Strategic Environmental Assessment and Risk Management
战略环境影响评价和风险管理

Sino-Italian Cooperation Program
Environmental Training Community
中-意合作计划
环境培训园地

newsletter
工作通讯

14

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Editorial

Gabriele Zanetto, Ca' Foscari University in Venice – Interdepartmental Centre for Sustainable Development

Vast knowledge of a problem is not enough to address the problem if no control is taken over its application and implications, especially if the final goal is not discussed thoroughly. Merely compiling a list of highly-specialized knowledge elements does not guarantee that we are on the right path. This lack of control of goals and overall results is usually excluded from every single specialist's competence. Hence we may end up with a perverse result.

A similar situation is occurring today, with one of the most vital problems we face: sustainability of our economic system and way of life. We cannot simply give attention to environmental issues in isolation: we must pay attention to them with every single action in our private and public life.

One of the most important tools with which to fully grasp and soundly manage the environmental impacts linked to human activity and land use, surprisingly often still lacking in an integrated form, is the use of urban and regional planning. Urban and regional planning are, in fact, generally considered tools for conceiving and regulating the transformation of land use, and their consistency is evaluated in terms of urban and regional structures: a matter of planners' competence that does not include other aspects. Often it is only in the second phase of the plan that mobility is considered, and a separate specialized adjustment is proposed: a matter of traffic engineers' competence. The proposal of the mobility planners will rarely be checked as a source of pollutant emission: a matter of environmentalists' competence. To be effective, the form of the urban and regional structure should be planned incorporating, ***at its early beginning,*** a cluster of goals including the effects on the environment and therefore considering aspects such as water balance, greenhouse gas balance, waste disposal etc.

By using Strategic Environmental Assessment (SEA), every planner is induced to consider the potential environmental impacts of the implementation of his plan, correcting it if these impacts are judged disproportionate to any other relevant effect. This is especially the case when such effects become explicit in the long-term perspective and on a larger geographical scale.

We can consider SEA as a sort of "early self evaluation" of a proposed plan, an integrated part of itself, according to the general sustainability goal. Relevant in densely inhabited ecosystems, SEA is an extremely useful tool in territories subject to intense modernisation, as it assists emerging economies, pointing out counter-intuitive and unexpressed consequences.

编者寄语

Gabriele Zanetto, 威尼斯东方大学——可持续发展跨学科研究中心

只拥有丰富的知识而不就其运用和意义加以管理是不足以解决问题的，尤其在最终目标未经彻底确定之际。仅仅编制一张高度专业的知识要素表无法保证我们步入正轨。单个专家通常对目标和整体结果缺乏管理，因此结果可能事与愿违。

目前，类似情况同样出现在我们面临的一个重大问题之中：我们经济体系与生活方式的可持续性。我们不能单纯、孤立地探讨环境问题，而应在个人和公共生活的每项活动中都考虑环境问题。

城市与区域规划是最重要的工具之一，该工具能充分控制并有效管理与人类活动与土地利用有关的环境影响。但令人吃惊的是，目前还缺乏统一形式。实际上，城市与区域规划通常包括土地利用转化的设计与管理工具，并通过城市与区域结构评估其一致性---这部分工作由规划者管理，与其他方面无关。一般仅在规划第二阶段才考虑城市交通问题，并单独提出专门的调整规划---这部分工作由交通工程师管理。城市交通规划者的提议很少对污染排放源加以考虑---因为这属于环境专家的领域。为确保有效，应在编制城市与区域结构规划之初，引入诸如环境影响等一系列目标，并进而对水平衡，温室气体平衡、废物处理等问题加以考虑。

战略环境评价（SEA）可促使每一规划者考虑其规划实施后的潜在环境影响，并在这些影响与任何其他相关影响不相称时加以纠正。当这些影响在较长时期以及较大地理范围内显现时，尤其如此。

