

Swiss Federal Office for the Environment FOEN

Evaluation of the Swiss Centre for Applied Ecotoxicology

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Summary

The Swiss Centre for Applied Ecotoxicology (Ecotox Centre) was established in 2008 by order of the Federal Council and the Swiss Parliament on the basis of the Graf Postulate 02.3125. It operates as a part of Eawag, in Dübendorf, as well as ETH Lausanne (EPFL). Its core mandate as outlined in the “Report of the Federal Council on Toxicology Research in Switzerland” (Federal Council 2007) is to serve as an independent competence centre, hub and central point of contact for research and development, as well as to provide continuing education and services in practice-oriented, applied ecotoxicology in the areas of water, sediment and soil. The initial phase after the Ecotox Centre was founded was evaluated in 2009. Then, following a change in management personnel in September 2010, a strategic and structural development process involving the main players and stakeholders was launched with a view to establishing how the Centre should go about fulfilling its fundamental mission. This culminated in the 2012-2016 Implementation Plan, which was drawn up in 2012.

The evaluation in this report analyses the operational period from 2011 to 2014, on the one hand with a focus on accountability in terms of achieving the targets, i.e. reporting on the extent to which the Ecotox Centre was successful in positioning and establishing itself as a competence centre (summative element), whilst on the other hand looking at the optimisation of the services and impacts of the Ecotox Centre (formative element). The evaluation was carried out at the request of the Advisory Group for the Ecotox Centre, led by the Swiss Federal Office for the Environment (FOEN). The Advisory Group consists of public sector representatives at national and cantonal level, as well as those from industry and research, and its remit includes carrying out regular reviews.

Purpose and focus questions of the evaluation:

The evaluation focuses on two areas:

- The degree of success of the Ecotox Centre in establishing and positioning itself as a competence centre, and
- Optimisation of the Centre’s competencies and cooperative activity and its range of services, as well as of the structure and organisation of the Centre.

Questions posed by the evaluation

- To what extent do the strategic focus areas defined in 2012, along with the concomitant implementation plan, fulfil the mandate from the Federal government and the requirements of the various stakeholders?
- What services did the Ecotox Centre provide between January 2011 and December 2014, and what was the perceived quality of these services?
- How are the impacts of the Ecotox Centre between 2011 and 2014 perceived?
- To what extent has the Ecotox Centre been successful in establishing itself as a nationally and internationally recognized institution with secure funding?
- To what extent do the services and impact of the Ecotox Centre reflect government policy and, thus, the Centre’s fundamental mission?

- During the period from January 2011 to December 2014, to what extent was the Ecotox Centre able to adequately respond in the areas identified by the stakeholders as requiring action?
- How valuable a contribution is the Ecotox Centre deemed to make towards protecting Switzerland from ecotoxicological risks? To what extent is there a need for optimisation in order to comply with government requirements and fulfil the needs of the stakeholders?

Methodology

The approach taken for this evaluation incorporated multiple perspectives and was divided into three phases: In phase 1, an initial *document analysis* served as a basis for developing the questionnaires and establishing a series of indicators. *Exploratory interviews* were conducted with key players in order to redefine the object of the evaluation and further develop the evaluation design.

Phase II consisted of a second stage of document analysis, as well as a survey of a large number of experts selected with the help of the advisory group. *Structured interviews* were conducted in person and over the telephone with *experts* from the field of ecotoxicology, who provided their own assessments of the suitability of the Centre's strategic focal areas, its financing, the quality of its services and its impacts. These results were supplemented with the results of a *survey of international experts*, with whom structured interviews were also conducted in order to glean information on specific questions relating to the international profiling and the cooperative activities of the Ecotox Centre. In addition, an *online survey of representatives from the specialist cantonal units responsible for surface waters, soil and plant protection* provided a broad evaluation of the services and impacts of the Ecotox Centre, as well as of the quality of the services it provides to cantonal authorities.¹

The purpose of the third and final phase was to validate the results and draw up recommendations. A workshop was held with the members of the advisory group, the steering committee and the management of the Ecotox Centre to facilitate detailed discussion of the optimisation requirements and to arrive at a mutually agreed set of recommendations for action. This evaluation report presents the full results of the three phases along with the recommendations drawn up by the evaluation team.

