environment and health areas.

METHODS

The information and data collected come from three different sources. First, data provided by the WHO/Europe (2010a)¹ were used to determine Switzerland’s position in terms of environmental health results, whether it was at the forefront or lagging behind other countries². These data were processed through a principal component analysis (PCA), allowing summarizing the information contained in a large number of correlated variables into a few uncorrelated principal components, each of them explaining a part of the total variance observed in the set of data under study (Jolliffe, 2002).

Second, several reports dealing with environmental health and the Swiss NEHAP were published either by the EHS or by the scientific

institutes that were appointed by the EHS (see references above). These reports give a relatively precise account of many strengths and weaknesses of the Swiss NEHAP.

Third, 13 interviews were conducted between 2012 and 2013 among experts of the Swiss environmental health policy in order to better understand the reasons explaining major shortcomings of the NEHAP process. The number of interviews conducted was aimed at covering the various types of actors, both public and private, involved in the environmental health process, considering the three Swiss institutional levels (federal, cantonal and communal). The interviews were semistructured and followed an interview guide divided according the four phases of the policy cycle identified above. For each phase, questions were then subdivided in three groups, corresponding to the three ‘new institutional’ dimensions mentioned previously: institutions, actors’ interests and ideas. People interviewed had different kind of relationship with the NEHAP process in general as shown in Table 1. The software *atlas.ti* was used to carry out the content analysis of the interviews. Codes, corresponding to the four phases of the policy process and to the three groups of independent variables highlighted above, were assigned to the interviews transcriptions, in order to facilitate the comparison of answers given by respondents.

RESULTS

Current Swiss position in the European context

One might suggest that a country that terminates its national environmental health strategy does so because it has reached a high level of policy success, in terms of either policy development or implementation for example, and does not necessarily need to refer anymore to a strategy designed in a European context. In fact, ‘a specific policy need not live forever; when a policy’s objectives are reached and maintained, its relevance and applicability should be reconsidered and [...] terminated’ (deLeon, 1978). To figure out if it is the case regarding Switzerland, the WHO/Europe assessment of national environmental health policies represents a good comparative basis. In 2009, WHO/Europe conducted a survey in the Member States (WHO/Europe, 2010a). This survey was intended to measure achievements made in the four regional priority goals (RPG)³ of the

¹ National data were not included in the above-mentioned report and had to be obtained from the WHO Regional Office for Europe in Bonn.

² Data courtesy of WHO/Europe. The views expressed in this article are those of the author and do not necessarily reflect the opinion of WHO/Europe.

Table 1: List of people interviewed

Name (anonymous)	Function	Main themes mentioned ^a
A	Funding member of interface (evaluation and assessment of public policy, private firm)	Left vs. right; SD vs. EH; indicators
B	Former member of the National Council (1987–1999), former member of the Council of States (1999–2007)	Influence of individuals (–); left vs. right; environmental perception
C	Former collaborator of the EHS	Influence of individuals; left vs. right; FOEN vs. FOPH (–); SD vs. EH (–); weak EHS
D	Former federal counselor, in charge of the Federal Department of Home Affairs	Left vs. right; FOEN vs. FOPH; weak EHS; environmental perception
E	Collaborator of the <i>Büro für Mobilität</i> (Office of Mobility, private firm)	Left vs. right; weak EHS; indicators
F	Former director of a Pro Natura center, state counselor in the canton of Fribourg	Influence of individuals; left vs. right; SD vs. EH
G	Former secretary of state for Education and Research, former director of the University Hospital of Lausanne	Separation of responsibilities; influence of individuals (–); indicators
H	Former member of the National Council (1995–2007), member of the Council of States (since 2007)	Financial context; influence of individuals; left vs. right; FOEN vs. FOPH; SD vs. EH
I	Former head of the pilot region Crans-Montana	separation of responsibilities; left vs. right; SD vs. EH (–); weak EHS; indicators
J	Former head of the Federal Office of Environment	influence of individuals (–); left vs. right; FOEN vs. FOPH; indicators
K	Former Geneva Delegate for environmental health by the Federal Office of Public Health	financial context; influence of individuals; left vs. right; FOEN vs. FOPH; SD vs. EH; weak EHS; indicators
L	Collaborator of the Federal Office of Environment, Section Quality of Air	influence of individuals (–); left vs. right; FOEN vs. FOPH (–); SD vs. EH (–); weak EHS; indicators; environmental perception
M	Former head of the EHS	separation of responsibilities; influence of individuals; left vs. right; FOEN vs. FOPH (–); SD vs. EH (–); indicators

^aThe nine themes highlighted here are described in the analysis. Among them, three were more controversial than others: the influence of specific individuals, the relationship between FOEN and FOPH and the relationship between sustainable development (SD) and environmental health (EH) concepts. Opinions in minority (divergent from those presented in the analysis) are followed by the sign '(–)'.