我们可根据总体可持续性目标，将战略环境评价视为规划建议自身固有的“早期自我评估”。相对于密集型人居生态系统，战略环境评价对经历急剧现代化进程的区域堪称为极为有效的工具，因为它可帮助新兴经济体国家少走很多弯路。

It is a dangerous situation when it is discovered that an industrial risk or pollution coming from a certain plant is not manageable. We must plan in advance in the best way and in the most suitable place with a good SEA – "good" not only from a technical point of view (including the quality of data bases, the knowledge of cause-effect links) but as a process involving public discussion. All stakeholders must be considered: local and regional communities, public administrations at different scales, scholars, professional orders, companies, worker unions, and non-profit associations. All must be contributors to the SEA process. The series of adjustments may grow longer, but it will become more profitable in social terms.

The application of SEA will lead to more sustainable land use, which means better-managed territories and towns and a more efficient use of our resources – in other words, a higher sustainability level.

如果发现来自某种植物的工业风险或污染未加管理，便会出现危险情况。我们必须以最佳方式、在最适宜地点提前规划并确保良好的战略环境评价——不仅从代表技术层面（包括数据库质量和因果相关联知）得出“良好”的结果，而且还应组织广发的公众参与。必须考虑所有利益相关者：本地和本区域社区、不同规模的公共管理机构、学者、专家、公司、工会以及非盈利性协会。各方均应促进战略环境评价过程。一系列的调整可能耗时较长，但会产生更多社会效益。

运用战略环境评价可实现较好的可持续性土地利用，这意味着更好的区域和城市管理以及更加有效的资源利用，也就是较高的可持续发展水平。

news and events

Environment at the Core of Sino-Italian Talks during Wen Jiabao's Visit to Italy

During his official visit to Italy last October, the Chinese premier Wen Jiabao, together with the Italian leaders, reviewed the 40-year course of Sino-Italian relations and the outstanding achievements of the Sino-Italian cooperation and exchanged views on how to further strengthen bilateral relations.
Since they first established diplomatic relations 40 years ago, the cooperation between the two countries has developed steadily and a substantial number of achievements have been made. Both sides made agreements on strengthening communication between state leaders, improving mutual political trust, extending practical fields of cooperation, and improving bilateral communication and coordination within international organizations such as the UN. China and Italy intend to enhance their friendship and partnership in the spirit of mutual benefit, respect and development.
During the meeting held on October 7th with the Italian premier Silvio Berlusconi, Wen Jiabao proposed to establish key projects and programs in the field of environmental cooperation, particularly in strengthening China's capacity in prevention, management and the early warning of environmental emergencies. Additionally, through the building of a Sino-Italian Environmental Center for technology exchange, the remarkable results achieved so far by the Sino-Italian environmental cooperation will be further expanded and it will become a model of EU-China cooperation.
The cooperation on environmental protection has been recognized as a strategic priority in the economic cooperation between China and Italy in the next three years, as was announced during premier Wen Jiabao's visit to Italy.

Italy and China Strengthen Cooperation on Sustainable Mobility

Mrs Stefania Prestigiacomo, Italian Minister for the Environment, and Mr Wan Gang, Minister of Science and Technology of P.R. China, signed a memorandum of understanding between the two countries last October aimed at developing sustainable mobility systems, particularly promoting the use of electric cars.
The agreement, which is in the framework of the Sino-Italian program for environmental protection, supports the Chinese program "A thousand electric/hybrids cars in 10 cities", an initiative launched in 2009 by MOST that aims to introduce 1,000 electric and hybrid cars in 10 Chinese cities each year.
The agreement reinforces the partnership between the two countries in the quickly growing sector of sustainable mobility. Italy and China share the commitment to put in place policies and measures to achieve three goals: reducing traffic pollution and smog in urban areas; reducing energy consumption and CO_2 emissions in the transportation sector; and speeding up the transport of both people and commercial goods – a key element in the quality of life and the competitiveness of the territories. It combines environmental and economic advantages, the stimulus for economic growth and the improvement of the cities' livability. The agreement represents, therefore, a "win-win strategy".