Results

Overall, the development of the Ecotox Centre and its services and impacts were rated very positively, both by national and international experts and by the specialist cantonal units responsible for surface waters. Over the past few years, the Ecotox Centre has been able to establish itself as a national competence centre with widespread international recognition. The Centre provides important services to the private and public sector, and thanks to its professional development programme it makes a significant contribution to the development of competencies within the field of ecotoxicology for specialists in the

¹ The representatives from specialist cantonal units rated the services and impacts of the Ecotox Centre on a scale of 1 to 4 with the following designations: 1=unsatisfactory, 2=tending towards unsatisfactory 3=tending towards good, and 4=good.

public sector and in industry. The Ecotox Centre has a high level of competency in the areas of aquatic ecotoxicology and sediment ecotoxicology, although there is room for improvement in the area of terrestrial ecotoxicology. Highly regarded were the education and training programs, both in their content and presentation. In isolated cases there was a call for a greater level of involvement in education and training. All respondents stressed, however, that these gaps existed due to a lack of resources, as the current level of funding was insufficient to fulfil the complete portfolio of services that was originally conceived for the Ecotox Centre.

The responses to the main questions contained in the attitude survey are summarised on an individual basis below.

Evaluation question 2:

What services did the Ecotox Centre provide between January 2011 and December 2014, and what was the perceived quality of these services?

The Ecotox Centre provided a broad range of services during the period in question from 2011 to 2014, and these services were rated very highly in terms of their quality. There are isolated gaps in service in terms of what was envisioned in the 2012-16 Implementation Plan.

- *Education and professional development:* The offering in the area of professional development was considered to be of very high quality, relevant in terms of content and practice-oriented. Respondents expressed the desire to see the Ecotox Centre increase its level of involvement in the area of basic education and training.
- *Information:* Stakeholder information is communicated via a practice-oriented newsletter and information sheets. These are valued highly by the stakeholders. Criticism about the website has already been responded to.
- *Platform for coordination and knowledge-sharing:* The Centre has been able to expand its national and international network. Moreover, thanks to the significant increase in the number of enquiries it receives, it has developed its function as a coordination hub and a platform for sharing knowledge, particularly in the area of aquatic ecotoxicology. The responses indicated varying expectations in terms of the Centre being either more practically or more academically positioned. The Ecotox Centre's involvement in SETAC GLB² was valued particularly highly.
- *Applied research projects:* The activities of the researchers at the Ecotox Centre were consistently highly regarded, and these activities are backed up by a broad range of publications by the Centre, which numbered a total of 58 scientific papers, reports and articles during the period under evaluation. The Micropoll research projects and the modular stepwise procedure were cited as being well-known and of significant interest. A specific desire to see more applied research in the area of early detection was expressed, and some cantonal representatives said they would like to see greater consideration of practical application issues during the development of tests and methods.
- *Participation in national and international forums:* The Ecotox Centre has cultivated a very strong national and international network, and the significant level of involvement

² Society of Environmental Toxicology and Chemistry Europe – German Language Branch

and participation of all its staff was highly valued by many of the respondents.

