

ROAD MAP

for Education and Training in Land Use and Sustainability

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Action for Training in Land Use and Sustainability

Coordination Action FP6 – 018543
FP6, priority 1.1.6.3 Global change and ecosystems



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Foreword

ATLAS is a project (Coordination Action) funded by the European Commission, Directorate General for Research, under the 6th Framework Programme. ATLAS was a focused action of 18 months, with clear results among which an interactive website. There is still a large challenge in improving the sustainability of the use of the natural resources and the land use in Europe. This question is at the basis of the work that was carried out for the ATLAS project. For that purpose the European Commission is supporting several research projects, providing better planning and assessment methodologies for land use. Such innovative approaches and methodologies can only be effective if this knowledge is also being transferred to the persons responsible for their implementation. ATLAS has carried out a survey of the educational and training availability in land use and sustainability, identified the demands for knowledge, and made recommendations on how to improve the effectiveness of education and training in this area.

This brochure is one of the tangible results of the ATLAS project as it shows the main project results to policy makers, public servants and educational officials interested in land use, landscape and sustainability. We trust that it will find its way among these groups and thus enhance the sustainable use of the precious natural resources in the European Union.

Co-ordinator Pierre Mathy

Unit Head
Management of Natural Resources & Services
DG Research
European Commission

Executive summary

This brochure summarises the results of the ATLAS project. Even though sustainability has been part of societies already for a few decades, in all EU countries there is still an apparent need for clearer definitions, practical guidelines and information of which aspects to consider in implementation.

Given the available information from the ATLAS survey, in Norway, Sweden, Denmark, the Netherlands, Belgium, UK and France the situation in teaching sustainability seems to be more advanced than in the other countries. Thus, one could say that these countries form the core of educational provision. The new EU countries, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia and Slovenia are still struggling with the different assessment tools and basic issues related to sustainable development.

Seminars and practical training are part of the teaching in European universities, higher level colleges and other educational institutions. However, considering the wishes and needs of different users when it comes to the way of education, practical work and training should be offered more widely or more often. A crucial element of teaching sustainability is participation and involvement of different parties but this is still in its infancy in European countries. Teaching sustainability should be carried out in cooperation between different academic disciplines by professionals that are aware of the aspects of sustainability in their fields. This is not easy especially since the current trend is more towards the opposite – fragmentation and specialisation.

Recommendations are given to improve the situation in education and training for sustainable land use and landscape management.

Land use change: a challenge for education and training

New policy tools ask for new information

Rapid land use change is occurring over Europe at the moment. The international policy-making process and also the national policies remain largely sectoral in nature. They do not contribute fully enough to the achievement of broader sustainability targets (Council of the European Union, 2006¹). New policy tools such as Sustainability Impact Assessment (SIA) have therefore been adopted by the European Union to ensure that sectoral policies can be evaluated in relation to their wider, sustainability impacts. Implementation of these tools is essential but the education and training provision in sustainability for land use planning is fragmented and thus causes a major barrier to reach the EU sustainable development goal. It is important to control the processes of change in order to sustain and protect the quality of the environment and landscape. Without knowledge and information there is no sustainable management.

Sustainability of land use: a complex issue

Urbanisation, EU common agricultural policy, pressures from global economic trends and climate change influence the land use development. Also the changing social demand of landscape (i.e. the ways people perceive and appreciate nature and landscape) have an effect on the quality of landscape. It is worthwhile to notice that the images of nature and landscape have changed throughout time and will continue to change, and thus so will also landscape. Sustainability of land use has been discussed broadly but a focused European policy approach has not been achieved yet. One of the reasons for this is the complex nature of land use dynamics.

1 Council of the European Union (2006). Renewed Sustainable Development Strategy. Commission of the European Union, June 2006.

Education and training are scattered

It is important, and a clear EU challenge, to develop methodologies to integrate sustainability aspects in beneficial land use. Moreover, the need for the design of educational programs meeting the challenges posed by sustainability is confirmed by wider international initiatives (e.g. UNESCO Decade for sustainable education in 2003). Major efforts and investments under EU are now being directed at developing structured approaches to assess the sustainability of land use change. Nonetheless, education and training possibilities, especially for policy makers and practitioners, are scattered around Europe and are additionally largely uncoordinated. Coherent proficiency within European landscape and sustainable land use is needed to attain.

ATLAS: answer to a demand for education and training

In this brochure the achievements of the ATLAS project are highlighted. ATLAS studied and analysed the present state of the art of education and training in land use and sustainability. The results were subsequently discussed during the ATLAS final conference by major stakeholders in this area. ATLAS has produced a web based tool supplying information on relevant literature, documentation and available education and training courses. Furthermore ATLAS has led to recommendations for future education and training in sustainable land use.

Educational provision and user needs compared

Survey of courses and of user needs

First steps in the ATLAS project were an inventory of the current educational provision in sustainable land use and a study of the user needs for training and education. This resulted in a database of over 3000 courses all over Europe. Also over 200 interviews were held with users interested in training and education in sustainable land use. This included students as well as professionals, researchers and policy makers at various levels.

Strong and weak points, opportunities and threats (SWOT)

On the basis of the results of the educational provision inventory and the user needs, a SWOT analysis was carried out to identify the differences between EU countries, and to point out the strong and weak points of educational provisions. The present educational provision on sustainability, sustainable land use, and interaction and involvement of different actors was compared with the actual needs. Considerable differences exist between the countries among others in the amount of (specified) courses, how broadly education is given in sustainability related issues, and in the involvement of different actors. In general, integration of sustainability in education is still weak and also cooperation and interaction between different actors is not yet a strong point in the educational and training provision.

Educational provision sub-optimal

From the ATLAS survey it is concluded that, even though sustainability has been part of European society already for a few decades, in all EU countries there is still an apparent need for clearer definitions, practical guidelines and information of which aspects to consider in implementation.