China Adopts a National Strategy and Action Plan for Biodiversity

On September 15th, 2010, the State Council officially adopted the China Biodiversity Strategy and Action Plan (2011-2030), or NBSAP, which is a remarkable milestone for conservation and sustainable utilization of biodiversity in China. This new edition of NBSAP articulates the guiding principles, strategic objectives and strategic tasks for China in the next 20 years, identifies

新闻和事件

温家宝访问意大利期间，中意两国围绕环境问题进行了会谈

去年10月，国务院总理温家宝访问意大利期间，与意大利领导人一同回顾了中意建交40周年的历程以及中意合作所取得的丰硕成果，并就如何进一步加强双边关系交换了意见。

中意建交40年以来，双边关系稳定发展，各领域交流与合作取得了丰硕成果。双方同意加强高层领导的交往，增进政治互信，扩大实践领域的合作，加强与联合国等国际组织的沟通与协调。本着互惠互利、相互尊重、共同发展的原则，加强双方的友谊与合作。

在10月7日与意大利总理贝卢斯科尼举行的会谈中，温家宝总理提出，打造

中意环保合作的重点工程，特别是加强中国在环境紧急事故预防、管理与早期预警方面的能力。此外，通过建立中意环境技术交流与推广中心，中意两国目前在环保合作方面取得的丰硕成果将得以进一步拓展，使两国环保合作成为中欧合作的典范。

在温家宝总理访问意大利期间公布的中意关于加强经济合作的未来三年行动计划中，环境保护具有重要的战略合作意义。

中意加强可持续车辆合作

去年十月，意大利环境部部长Stefania Prestigiacomo夫人和中国科技部部长万钢签署了中意两国谅解备忘录，旨在开发可持续车辆系统，尤其是促进电动车应用。该协议是中意环保项目的框架，支持中国科技部2009年倡导的“十个城市一千辆电动/混合动力汽车”项目，该项目的目标是每年在10个中国城市中引入1000辆电动和混合动力汽车。

该协议巩固了两国在快速发展可持续车辆方面的合作关系。中意两国共同承诺，将制定相关政策和措施，以实现三个目标：减少城市交通污染和烟雾；降低能源消耗，减少交通产生的

二氧化碳排放量；提高人员和物品运输速度——这是决定生活质量和地区竞争力的关键因素。该协议推动环境保护与经济发展，既能刺激经济增长，又能改善城市的可居住性，因此，是一项“双赢战略”。

中国通过国家生物多样性战略与行动计划

2010年9月15日，国务院正式通过《中国生物多样性战略与行动计划》（2011年至2030年），该计划也称为NBSAP，是中国生物多样性保护与可持续利用的一个重要里程碑。新版NBSAP明确了今后20年中国生物多样性保护的指导思想、战略目标以及战

the most important areas for biodiversity conservation, and further establishes fields, actions and projects of national priority. As the document states, China aims to effectively halt the decline of biodiversity in key areas by 2015; basically control biodiversity loss and bio-piracy by 2020; and effectively conserve biodiversity in China by 2030. The following eight strategic tasks will be implemented to achieve these goals: (i) improve legislative framework for biodiversity, including policies, laws and regulations; (ii) accelerate the mainstreaming process of biodiversity into relevant plans; (iii) strengthen capacity building for biodiversity conservation; (iv) improve *in-situ* conservation and carry out rational *ex-situ* conservation; (v) promote sustainable utilization of biological resources; (vi) promote access to and benefit-sharing of genetic resources and traditional knowledge; (vii) improve competence to address new and emerging threats to and challenges for biodiversity; and (viii) raise public awareness, motivate public participation, and strengthen international communication and cooperation.