'Children's Environment and Health Action Plan for Europe'—which was adopted during the Fourth European Ministerial Conference on Environment and Health in Budapest in 2004 and laid the foundation of the ongoing European focus on children's health (WHO/Europe, 2004)—in terms of six policy dimensions.⁴

Far from ranking Switzerland among the leading countries in environmental health policies, the results of the survey tend to place it in a group

of countries lagging behind the most advanced Western European Member States.⁵ Figure 1 shows the result of a PCA (Jolliffe, 2002) computed with the software *R* and based on the data provided by countries having responded to at least 10 of the 14 groups of questions of the survey⁶. The first principal component (PC1) accounts here for about 70% of the variance observed and can easily be interpreted as a measure of the overall success of the environmental health policies. The second principal component (PC2) represents ~15% of the total variance and might

³ RPG1: water, sanitation and health; RPG2: accidents, injuries, obesity and physical activity; RPG3: respiratory health (indoor and outdoor air pollution); RPG4: chemical, physical and biological hazards.

⁴ Policy development, implementation and enforcement, accountability for health, health sector involvement, equity considerations, transparency and communication.

⁵ Members states of the « Group A » including: EU15, Andorra, Iceland, Monaco, Norway, San Marino, Switzerland.

⁶ With one exception: Sweden did not answer question 1.2 so the average value of the Group A was used instead.

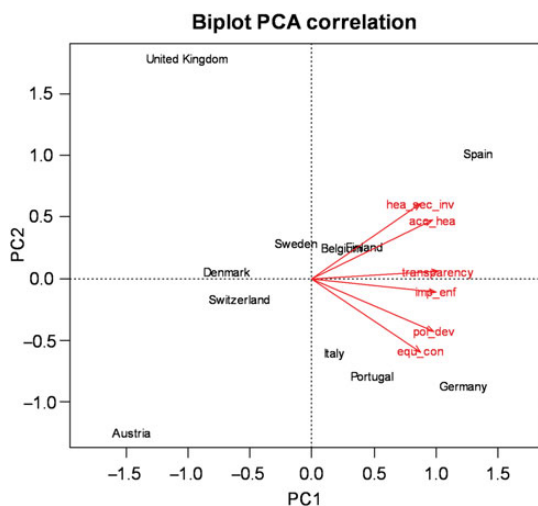


Fig. 1: Values for the six policy dimensions ('species scores') and the 11 countries ('sites scores') represent continuous variables. Species scores are scaled proportional to eigenvalues, sites scores are unscaled. *hea_sec_inv*: health sector involvement; *acc_he*: accountability for health; *transparency*: transparency and information; *imp_enf*: implementation and enforcement; *pol_dev*: policy development; *equ_con*: equity considerations.

be considered as indicative of a 'health' dimension in the policies implemented. Our purpose is not to discuss the positioning of the various countries, but simply to highlight the relative poor results reached by Switzerland, that is to say scores below the average value of the 11 countries taken into account regarding the six dimensions of the survey. Using the software *R* and a minimum variance clustering method (Ward, 1963) allowing to group countries according to the similarities of their results, Switzerland ranks thus among countries with relatively weak environmental health policies, in the same group as the UK and Denmark (see Figure 2).⁷ Germany and Spain comprise the cluster of countries with relatively advanced environmental health policies, whereas five countries are part of the intermediate cluster (Portugal, Italy, Sweden, Belgium and Finland), Austria being here an outlier.⁸

⁷ According to PC1, the more a country is situated on the left of the figure, the less its overall results are good.

⁸ We would like to highlight the fact that these results mainly correspond to the data provided by countries prior to the beginning of the European economic and financial crisis at the end of the 2000s.