- *Services to the private and public sector:* The Ecotox Centre has a well-focused portfolio in terms of the services it offers in this area. The large quantity of services provided for the FOEN, along with the Centre's potential competition with private service providers came under criticism in isolated instances. The latter was invalidated, however, by the experts involved in the Phase III workshop, who affirmed that the Ecotox Centre actively worked to avoid competing with private providers, and was also prepared to respond appropriately if informed of any such cases.
- *Extent of awareness of services and quality:* The Centre was best known for its information and professional development services. The tests and risk assessments, along with professional development services, the newsletter, networking and individual advice were the most frequently used products and services. A need was identified for services in the area of terrestrial ecotoxicology. There is a high level of satisfaction in terms of the quality, with the Centre's advisory services and course offering being particularly highly valued. On the negative side, it was felt that there was insufficient awareness about the Ecotox Centre in some of the cantons.
- *State-of-the-art and practice-oriented services:* The services were regarded as being state-of-the-art, and it was felt that the work of the Centre had practical relevance and was in line with current international research standards.
- *Independence of the Ecotox Centre:* The independence of the Centre in respect of selecting its focal areas was questioned in isolated instances. In the spheres of agriculture, business and industry, respondents expressed the wish to see their interests better represented, within the bounds of the legal provisions. However, this criticism was invalidated in the workshop discussion, during which it was noted that the mandate of the Ecotox Centre is primarily to promote environmental interests. It was noted that those from business and industry also have the opportunity to raise their concerns with the Strategic Steering Committee.

Evaluation question 3a:

How are the impacts of the Ecotox Centre between 2011 and 2014 perceived?

The Ecotox Centre has successfully established itself as a competence centre, achieving a very good reputation and positioning at both national and, especially, international level. Moreover, it makes a significant contribution to the education and continuing professional development of experts in the field of ecotoxicology.

- The Ecotox Centre's broad base of expertise, the breadth of courses it offers to participants from the public sector, private consultancy providers and those in industry, along with the intrinsic motivation and excellent networking of all members of staff, all combine to distinguish Ecotox as a national competence centre. There is a particularly strong potential for working together with cantonal departments as well as partners in business and industry.
- Internationally, the Centre has an excellent reputation and a strong network. International experts emphasized the relevance of an independent, practice-oriented centre for ecotoxicology. The Centre is the only one of its kind in Europe, and is widely known. At the same time, respondents from organisations within Switzerland cautioned against investing too large a proportion of the resources in international activities, given

the resource shortages at home.

- There is general satisfaction among the specialist cantonal units that the future of the field of ecotoxicology is secure in terms of the next generation of scientists. Likewise, there were no concerns in public sector units about the current supply of well-qualified personnel. For their part, the specialists interviewed were confident that the Ecotox Centre's major contribution to effective succession planning lies in its continuing professional development courses.

Evaluation question 1:

To what extent do the strategic focus areas defined in 2012, along with the concomitant implementation plan, fulfil the mandate from the Federal government and the requirements of the various stakeholders? What measures has the Ecotox Centre put in place to further develop the organisation, staff structure and infrastructure? How are these measures perceived?

The 2012-2016 Implementation Plan was seen by the respondents as a useful tool for planning and implementing the core mandate of the Ecotox Centre. It was felt that it had helped to sharpen the focus of the Centre and to deploy resources effectively. However, due to limitations of financial and staffing resources, the Plan could not be fully implemented. The introduction of a new business plan (valid from April 2015) meant that the Implementation Plan had lost some of its relevance and now needed to be updated for the coming year. The Ecotox Centre has been developing its structure and organisation on a continual basis and has made a substantial amount of progress in terms of securing expertise thanks to the introduction of permanent posts. However, there remains a need for a review of the management structure.

- It was highlighted that there was a lack of capacity and competence in the field of terrestrial ecotoxicology, due to inadequate financial and human resources.
- The Centre has made continual improvements to the organisational and staffing structures as well as its infrastructure: departments were reorganised, Group Leaders and tenure tracks were introduced, and quality assurance concepts developed. In terms of its organisation, the Ecotox Centre is currently in its consolidation phase. An increasing number of temporary appointments have been made into permanent positions, thus developing the staff structure to a more mature level, which was regarded as a very positive move by all respondents. The incorporation of the Ecotox Centre into Eawag/EPFL was seen as a logical step from the point of view of shared use of the infrastructure.
- The management committees have also been developing since the establishment of the Ecotox Centre, and have tended to become more complex, which has had an impact on the decision making processes. In particular, the influence of the competent Federal Offices is formally limited, although this has so far led to very few cases of friction, thanks to the good level of cooperation between the different parties. It is notable that whilst the cantons are major users of the Centre's services, they have not so far been taking a share of the expenses, and also have only a limited degree of input into the development and direction of the Ecotox Centre.
- Together with calls for greater clarity regarding the roles of the management committees and simplified decision-making processes, the desire for more