In Belgium, Denmark, France, Norway, Sweden, the Netherlands, and the UK the situation in sustainability teaching seems to be better than in the other countries. Thus, one could say that these

countries form the core of educational provision. The new EU countries, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia are still struggling with the different assessment tools and basic issues related to sustainable development (Malta and Switzerland are not included, due to insufficient data). On the whole, practical work and training are weak points on the provision of education and training. Also, cooperation of different academic disciplines by professionals that are aware of the aspects of sustainability in their fields, is not yet a major item. And as stated before the current trend is more towards the opposite – fragmentation and specialisation.

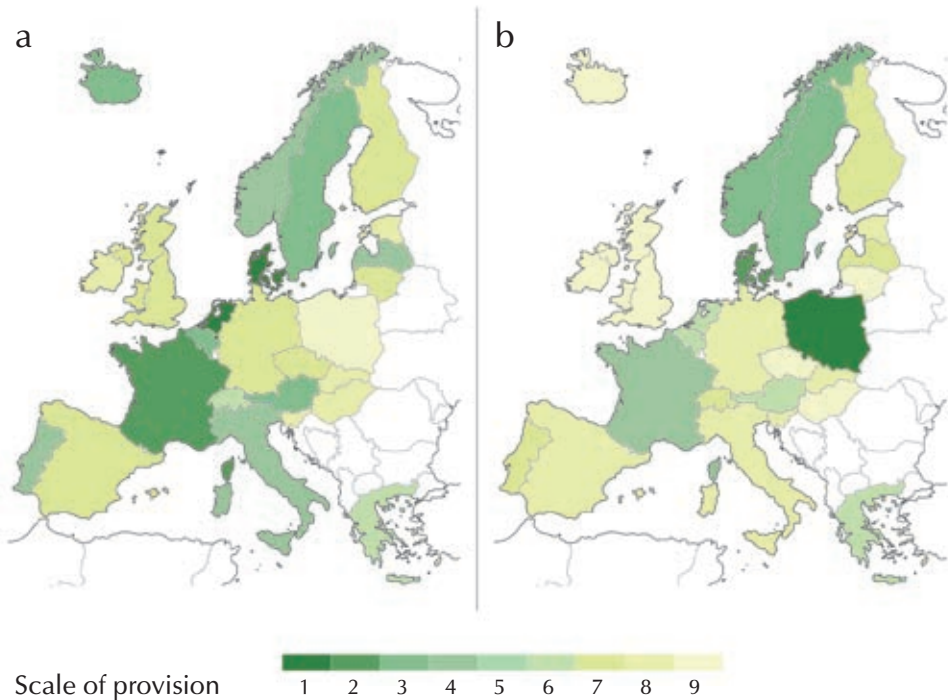


Fig. 1: The current relational educational provision regarding sustainability, sustainable land use and assessment tools SEA and SA² (a), and participation, communication, practical training and internationality (b) in EU countries.

2 SIA: Sustainability Impact Assessment; SA: Sustainability Assessment; IA: Impact Assessment; SEA: Strategic Environmental Assessment; EIA: Environmental Impact Assessment

Educational needs are large

To assess the current user needs for training and education in sustainability and land use in Europe an inventory of such needs was carried out through interviews with key persons in different organisations (universities, polytechnics, professional training organisations) and on different levels (students, academics, policy-makers, government officials, practitioners and NGOs/business) throughout Europe. The compilation of country-specific needs for education is presented in the below table.

Country	Sustainability	Sustainable planning & land use	SEA	EIA	SIA	IA	SA	Practical training	Communication	Participation, cooperation	Short courses
Austria	*				*			*			*
Belgium	*							*	*	*	*
Czech Rep.	*				*			*			*
Denmark	*	*	*				*	*	*	*	*
Estonia	*		*	*	*			*	*		*
Finland			*		*			*			*
France	*				*			*	*	*	*
Germany	?							*			*
Greece	*		*	*	*						
Hungary	*	*			*			*	*		*
Latvia	*		?	?	*			*	*	*	*
Lithuania	*		*	*	*			?			*
Netherlands	*	*			*			*	*	*	*
Norway	*	*	*				*	*	*	*	*
Poland			*	*	*						*
Portugal			*	*	*			?	*	*	*
Slovakia	*	*			*			?	*	*	*
Slovenia	*	*		*		*		*	*	*	*
Sweden	*	*	*		*			*	*	*	*
UK	*		*	*	*	*		*			*

Table 1: The educational needs in sustainability and land use in the European Union as assessed by ATLAS (Cyprus, Iceland, Ireland, Italy, Luxembourg, Malta and Switzerland not included due to insufficient data).

An obvious rallying point among the countries is the unfamiliarity with Sustainability Impact Assessment (SIA); it is not at all well known what SIA means and how it should be implemented in practice and which aspects should be considered. Moreover, relatively often also the concept of sustainability itself is unclear, even though it is a widely used term for nearly two decades. It was found that most of the interviewees are not familiar with the definition of sustainability and that there are not enough adequate tools and guidelines for implementing it in practice. Moreover, courses covering all aspects, i.e. economical, ecological and social, of sustainability are needed as well as indicators to measure sustainability. Concerning planning and sustainable land use, more information on how to do planning in sustainable way and which aspects to consider is desired by the interviewees.

More cross-disciplinary training needed

Especially more training is demanded on impact assessment tools (EIA, SEA, SA and IA); information and guidelines are needed, as well as a clear definition of the terms and methodology, and general guidance in implementation. The relation between different assessment tools is found unclear and clarification to this is desired. There is a clear demand for participation and cooperation between different parties (students, practitioners, decision-makers, authorities, researches etc.) but also between different institutions and different countries. Moreover, there exists a strong wish to exchange information, also with foreign colleagues. Informing lay people about sustainability and involving them in decision-making processes are considered important and desirable to be increased.

Balance between theory and practice

In some countries more basic information on environmental issues is requested. In Hungary and Slovenia, for example, more information on environmental protection is needed, and in Germany on management of limited resources. In Slovakia more knowledge about the impacts of different legislative measures on the environment is welcomed.