Unfortunately, there is no similar survey conducted before Switzerland stopped its NEHAP in order to get an *ex-ante/ex-post* comparison. However, returning to the initial question, it is reasonable to presume that Switzerland has not reached such a high level of policy success that might explain the abandon of its NEHAP.

Added value of the Swiss NEHAP

If Switzerland has not reached highly ranked environmental health policy results, it might still be considered that the country chose not to pursue its NEHAP because of its inefficiency or, more generally, because it did not succeed in fulfilling the goals it had defined. Again, the evidence does not speak in favor of this argument, at least for two reasons. On the one hand, the objectives of the NEHAP were relatively modest. The NEHAP was not a national strategy *per se* but focused instead on three pilot regions, each of them being assigned a particular theme: 'mobility' in Crans-Montana, 'nature' in Thal and 'housing' in Aarau. Consequently, by relying on local contexts (WHO/Europe, 2010b), the objectives of the NEHAP were not running the risk of dissipation that could lead to a high degree of inefficiency. On the other hand, cost-benefit analysis and qualitative assessments show that far from being a failure, the NEHAP proved to have largely positive outcomes. For example, according to a study carried out in 2007, during the period 1997–2005, the benefits of the 30 most important activities of the NEHAP reached a total of 17.2 million Swiss francs (CHF), whereas the costs were 12.6 million CHF (Mauch and Balthasar, 2007). In consequence, the benefit/cost ratio of the NEHAP was about 1.36, which is not negligible even though this value cannot be compared with those of alternative projects. What is more, many of the long lasting (sustainable) effects of the NEHAP could not be taken into account or were simply undervalued, which renders the amount of 17.2 million CHF a rather low estimation. More generally, projects developed within the pilot regions have permitted to obtain positive outcomes by modifying 'framework conditions' regarding environmental health problems, that is conditions related to local institutions or infrastructures⁹ (Thommen

⁹ In contrast to the outcomes in terms of 'knowledge' and 'behavior' which were less successful.

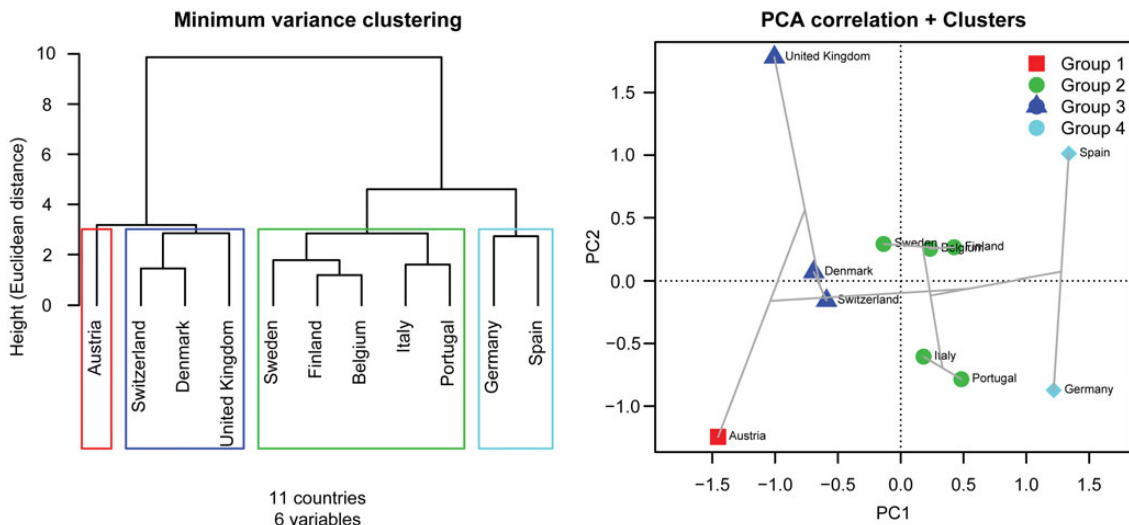


Fig. 2: Values for the 11 countries ('sites scores') represent continuous variables. Sites scores are unscaled.

et al., 2007). Every pilot region has also been able to develop over time a network of key actors dealing with environmental health issues and to gain an influence beyond its territorial borders (Oetterli and Balthasar, 2011).