transparency regarding funding structures was also expressed.

- The Ecotox Centre was successful in strengthening its national and international collaboration and building its network in line with the strategic plans.

Evaluation question 3b:

To what extent has the Ecotox Centre been successful in establishing itself as a nationally and internationally recognised institution with secure funding?

The integration of the budget within that of Eawag was seen as a positive and appropriate step, although the importance of more transparent funding structures was stressed. The respondents deemed the financial footing of the Ecotox Centre to be secure in the long term, but it was repeatedly stressed that current funding was insufficient to deliver the full portfolio envisaged in the Implementation Plan.

- According to current financial planning, the implementation of the current staffing plan up to 2018 means that the expenditure of the Ecotox Centre is expected to exceed its income, and will use up all the Centre's reserves. The extent to which the planned developments can take place in light of this situation remains to be seen.
- If the full remit, including terrestrial ecotoxicology, is to be realised, then a higher level of core funding will be necessary.
- In spite of a tendency to fluctuate, third party funding appears to be secure in the long term. The demand is there and is expected to increase, which means that competencies and capacities will need to be built up further. The stakeholders are 'satisfied' to 'very satisfied' with the activities of the Centre.

Evaluation question 6:

How valuable a contribution is the Ecotox Centre deemed to make towards protecting Switzerland from ecotoxicological risks?

The Ecotox Centre plays a valuable role in identifying risks, and according to the experts surveyed, the very existence of the Centre raises awareness of ecotoxicological risks.

- *Identification of risks and recommendation of solutions:* The Ecotox Centre plays a role in the early identification of risks, but less so in making recommendations for solutions. The Centre primarily contributes to creating the correct conditions for identifying risks and solutions. The potential exists for strengthening this aspect, provided sufficient resources were in place.
- In its role as a *platform for coordination and knowledge-sharing* and thanks to its outstanding level of networking, the Ecotox Centre makes an important contribution to protecting Switzerland from ecotoxicological risks. The very existence of the Centre means that ecotoxicological issues and risks are given a higher profile.

Evaluation question 4:

To what extent do the services and impacts of the Ecotox Centre reflect government policy and, thus, the Centre's fundamental mission?

The services and impacts of the Ecotox Centre were regarded as properly fulfilling government policy.

- The Ecotox Centre lacks the necessary resources in order to be able to fulfil all the requirements of government policy, however, in terms of what is possible, the services and impacts of the Centre were deemed to have met the requirements well. In the areas

of continuing professional development, information, applied research and risk assessment, including early detection, the services were deemed to be meeting the requirements to a high standard. The mandate to develop test methods was regarded as being fulfilled per se, although the tests were still utilised too little in practice – a situation which was attributed to bureaucratic regulation.

Evaluation question 5:

During the period from January 2011 to December 2014, to what extent was the Ecotox Centre able to respond adequately in the areas identified by the stakeholders as requiring action?

For the most part, the specifications of the stakeholders with regard to the impacts and services of the Ecotox Centre were also deemed to have been successfully met.

- The stakeholders' specifications were more or less congruent with those of government policy and were consequently deemed to have been largely met. Certain topic areas have potential for development, but this is a resource and time-related issue. The experts surveyed felt that the Ecotox Centre was on the right track and had achieved a great deal.