In each country, short courses were preferred especially among people already in working life. Practical training was valued high and it should be increased, yet not forgetting theory. A good balance between these two teaching formats is considered ideal. The need for continuous or life long learning is also expressed, possibly a programme of short courses over several years. In addition – but not exclusively – E-learning is appreciated to stay in touch with most recent developments.

Strengths

There are numerous courses in sustainable development and sustainable management, which indicates good knowledge on these issues. It is clear that there is enthusiasm for environmental sciences among students as well. The level of the educational system is good; there is a diversity of knowledge as well as extensive regional knowledge available. An increase in environmental awareness and management can be expected because of natural disasters and environmental problems.

Some countries (France, Germany, Italy, Norway, Sweden and the Netherlands) have courses in Strategic Environmental Assessment (SEA). This could indicate that the implementation of the SEA-directive (EU) is in a more advanced state in these countries than in the other countries.

The ‘internationality’ of the countries is quite good, and nearly all countries have courses in English. This can strengthen the interaction between different parties in different countries. Especially the UK was often mentioned as a country to go when you would need specialised training in sustainability issues.

Austria, Germany, Norway, Sweden, and Switzerland, provide courses indicating interest for teaching and educating in sustainability. Sweden provides e.g. following courses: “teaching for sustainability”, “education for environment and sustainability”, “environmental governance”, “Environmental Impact Assessment – international”, and “Environmental

Impact Assessment – South Eastern Europe”. Norway has courses such as “practical guide to effective IA follow-up”, “practical guide to sustainability assessment” and “public participation in environmental assessment”. Germany has two courses relating to education for sustainable development, and five courses relating to environmental education. In Switzerland there are courses such as “sustainable land management: multi-level and multi-stakeholder approaches”, and “transdisciplinary seminar on sustainability”, and in Austria “interdisciplinary seminar on natural sciences and technology” and “interdisciplinary practicum”.

Weaknesses

The policy maker’s interest in sustainability is very low, due to the lack of orientation of civil society towards sustainability. Often sustainability is considered a buzz word and there is confusion in the terminology. Policy makers are also reluctant to learn about new aspects (like SIA), preferring known procedures. New EU member states have a lower interest in environmental aspects than the older member states and are rather oriented on economic aspects.

The low number of courses addressing assessment tools (SIA, SEA) can be seen as a weakness. Even though EU has adopted the SEA-directive, only six countries provide specific courses on SEA (in total 12 courses), and the number of courses concerning SIA is unsubstantial. This is probably related to the fact that there is no EU-directive on SIA.

Participation (i.e. courses communication and process facilitation for professionals, entrepreneurs, civil servants and practitioners) is badly integrated into teaching in Europe – nearly half of the countries do not have courses available to professionals, but only to students. More than 20% of the courses included participation only in three countries (Belgium, France and Norway). In the Netherlands and Sweden participation was part of teaching in 18% of the courses, but in most countries there is a lack of this type of courses.

Practical training is not well included into the courses. Only in Denmark the proportion of the courses involving practical training is nearly 70%. In Sweden and Poland nearly 50% of the courses have practical training as a part of teaching.

Some countries (Czech Republic, Iceland and Slovakia) do not have any courses in English. Language barriers in general can be an obstacle.

Sustainability related issues are not well covered. On average, sustainability is covered only in 16% of all the courses in Europe. In five countries (Austria, Estonia, Greece, Poland and Slovakia) sustainability related issues are not covered at all. An integrated approach is often missing.

It seems to be a trend that the duration of most of the courses is several weeks long. Furthermore, several programs were entered into the database (for example UK and France). Short courses were stated as a strong need (especially by professionals).

Opportunities

Countries that have good educational provision in sustainability and SEA and where courses are available in English and to professionals, can offer their knowledge and training possibilities to different users from other countries and thus act as educational centres. Hence, the course participants can use the attained information in their countries to contribute the improvement of knowledge in sustainability.

Universities should be encouraged to open up their courses for other than students and create flexibility of the educational system to offer integrated programs. Problem based learning should be included to go beyond subject areas. Also more attention should be given to process facilitation.

Increasing the interaction between different countries (e.g. through conferences, seminars, practical training/ internships), discussion over sustainability and other related issues can be strengthened and stimulated. Through better interaction chances for achieving a general European approach to sustainable land use and policy can be improved.

The concept of life long learning is more common in English speaking countries, but it is now changing in other countries too: the demand for (short) courses is expected to increase. Also, as the internet is becoming more accessible there is an increasing demand for e-learning on specific aspects.

Threats

There are big differences in course provision, in terms of amount and content, between the EU countries. There might be a risk that this trend continues and the existing gaps become bigger. However care should be taken to avoid European standardisation in education instead of a regional approach.

Specialisation and compartmentalisation of academic disciplines continue. Cooperation and communication between different stakeholders, organisations and institutions are aspects that are largely neglected, due to unfamiliarity with participatory approach.

Integrating interdisciplinarity and transdisciplinarity in higher level education has not succeeded properly, due to inflexibility in education systems.

The constant flow of different EU-directives causes reluctance in membership countries, and directives (such as SEA-directive) are not implemented sufficiently and fast enough. Moreover, sustainability is often perceived as top-down and regulation-

driven, which is negatively associated with opportunities for the population in situ. Adequate national policies/legal regulations are lagging behind. In many countries global economy is driving policies and decisions.

Conclusion: sustainability and landscape remain a challenge for education and training

It can thus be concluded that the issue of sustainability in land use development and natural resources management, including landscape, remains a challenge for education and training. In the following sections some visions are given on the boundary conditions for such education and training, based on the contributions to a conference on this topic organised by the ATLAS consortium on 25 January 2007:

- disciplinary background of education and training for sustainable landscapes;
- practical experiences in education and training courses in the field of landscape;
- proposed post-graduate course on Sustainability Impact Assessment and
- E-learning and E-tools for education and training.