Rationale for a premature end

While other European countries were initiating or pursuing NEHAP processes, Switzerland decided in 2007 to dissolve the EHS and to put an end to its NEHAP. In fact, the decision was taken in 2005 by the federal counselor in charge of the Department of Home Affairs (DHA), responsible for the FOPH, in the framework of the 'Program of abandonment of federal tasks' (*Programme d'abandon des tâches de la Confédération*) which aimed at drastically reducing the expenses of the federal State (about 200 million CHF per year) in order to reach a balanced budget (Federal Department of Finance, 2005b).

However, this financial and economic context does not explain by itself the premature end of the Swiss NEHAP. Indeed, each federal department was relatively free to decide where to cut spending, and the projected saving linked to the dissolution of the EHS was ~1.5 million CHF over 3 years and accounted for only 3.7% of the total projected saving within the DHA (Federal Department of Finance, 2005a). Therefore, it appears necessary to consider other factors having led to the end of the EHS and to highlight

the role of institutions, actors' interests and cognitive elements.

Traditional institutional configuration

Both vertical and horizontal separations of responsibilities and power in Switzerland have contributed to the development of a weak EHS. On the one hand, the high degree of subsidiarity in the fields of environment and health policies—between 78 and 98% of related expenditures being made by municipalities and by the cantons (IDEHAP/BADAC, 2005)—leaves only little room for federal action, even though recent political reforms such as the new federal law on health insurance have tended to extend federal capacity at the cost of an increasing entanglement of competences (Kocher, 2005). On the other hand, based on the Agenda 21 structure, federal policy regards environmental health as a dimension of sustainable development. However, the federal office responsible for sustainable development, the Federal Office for the Environment¹⁰ (FOEN), is not same as the one responsible for environmental health (FOPH). Moreover, sustainable development is used as a guideline concept in various other offices—for example in the 'SwissEnergy' program (Swiss Federal Office of Energy, 2001)—in contrast to environmental health, reducing therefore the

¹⁰ After 2002, sustainable development was transferred to the newly created Federal Office for Spatial Development (ARE).

legitimacy of the latter in the federal arena vis-à-vis sustainable development and placing the FOPH in a situation of relative dependence on the FOEN.

EHS was limited not only by the vertical and horizontal constraints mentioned above but also by the fact that it was inherently weak. Indeed, the section only had six members, neither of them being really trained in the environmental health field. In fact, the initial formulation of the NEHAP was realized by a network of experts mainly based on research conducted by the Institute of Social and Preventive Medicine (University of Basel) before being transferred to the section. This transfer from an academic institution to an administrative one led to a loss of scientific expertise.

Actors' interests

From an actors' perspective, one of the main weaknesses of the EHS and consequently of the NEHAP was its reliance on personal wills. The existence of the EHS was never incorporated within a legislative framework and only depended on the determination of members of the Social Democratic Party (left wing), notably in charge of the Minister of Home Affairs and of the FOPH at the time of the EHS launching. The absence of an agreed legal basis thus explains the ease with which the EHS was brought to an end by the then Minister of Home Affairs, this time a member of the Free Democratic Party (right wing).

In fact, this situation of antagonist personal wills reflected the lack of a genuine political support in a context of high ideological opposition between left- and right-wing parties (including a rising Swiss People's Party), with the former defending a preventive health approach, whereas the latter were in favor of a biomedical approach [see, e.g. (Federal Office of Public Health, 2009)]. Consequently, no political measure labeled 'environmental health' was adopted during the NEHAP period outside the programs led by the EHS.

Regarding the interests of the EHS itself, it is interesting to mention that its attempt to develop activities related to environmental health conflicted with activities 'traditionally' led by the FOEN, such as impact assessments. Instead of promoting cooperation between the federal offices, the willingness of the EHS to develop 'durability impact assessments' was perceived as a threat to the viability of 'environmental impact assessments', until then a prerogative of the FOEN. Symbolically, even a change in the wording, with the use of 'evaluation' rather

than 'impact assessment', could not prevent a diminishing collaboration.