The World's First Hydrogen Power Plant in Italy

The world's first hydrogen power plant was officially opened a few months ago in the industrial area of Porto Marghera, near Venice. The 16-megawatt power plant, built by Enel, Italy's largest power company, is fired by hydrogen and provides power to approximately 20,000 households. According to Enel, this power plant will save the emission of more than 17,000 tons of carbon dioxide a year, compared to a coal power plant. The hydrogen used by the plant is a by-product of chemical processes from a nearby petrochemical plant and is brought to the power plant via 4km of specially-built pipelines. This strategy allows Enel to avoid using large amounts of energy to produce this gas and has substantial gains both in terms of efficiency and costs.

略任务，提出了生物多样性保护最重要的领域，进一步规定了国家优先保护的领域、采取的行动以及实施的项目。根据该计划，到2015年，中国将力争使重点区域生物多样性得到有效遏制；到2020年，将努力使生物多样性的损失及生物剽窃得到基本控制；到2030年，将使生物多样性得到有效保护。为了实现这些目标，需要做好以下八个战略任务：（1）完善生物多样性保护相关政策、法律法规等法律框架；（2）尽快将生物多样性保护主流化进程纳入相关计划；（3）加强生物多样性保护能力建设；（4）强化生物多样性就地保护，合理开展迁地保护；（5）促进生物资源可持续利用；（6）推广遗传资源及传统知识的利用与利益共享；（7）提高解决生物多样性新出现威胁与挑战的能力；（8）增强公众意识，鼓励公众参与，加强国际交流与合作。

意大利建成世界上第一个氢电厂

几个月前，世界上第一个氢电厂在威尼斯附近的Porto Marghera工业区正式开业。这个由意大利最大的电力公司 Enel建造的16兆瓦发电厂以氢气为动力，将为约2万户家庭提供电力。据Enel公司称，与燃煤发电厂相比，该电厂每年可减少1.7万多吨二氧化碳排放量。

电厂使用的氢气是附近一家石化厂进行化学处理的副产品，通过长达4公里的专用管道输送到电厂。这样，Enel公司就能避免使用大量能源来产生氢气，既显著提高效率，又大大节约成本。

on focus

Strategic Environmental Assessment and Risk Management

Policy and Tools for Strategic Environmental Assessment (SEA): Italian Case Studies

Gabriella Chiellino, CEO eAmbiente Srl

Introduction

The European Directive 2001/42/CE on the assessment of the effects of certain plans and programs (P&P) on the natural environment, known as the SEA Directive, which came into force on 21/07/2001, is an important step forward in European environmental law.
It is intended to guarantee a high level of environmental protection and identifies strategic environmental assessment as the tool to be used to integrate environmental considerations with the formulation and adoption of P&P in order to promote sustainable development.
Italy first started to feel the need to devise tools to integrate environmental aspects into local and town planning in the 1990s. As the country encountered periods of intense residential and productive development, which in previous decades had led to significant soil consumption, it recognized the importance and need to define effective strategies to safeguard its natural and landscape heritage, attempting to promote it as a resource in planning policy.
SEA was officially assimilated into Italian law with Legislative Decree 03/04/2006, no. 152 "Environmental Regulations", which introduces in the second part the institutional, procedural and assessment reference standards for SEA, EIA (Environmental Impact Assessment) and IPPC (Integrated Pollution Prevention and Control).

SEA Triangular Approach

SEA, introduced by the European Directive 2001/42/EC "on the assessment of the effects of certain plans and programs on the environment", is based on a triangular approach:
1. the first side of the triangle: environmental aspects;
2. the second side of the triangle: economic relations;
3. the third side of the triangle: social considerations.
(Fig. 1)

Plans and programs covered by the SEA Directive are subject to an environmental assessment during their preparation and before their adoption. This includes the drawing up of an environmental report in which the likely significant effects on the environment and the reasonable alternatives are identified and consultations carried out (with the public, environmental authorities and with other member states, in the case of transboundary impacts).
The environmental report and the results of the consultations are taken into account before adoption. Once a P&P is adopted, the environmental authorities and the public are informed and relevant information is made available to them. In order to identify unforeseen adverse effects at an early stage, significant environmental effects of the P&P are to be monitored.
The benefits of SEA can be summarized as follows:
_ the integration of **environmental considerations** into