Education and training for sustainable landscapes

Landscape a rounded subject?

The challenge of providing education and training in landscape is inherent to the holistic nature of the subject. Landscape is defined by the European Landscape Convention as an area, as perceived by people whose character is the result of the action and interaction of natural and/or human factor. However, in science it can not be seen as a rounded, isolated subject. It is touched by a rainbow of different scientific disciplines, each of them not only having their different approach, but consisting of different worlds of thinking. Integration of these disciplines is a necessity for understanding the landscape and a challenge for future education.

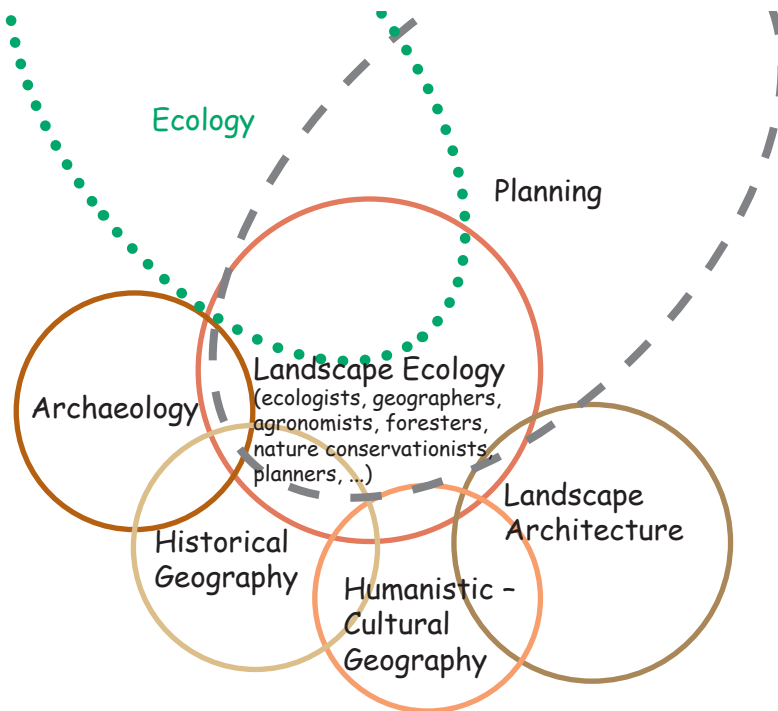


Fig. 2: Learning about sustainable land use planning in an increasingly faster changing world (© Marc Antrop).

The definition of landscape is centred around two aspects. On the one hand an area or place, which represents the natural factors, the aspects which are visible. The 'hardware' of the landscape is the land, an area owned by someone who has 'free' use of it and is shaped by land cover and land use.

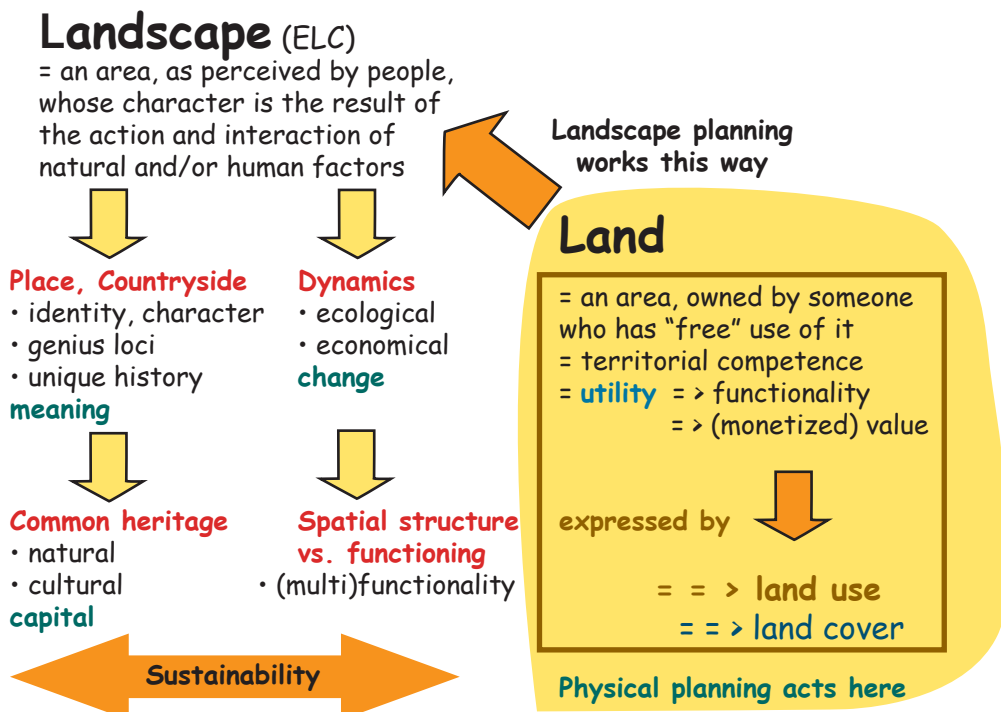


Fig. 3: Learning about sustainable land use planning in an increasingly faster changing world (© Marc Antrop) (ELC = European Landscape Convention).

On the other hand the definition points out the aspect of action or change, which is often due to social and/or economic activities of men. The human factor stresses the awareness that the landscape is dynamic and constantly changing due to natural and socio-economic influences. This is more complex due to several functions (multi-functionality) and the flexibility and rate of change of these functions. Professionals working in the field of landscape planning and management need to be conscious of the

complex system representing the landscape and the need for an interdisciplinary and integrated approach. Education programs need to be set up from that perspective.

Three groups of actors involved

The complexity of planning and managing sustainable landscapes is further enhanced by the fact that these processes have more and more actors involved. In fact you could roughly distinguish three groups of players in society namely the Experts/Scientists, the Elites/Decision makers and the Public working in interaction with each other (see Fig. 4).