Cognition and personal interpretations

People pursue objectives, they interact in constraining sets of institutions but they also behave according to their own knowledge and beliefs about particular issues, including environmental health. In this regard, the lack, or even the absence, of genuine training in environmental health has played a fundamental role in keeping environmental health low on the political agenda and in preventing the development of a national expertise, notably within the EHS. This has created a vicious circle, since scientific knowledge and agenda setting tend to go hand in hand (Weingart, 1999). The example of outcome evaluations illustrates how little scientific expertise maintains environmental health issues low on the political agenda. Indeed, no indicator-based evaluation of the NEHAP could be conducted at the local or federal level, either because of the absence of people trained in that field at the local level, or because of the use of divergent criteria and indicators between local and federal authorities, or even owing to parallel and incompatible systems of indicators between federal offices.

At the highest political level, the low importance given to environmental health issues was reinforced by the belief in an overall good preservation of the Swiss natural environment, a sort of 'natural myth'¹¹ in the sense that it was not based on scientific evidence. In a similar way, political leaders tended to show a better perception of technical measures (for instance limitations of cars emissions) than life-style measures, such as those that were implemented in the pilot regions (for instance incentives to walk or cycle instead of using motorized vehicles).

DISCUSSION

The various factors highlighted show that the end of the NEHAP was the result of a growing isolation of the EHS within the federal administration, rather than simply a matter of financial constraint. In fact, if a country is willing to deal with environmental health issues in a

¹¹ On the cultural relationship between Switzerland and its natural environment, for example the 'Alpine myth', see Kaufmann and Zimmer (1998).

comprehensive way—that is by integrating the various human environments (natural, aesthetic, socioeconomic, etc.) into a single conceptual framework, which is the objective of a NEHAP—then it has to succeed in fulfilling certain criteria, which in turn may improve the stability and durability of the administrative system devoted to environmental health policies.

First, complex topics need to rely on interdisciplinary understanding (Repko *et al.*, 2012). The EHS was lacking the necessary scientific knowledge and expertise and it proved to be a crippling drawback. In the case where interdisciplinary thinking and research aim at producing a pragmatic content, that is, for example, useful for policy making, then the concept of ‘instrumental interdisciplinarity’ (Repko, 2008) focusing on methodological and problem solving issues appears to be particularly relevant and should be emphasized in any environmental health policy project.

Second, the development of an interdisciplinary research should be fostered by intersectoral collaboration, as scientific expertise is generally dispersed across administrative sectors. The need for various administrative units to work together implies the creation of institutional incentives to do so. In Switzerland, not only these incentives did not exist, but the localization of the whole section dedicated to environmental health within the FOPH led to counterproductive conflicts of interests.

Deeply linked to the issues of interdisciplinarity and intersectoral collaboration lies the relationship of environmental health and sustainable development. It has been shown that conceptual subordination of environmental health vis-à-vis sustainable development in the Swiss context had reduced political interest for the former. However, the intrinsic complexity of environmental health should not allow considering it as a component of the social dimension of sustainable development (Division for Sustainable Development, 2001). Indeed, environmental health understood as ‘the condition or state of human beings resulting from the interrelations between humans and their biological, chemical, physical and social environment’ (Lawrence, 2004) translates into a concept very similar to sustainable development in its structure linking various dimensions (Hancock, 1996). In consequence, giving environmental health a truly interdisciplinary content would raise not only its political appraisal but also the capability of

scientific and administrative communities to correctly deal with it.

Finally, paraphrasing the physicist Max Born, what is not measured by indicators does not exist, especially in the field of public policy. In Switzerland, the absence of any precise and substantial system of indicators has considerably hindered political efforts to support environmental health issues. Again, this problem is profoundly connected to those of interdisciplinarity and intersectoral collaboration, insofar as indicators should reflect and take into account contextual situations (Lawrence, 2008), in order to avoid the creation of irrelevant measurements or of measures impossible to put in place.

The Swiss case is highly illustrative because failures to meet some essential policy prerequisites led to a dramatic conclusion: the end of the Swiss NEHAP and of the EHS. This does not imply that the continuation of NEHAP in other European countries necessarily means they have succeeded in reaching higher scientific and policy standards. In fact, the Swiss conditions were unique to that country, but they represent major shortcomings that could, taken separately or in combination, negatively affect environmental health policies in any country. In this regard, it should be considered as a primordial policy task to develop an autonomous environmental health concept based on interdisciplinary and intersectoral approaches.

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