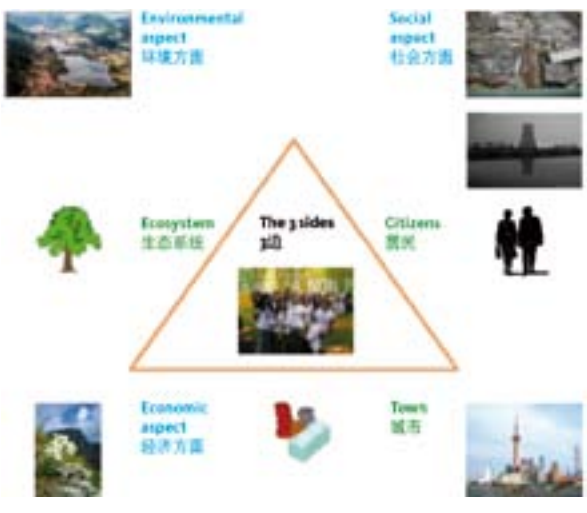

Figure 1. The three sides of SEA
图1. SEA三边

焦点
战略环境影响评价和风险管理
SEA 政策与工具：意大利案例研究

Gabriella Chiellino, eAmbiente Srl首席执行官

介绍:

欧盟第2001/42/CE号指令（即SEA指令）对相关计划和规划（P&P）的自然环境影响评价作出规定，并于2001年7月21日开始生效，这是欧盟环境法的一项重大进步。

该指令旨在确保较高的环保水平，并以战略环境评价为手段，将环境考虑融入P&P的制定与采用过程，以促进可持续发展。

意大利在上世纪90年代开始认为有必要采取措施，将环境问题纳入地方与城市规划。由于之前10年中住宅与生产的密集开发消耗了大量土地，意大利认识到建立有效战略以保护其自然和景观遗产的重要性和必要性，并努力使之成为制定规划政策的出发点。

SEA通过2006年4月3日颁布的第152号法令“环境法规”正式纳入意大利法律，该法规在第二部分介绍了 SEA、EIA和IPPC制度、程序和评估参考标准。

SEA三角方法

欧盟第2001/42/EC号指令（“相关计划和规划的环境影响评价”）提出的战略环境评价（SEA）以图1所示之三角形方法为基础:

1. 三角形第一边：环境问题;
2. 三角形第二边：经济联系;
3. 三角形第三边：社会考虑。

SEA指令范围内的计划和规划，应在制订过程中和采用之前进行环境评价。这包括起草环境报告，指出对环境的重大潜在影响与合理备选方案，并向公共环境部门以及其他MS（如涉及跨境影响）进行咨询。

应在采用计划和规划前，对环境报告和咨询结果加以考虑。采用一项计划和规划时，应就此通知环境部门和公众，并公布相关信息。应对计划和规划的重大环境影响实施监控，确保尽早发现任何无法预料的不良影响。

SEA的优点可总结如下:

_ 可将环境考虑融入决策过程，并“绿化”计划和规划;

_ 引入相关公共机构的参与和咨询服务，从而促进并强化不同部门（规划、环境与卫生）之间的合作;

_ 社会的多层面参与，提升了决策透明度;

_ 促进遵守相关具体环境政策要求。

为了确保正确应用，应将SEA程序分为三个阶段:

_ 事前：在制定计划和规划之前，强调环境问题;

_ 事中：在制定计划和规划过程中，考虑实施的潜在影响，评估是否与事前评价、目标针对性以及贯彻程度保持一致。该阶段应平行开展计划的评价与制定程序，以便共同解决问题;