All three groups have their specific role in landscape management processes. For example: 'Elites' or decision makers try to develop evidence-based policy. Experts or scientists pop in with disciplinary straight jackets stressing uncertainties and adaptive strategies. The public, civil society, organised in an increasingly sophisticated way, brings in a huge amount of local knowledge, and is keen to receive understanding and perform empowerment.

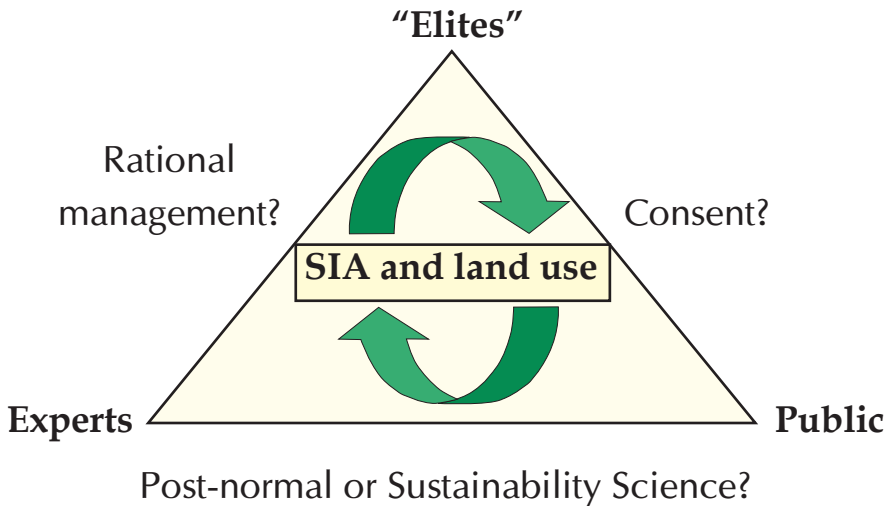


Fig. 4: Building capacity for managing and planning sustainable land use strategies (© Marion Potschin & Roy Haines-Young).

Capacity building: 'learn as we do'

In discussing capacity building for these three groups in sustainable land use, we need to be aware of the special difficulties with decision making in sustainability issues. Not only are the issues complex, the different aspects involved will be valued differently by the various groups in society. Choices are possible and therefore debate is unavoidable. During the decision making process uncertainty cannot be avoided and its management is part of the process. It is imperative to realise that in a society solutions need to be 'adequate' rather than 'optimal'. This is expressed in the figure below (Fig. 5) where the 'sustainability choice space' (Potschin & Haines-Young, 2006)³ is given over a period of time as a set of outcomes that 'more or less' keep output of landscape goods and services within acceptable limits.

The basis to success in sustainable land use processes, with so many different interests interacting with each other, is creating an understanding between the different players in the field, allowing interdisciplinary interaction and understanding of the different needs of stakeholder groups. Maybe the best way to build capacity and learn to work in interdisciplinary groups towards sustainability is by a 'learn as we do'-approach.

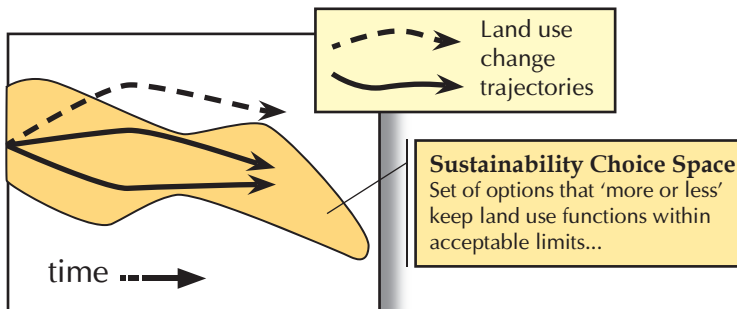


Fig. 5: Sustainability Choice Space over time (©Marion Potschin & Roy Haines-Young).

3 POTSCHIN, M & R. HAINES-YOUNG (2006): Rio+10, sustainability science and the landscape agenda. *Landscape and Urban Planning* 75(3-4): 155-161.

From field work to monitoring effectiveness of training

Teaching sustainable land use must always keep in touch with reality by organising field work, excursions, role plays, socio-drama and meet people living there. In training and education a successful process might need an interface between natural and human sciences. More than understanding each other's languages i.e. the meaning of words you use, it must be stressed that one can learn from other disciplines, and that there is no sense in trying to take power over them. Such an understanding approach can verify your data sources and prevent errors when using maps and statistical data.

Next to validating the issues in teaching sustainable land use is the aspect of monitoring and evaluation of the effect of training and education. While in education the results are often measured through the number of graduating students, the effects of training courses for professionals are not always measured and there is no quality control. Also the desired results of training are often not reached due to the fact that training is insufficiently need- or demand-driven. The quality of training can be improved by linking the strategic objectives and training activities so ensuring the transparency of work processes.

Practical experiences in education and training courses

One of the results of ATLAS is a huge database of courses in the field of land use and sustainability. But as is concluded in the previous section, this database does not reflect the need for interdisciplinary education and many examples of the 'learn as we do' approach. However, there are some examples of good practice. Two of them are described below i.e. the Landscape Ambassador International Course and an initiative of Wageningen Business School to organise a postgraduate course on Sustainable Impact Assessment in Land Use.

Landscape Ambassador International Course

The Landscape Ambassador International Course is a unique example of international and interdisciplinary exchange of Master students in the field of landscape. It is a collaboration of six different European institutes, travelling to different locations to teach this two weeks course. During the course students of different disciplines develop new perspectives for a local rural landscape, being dropped in this specific landscape with a small international group. Field visits, policy analyses, interviews with locals, design workshops, accompanying lectures and presentations are part of this intensive programme. The course finishes with internal presentations and a field presentation.