Conclusions and optimization potential for the Ecotox Centre

Evaluation question 7:

To what extent is there a need for optimisation in order to comply with government requirements and fulfil the needs of the stakeholders?

Wide remit and limited resources

In light of the situation in which current resources do not permit the Centre to realise its remit to the fullest extent, particularly in the area of terrestrial ecotoxicology, there is a need for the portfolio of activities and core government funding to be harmonised and adjusted in line with each other. If the core funding is to remain static (CHF 2 million per annum) then the portfolio of activities must be reduced and reviewed in terms of how much of the remit can be transferred to other institutions or taken on by other providers. At the same time, it must be asked whether the core funding can be increased and, in any case, whether additional stakeholders can become involved as sponsoring institutions.

There is, moreover, potential for optimisation in terms of resource planning. The Ecotox Centre should examine and sustainably plan its financial and human resources at the same time as it undertakes a review of the Implementation Plan, and it should clarify which activities should be paid for out of core funding and which with third-party income.

Organisation and structures of the Ecotox Centre

Since the Ecotox Centre was founded in 2008, its management and staffing structures have been adapted as the Centre evolved. This evolution presents its own challenges for the Centre, as the decision-making processes, document flows and funding processes are complex and lack transparency. Moreover, the positions and roles of the committees and the parent institutions – Eawag and EPFL – as well as those of the government as core funder, are not entirely clear.

Improved cooperation with the cantons

The Centre's research activities and services were perceived to be of high quality,

particularly in the area of aquatic ecotoxicology, and the advisory services were seen as extremely helpful. According to the results of the online survey, those cantonal authorities which are familiar with the Centre and which cultivate a cooperative relationship with it are satisfied with the services and support provided. Nevertheless, there is still a great deal of potential to raise awareness of the Centre and its services within the cantons and to strengthen cooperation with the specialist units, particularly in the areas of soil and plant protection, but also in the area of water protection.

New sponsorship model

The need for optimisation with regard to the activity portfolio, resource shortages, organisation and structure, and increase in cooperative activity calls for an examination of the future evolution of the Centre. A new sponsorship model would seem to present a solution for the longer-term. The current structure of the SCAHT with a Foundation as trusteeship – and possibly even a joint “Toxicology” foundation formed by the two institutions, the Ecotox Centre and the SCAHT, is worthy of consideration. The new trusteeship set-up would support the Ecotox Centre more comprehensively, both financially and with new cooperative opportunities and synergies if, for example, cantons, other government departments and relevant (research) institutions were also involved as trustees.

Recommendations

The evaluation team makes the following recommendations for the expedient and sustainable continuing development of the Centre for Ecotoxicology:

Recommendation I: Harmonisation of the activities portfolio and resources

The portfolio of activities and the financial resources should be harmonised with one another in line with the Ecotox Centre’s current situation. As a first step, this will involve a review of the Centre’s positioning in relation to other toxicological (research) institutions as well as its offering in terms of education and services. The funders should examine the future development of the Implementation Plan in collaboration with the major stakeholders and discuss a possible increase in core funding to reflect this.

Recommendation II: Clarification and adjustment of the organisational and management structures

The Ecotox Centre’s management structures should be clarified, and the organisation and interactions of management committees – both internally as well as externally with parent institutions and the government – should be revised, and the funding mechanisms in particular should be made more transparent. The above-mentioned review of the Implementation Plan should initially take place within appropriate management forums. The review should include clarification of the obligations of the Implementation Plan, and, in addition, which aspects should be regulated by the Implementation Plan and which by the Business Plan.

Recommendation III: Strengthening of cooperation with the cantons – new trusteeship model

The concept of a new trusteeship model, e.g. in the form of a “Foundation Centre for Ecotoxicology” or a joint foundation consisting of the Ecotox Centre and the SCAHT as a “Toxicology Foundation”, should be considered, in order to evaluate the extent to which this might provide a sustainable form of trusteeship, as well as a wider support base of

stakeholders and a broader funding base.