_ 事后：计划制定完毕后，说明资源的利用情况、干预的效能与效率、他们的影响以及与事前评价的一致性；计划批准后，确定计划决策适应性的永久监控指标。

Table 1. Compliance between sustainability objectives and general plan objectives (Territorial Plan of the Veneto Region)

Sustainable objectives	**Content of the soil consumption**	**Biodiversity maintenance**	**Air & water quality improvement**	**Natural resources improvement (Energy)**	**Mobility**
General Targets of the Veneto Region	Rationalization in land use	Ensure balance between environmental ecosystems and human activities	Prevent and reduce levels of air pollution to limit GHG emission	Promote efficiency in fossil fuel supplying	Infrastructural strengthening to improve public transport
	Adaptation to climate change in land use	Protection of ecological corridors	Limit climate-changing antrophogenic pressures	Energy saving in buildings	Improvement of the accessibility
	Enhancement of rural use	More sustainable settlements	Prevent and reduce levels of water pollution	Increase renewable energy use	Enhancement of slow moving
	Preservation of quality and quantity of water resources	Landscape preservation			

Legend

- full consistency between the objective of the plan and goal of sustainabiliy
- partial coherence between the objective of the plan and goal of sustainabiliy
- substantial indifference between the objective of the plan and goal of sustainabiliy
- contradiction between the objective of the plan and goal of sustainabiliy
- full contradiction between the objective of the plan and goal of sustainabiliy

表1. 可持续性目标与总体计划目标的相符情况（威尼托大区国土规划）

可持续性目标	土地使用内容	维护生物多样性	改善空气和水质	改进自然资源（能源）	活动性
威尼托大区的总体目标	土地使用合理化	确保环境生态系统与人类活动的平衡	避免和降低空气污染以限制温室气体排放	促进化石燃料的供应效率	加强基础设施以促进公共交通
	在土地使用中适应气候变化	保护生态廊道	限制气候变化的人为压力	建筑节能	促进交通
	增加农村土地利用	更多可持续性安排	避免和降低水污染	增加再生能源利用	改善交通不畅
	保护水资源数量和质量	景观保护			

图例

- 计划目标与可持续性目标完全一致。
- 计划目标与可持续性目标部分一致。
- 计划目标与可持续性目标存在较大不相关性。
- 计划目标与可持续性目标存在矛盾。
- 计划目标与可持续性目标完全矛盾。

decision making and the "greening" of P&P;
_ the introduction of **participation** and consultation by relevant public authorities; this facilitates and strengthens cooperation between different authorities (planning, environment and health);
_ the increased **transparency** in decision making due to the involvement of several levels of society;
_ improved compliance with the requirements of the specific **environmental policy** concerned.
In order to be applied correctly, the SEA process must be broken down into three stages:
_ *ex-ante*: before devising the P&P, to highlight environmental problems;
_ *in itinere*: during the formulation of the P&P, taking into consideration the potential effects of the operations, evaluating coherence with ex-ante assessment, the pertinence of the objectives and the degree to which they have been accomplished. In this phase, the plan assessment and formulation processes must be conducted in parallel in order to tackle issues in a joint way;
_ *ex-post*: once the plan has been completed, to illustrate how resources have been used, the efficacy and efficiency of intervention, their impact and coherence with *ex ante* evaluation; after approval it is decided which indicators are to be subject to permanent monitoring to verify whether the plan decisions are suitable.