Fig. 6: Students at work during the Landscape Ambassador International Course (© Teresa Pinto-Correia), 2006.

Context and objectives

In the context of promoting new forms of landscape management based on multifunctionality, avoiding the museum-like results, there is a need to develop new approaches within the disciplines dealing with the landscape. The dominant academic education systems in Europe focus on specialisation and leave little space for inter-disciplinarity. Working in real local situations and facing different stakeholders, the professionals easily feel lost and have many problems to handle these often unclear social constellations with their academic analysis.

The idea of the Landscape Ambassador course is to develop the capacity to listen and collaborate with all the stakeholders involved and in that way to achieve means to develop fruitful integrated development projects for landscapes, testing communicative planning tools as well as management tools. Indirect objective is the improvement of the personal engagement and the direct experiences of each student.

Participants

Aim of the course is to gather students from different parts of Europe and with different educational backgrounds e.g. landscape architecture, geography, agronomy, forestry, planning etc.

Cross-fertilisation is realised between nationalities, which results in an exchange of different traditions and experiences, as well as between disciplines, which urges the students to learn each other's languages and to collaborate without competitiveness between the disciplines.

Results

Although it is quite a challenge to organise the workshops every year, which is quite a logistical enterprise involving extensive organisational skills and travelling abilities of the teaching staff, both students and university staff are very enthusiastic about this type of courses. In relation to sustainability education, respect for

each other's background, nationality and discipline, and for the local knowledge of stakeholders, seems to be one of the most important benefits of this initiative leading to a new attitude of teachers and new engagement and interest of students.



Fig. 7: Students at work during the Landscape Ambassador International Course. (© Teresa Pinto-Correia, 2006).

Post graduate course proposal on SIA

Although interdisciplinarity is at least a strategic objective in many initial education curricula, it is hard to find educational programs for post-graduates practising in an interdisciplinary direction. The ATLAS SWOT-analysis indicates the poor educational provision on sustainability and sustainable land use for European policy makers especially on local and regional level. Referring to these findings cooperation and interaction between different actors needs to be increased and practical training should be offered more. This answers the increasing interest in life long learning over Europe.

Wageningen Business School (partner in the ATLAS project) translated this lack in provision in an outline for a 3 day post-graduate course.

Real life in training

Objective of the course is to offer a forum for knowledge exchange, practising new tools and apply knowledge in real life cases. Target audience consists of professionals in sustainable land use and land use assessments from EU, national, regional

and local governments, consultants, universities and other research institutes. The suggested learning format is plenary lectures in the morning and carousels of workshops in the afternoon. This format will enable participants to build their own program and bring in their own examples of good (or bad) practice. Premier of the course will probably be launched in Autumn 2007.

You like to:

- get an overview of recent developments in sustainability impact assessment?
- share your knowledge of assessment tools with European colleagues?
- get input in your complex case study?
- practice unknown assessment tools?
- meet a colleague from another country doing similar work?
- be released from daily business for a few days and think freely about the future of your work?

Feel free to sign up for the 3-day post-graduate course Working with EIA, SEA and SIA in land use.

Day 1 AM	Day 1 PM
State of the art EIA, SIA in Europe	Carousel tools (3 rounds of 1 hour)
Overview of available assessment tools	Concluding remarks, bridge to day 2
	Optional evening program (field visit)
Day 2 AM	Day 2 PM
Landscape change in Europe, towards sustainability	Carousel case studies (3 rounds of 1 hour)
Examples of good sustainability practices	Unique learning points, bridge to day 3
	Optional evening program: deepening of tool and case study findings
Day 3	
Participants action lists for the near future (working in groups)	
Day 1 AM	Day 1 PM
The future of SIA in Europe (key note speaker)	

Table 2: Outline postgraduate course Working with EIA, SEA and SIA in Land use (© Carla Oonk, 2007).

E-learning and E-tools for sustainability

Professionals and policy makers have little time for studying, on average 3 to 5 days a year. However, changes are fast and it is increasingly important to keep up with international developments. To do so E-learning can be useful for keeping up to date with recent developments in a relatively short time as it does not take the 'student' away from his/her working environment. E-learning however has serious limitations. It can provide information within a framework, but is less appropriate to deal with interdisciplinarity and cannot replace courses where interaction between important players in the field is offered. For understanding the issues at stake, a combination of learning by doing and working with real life cases is essential.

Three examples of EU funded projects in E-learning and development of E-tools are presented here as examples of how EU policy makers can use tools for understanding and decision making in sustainable land use issues on a European scale.

Impact Assessment Tools overview of Sustainability A-Test

The European funded project SustainabilityA-test consisted of 17 partners and was finalised in June 2006. The result is a most interesting website where information and explanation of all known integrated assessment tools can be found, to be used by policy makers as well as the general public (<http://ivm5.ivm.vu.nl/sat/>).

The website gives a quick overview of the available tools, which are classified by their methodology. Each tool is also explained separately, describing how it is used most effectively in different assessments. Besides the description of the different tools the project team studied the use of the tools through a case study.

This led to some interesting conclusions:

- Integrated assessment for sustainable development is best supported by a combination of a few tools. This is still new and would need further study.
- An integrated assessment should include participatory tools and be able to combine quantitative and qualitative information.
- Tools are often difficult to understand by outsiders; scientists need to explain the use of their tool better and should also learn about other tools.

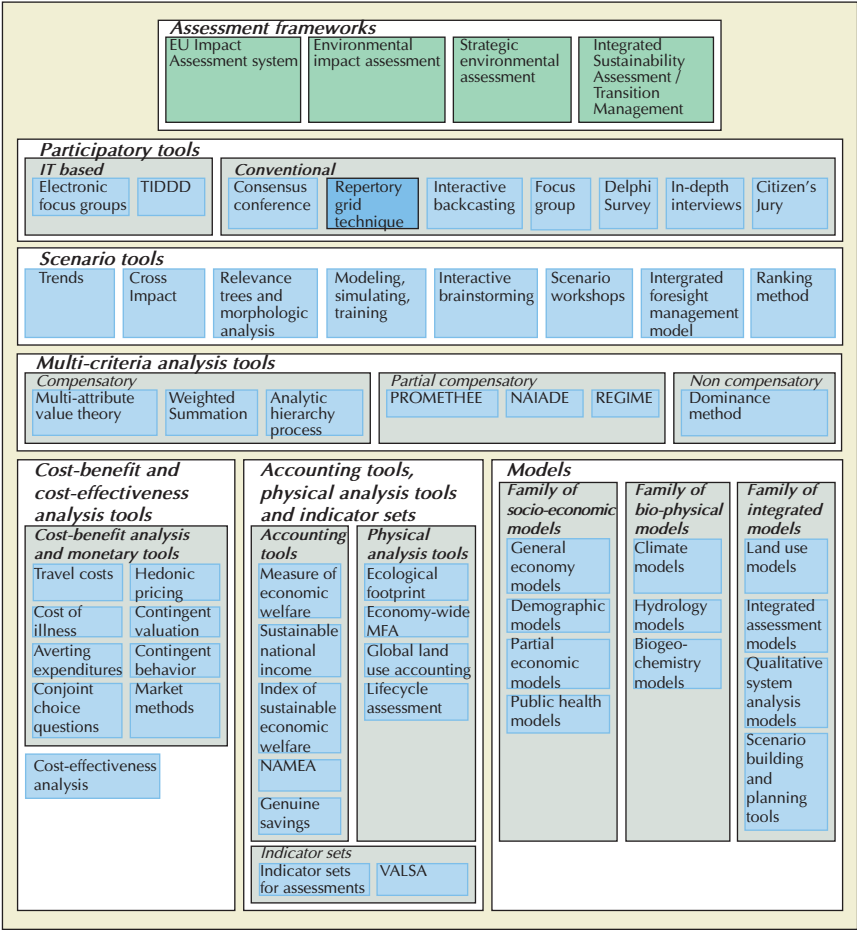


Fig. 8: Overview of Integrated Assessment tools on the Sustainability A-test website.

By providing an overview of available courses on sustainability in land use and impact assessments the ATLAS project has given policy makers and other interested parties the possibility to broaden their knowledge on these subjects, improving the effectiveness of integrated assessments.

SIA tool of SENSOR-IP

One of the major outputs of the EU Integrated Project SENSOR⁴ (2004-2008) will be the SIAT, Sustainability Impact Assessment Tools. These tools will allow European policy makers to assess the impact of a certain policy on the sustainability of land use in the different European regions. The project brings together different groups in society: scientists, policy makers/advisors and the general public, which each have their different perspectives and capacities. For the SIAT understanding of the different user needs is essential. In each group different capacities need to develop an understanding of each other's worlds and insight in how each group will contribute to the decisions being made. Communication and interaction will guide this process, where the SIA tools must help to 'learn as we do'.

E-Tool and E-textbook development of the E-lup project

The E-lup project has recently started with a focus on tools, models and communication technologies. It will develop an e-book for multiple users in SIA.

It is recognised that an e-book has its own "touch and feel" comparable to paper publications. Text must preferably be in screen-sized portions with ease of navigation and overall clarity, like the use of indexes and hyperlinks. Excessive numbers of links must be avoided, however, the e-book should be a closed environment and it has to prevent the user to get lost on the Web.

⁴ Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions; <http://www.sensor-ip.eu>.

The site should attract the user's interest within 2 to 3 minutes and provide a roadmap within 30 minutes.

The project's set up is to start off with a number of case studies in sustainable land use. The E-tool which will be on the main pages of the site, will be more interactive and user-defined targeting the focused policy maker. The underlying pages will be the e-textbook, with several levels offering background, explanatory texts and references for general users, including students. This setup will allow users to obtain information on two levels depending on their needs.

As pointed out before, E-learning cannot replace interaction with individuals from different background. It can provide however the relevant information, shaped according to the user's need, in the user's appropriate time, at the user's workstation.

The Route Planner

The objective of the ATLAS project was to enhance the current state-of-the-art and build capacity in the topic area by designing an online and user-interactive “Route Planner” for training in land use policies and sustainability impact assessment that will lead to appropriate professional qualifications. The methods and tools are related to local, regional and national levels. The Route Planner is based on the analysis of strengths, weaknesses, opportunities and threats (SWOT, described above) in the available educational resources for sustainability and environmental impact assessments and is tuned to the policy needs identified in the EU projects dedicated to the sustainability impact assessment of land use policies (such as SENSOR, SEAMLESS, and others), as available at the time of designing the tool.

Structure assists easy use

The Interactive Route Planner was designed in such a manner that it assists users in obtaining information regarding Sustainable Impact Assessment and land use that is tailor-made for their respective needs. The unique interactive tool is developed with a step-by-step approach and makes use of colourful and exciting photos as well as interesting pieces of information on a series of web pages.

The main idea behind this approach was to cater for a wide range of users and to keep each of these users interested to continue on the route through the web pages by means of an interactive interface. This was accomplished by building intelligence into the system and asking the user for specific personal information in each step and then analysing the input to provide custom-made information in the next step that will be helpful to each specific web user.

User profile determines own way of access

With the help of information input from user interviews as well as the SWOT analysis, potential users were grouped into four main categories according to their profiles and needs. The first user group consists of scientific researchers and scholars who have an academic interest in the topic area. The second group consists of professionals and the business community such as individuals working for commercial companies. This user group will take an interest in the socio-economic aspects of the topic area. Policy and decision makers make up the third user group and their interests will lay mainly with legislative and legal matters. Individuals interested in the topic area in general aspects such as current state or new developments forms the last group.

Each user group is guided through the interactive route planner in a distinctive manner and in each case the initial entry point into the website dictates the route to be taken. Each new user input further dictates the type of information to be gathered by the user on his way through the route planner. From an architectural outlook, the database is therefore constructed in such a way as to provide various search paths through the information chain in order to obtain an end result.

Find the information that suits you

In this manner scientific researchers or scholars might enter the route planner by making choices about countries or languages in which they would like to study. Professionals and individuals with commercial backgrounds might wish to find information regarding case studies or shorter training programs such as new e-courses. Policy and decision makers could search for information regarding European legislation in the member countries while someone with an interest in ecology and sustainability could find new additional information on landscapes, land use change and Sustainability Impact Assessments (SIA).

Users Benefit

Because of the profile orientation the user benefits are varied and tailor-made to suit individual user needs according to the user group categories. The main benefit is to provide all users with new interesting facts on sustainability in the European Union and additional materials related to Sustainability Impact Assessments (SIA). Users will have access to updated information regarding approximately 3000 courses on offer in this topic area throughout the European Union as well as case studies to compare sustainability practices in these countries in comparison to other parts of the world. Furthermore the end result of the information chain will also lead the user to a collection of links such as interesting websites and further reading in the topic area.

ATLAS-EU.ORG=DATABASE + WIZARD (Trivia, Questions, User selections)

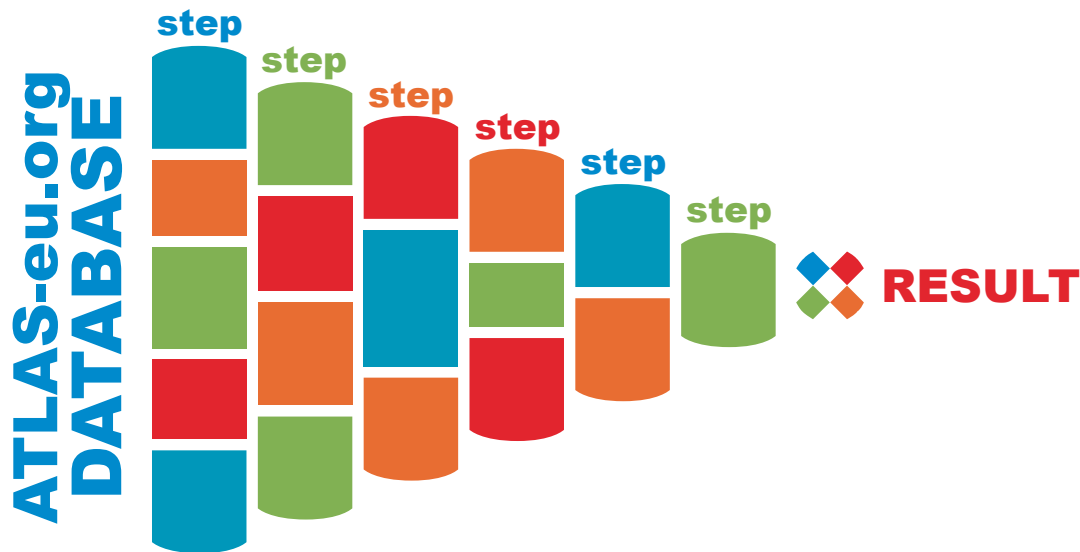


Fig. 9: The structure of ATLAS Route Planner.

Conclusions

ATLAS has provided two useful resources for people dealing with education, land use and sustainability. One of these is our SWOT report, another the interactive ATLAS Route Planner.

Educational provision to be improved

The SWOT summarises the strengths and weaknesses of the present-day provision and the need for sustainability education. We found that the situation in sustainability teaching seems to be better in Norway, Sweden, Denmark, the Netherlands, Belgium, France and the UK, while in southern and eastern countries the number of available educational possibilities is somewhat smaller. We also found that while most of the provision concentrates on university courses and programmes, the end users ask for more possibilities in practical work and training. Teaching sustainability should be carried out in cooperation of different academic disciplines by professionals that are aware of the various aspects of sustainability in their fields.

Terminology is often unclear

We observed that there is a rather big confusion about the way the terms sustainability, impact assessment and sustainability impact assessment are handled in different language and cultural contexts. There is a variety of national approaches to each of these terms and one should be careful both in translating the terms and transferring the approaches from one knowledge culture to another.

*ATLAS route planner to help promote sustainability;
just try it!*

The ATLAS interactive web-based Route Planner is designed to fulfil two aims. First, it advises the user to find a suitable facility for learning. Second, it teaches the user about basics of sustainability, impact assessment and land use. The user has several options to refine the search for a desired educational facility, and *en route* s/he has the chance to learn more about sustainability and the place s/he is heading to. Additional facilities give more information about terms used, countries visited and projects carried out. But Route Planner is best practiced at <http://www.atlas-eu.org>

ATLAS Members

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Alterra, Wageningen UR, the Netherlands

Dept. of Landscape planning, Swedish University of Agricultural Sciences, Alnarp, Sweden

Dept. of Applied and Landscape Ecology, Mendel University of Agriculture and Forestry, Brno, Czech Republic

OK Interactive, Tallinn, Estonia

Wageningen Business School, Wageningen UR, the Netherlands

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Centre for Environmental Management, School of Geography, Nottingham University, UK

Institute of Environmental and Landscape Management, Szent István University, Gödöllő, Hungary

University of Salzburg, Austria

ATLAS is an initiative of three networks

Landscape Europe

<http://www.landscape-europe.net>



ECLAS

<http://www.eclas.org>



Landscape Tomorrow

<http://www.landscape-tomorrow.org>



Landscape Tomorrow

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For more information visit: <http://www.atlas-eu.org>

This brochure is one of the tangible results of the ATLAS project (funded by the European Commission, Directorate General for Research, under the 6th Framework Programme). It shows the main project results to policy makers, public servants and educational officials interested in land use, landscape and sustainability. ATLAS studied and analysed the present state of the art of education and training in land use and sustainability. ATLAS has also produced a web based tool supplying information on relevant literature, documentation and available education and training courses (<http://www.atlas-eu.org>).