Developing SEA Objectives, Indicators and Targets for Territorial Planning

The SEA Directive does not require objectives to be developed for the SEA itself, but they are widely used as tools to ensure that the right level of consideration is achieved.
An objective is a statement of what is intended, specifying a desired direction of change. For this purpose, a distinction needs to be made between three types of objectives:
_ the objectives of the plan or program in question. Government policies and guidance increasingly require these to be based on sustainability considerations, and the development of SEA objectives may help to promote ideas for making them more environmentally-friendly and sustainable;
_ external objectives: other objectives to which responsible authorities need to have regard independently from the SEA process. They may include environmental protection objectives (which, if binding, must be covered in the Environmental Report), but they can also be economic or social;
_ SEA objectives, devised to test the environmental effects of the plan or to compare the effects of alternatives.
Objectives can be expressed so that they are measurable (*e.g.* an objective to "reduce greenhouse gas emissions", could be expressed as "reduce CO_2 emissions by 20% by 2020"). The achievement of objectives is normally measured by using **indicators.**
SEA objectives can often be derived from environmental protection objectives identified in other plans and programs or from a review of baseline information and environmental problems.
Table 1 suggests some SEA objectives and the level of compliance with sustainability objectives as outlined in the SEA process for the Territorial Plan of the Veneto Region. It has to be noted that the responsible authority can adapt these to take account of local circumstances and concerns – for instance, adding or deleting local environmental objectives. A plan or program concerned with minerals, for example, could include more objectives for soil and water quality, maintenance of the hydrological regime and mineral reserves, and could express them in more detailed terms, whereas for a territorial plan it should be sufficient to consider general objectives on a larger scale (Table 1).
All national transposing legislation lays down a formal requirement to provide a description of the baseline situation. Identification of the correct scale of data and the level of detail of the assessment are the predominant difficulties as well as the lack of good quality information, the time-consuming nature of data collection, the lack of homogenous criteria for the scope and content of the baseline analysis, and the absence of a standard set of environment and sustainability criteria against which to assess P&P. In the regional Territorial Plan, all the collected indicators were normalized in the following eight categories:
_ Air Quality Index;
_ Index of Quality and Quantitative Water Resources;
_ Biodiversity Value;
_ Agro-forestry Heritage Index;
_ Landscape, Historical Heritage Index;
_ Urban and Infrastructural Pressure Index;
_ Index of Energy Consumption;
_ Economy State.
Through the use of Saaty[1] multicriteria matrices, an indicator's hierarchy was obtained by attributing a "weight" to each indicator used for the construction of an index. After calculating, the average value was

为国土规划确定SEA目标和指标

SEA指令规定，SEA自身无目标要求，但可广泛用于多种工具，确保考虑的充分性。

目标是一种意愿说明，它指出了改变方向。

为此，有必要对三种类型的目标加以区分:

_ 当前计划或规划的目标。政府政策与指导越来越强调计划或规划的可持续性基础，并且制定SEA目标有利于促进他们的环保与可持续性理念;

_ 外部目标: 主管部门需独立于SEA程序加以考虑的其他目标。这些目标可能包括环保目标（如有，应纳入环境报告）以及经济或社会性目标;

_ SEA目标，用于检验计划的环境影响或者比较备选方案的影响。

目标陈述应具有可衡量性（例如‘减少温室气体排放’的目标可表述为“到2020年CO_2排放量降低20%”）。通常利用指标衡量目标的实现情况。

SEA目标通常源自其他计划和规划中已确认的环保目标，或者根据对基线资料和环境问题的检查。

表1针对威尼托大区（Veneto Region）国土规划SEA程序，提出了某些SEA目标以及可持续性目标的符合等级。应注意的是，主管部门可据此考虑本地情况与问题——例如，增加或取消本地环境目标。例如，有关矿物的计划或规划可能包含更多的土壤和水质、水文状况维护以及矿藏相关目标，并可对此进行更详细的说明，但对于对于国土规划而言，考虑广泛的总体目标即可（表1）。

所有国家移调法律均要求提供基线情况说明。主要问题在于正确确认数据规模和评估详细程度，此外还存在缺乏高质量信息、收集数据费时冗长、基线分析范围与内容无统一标准、缺乏评价计划和规划的统一环境标准和可持续性标准等问题。在区域性国土规划中，收集的所有指标可纳入以下八类:

_ 空气质量指数;

_ 水资源定性和定量指数;

_ 生物多样性价值;

_ 农-林业遗产指数;

_ 景观与历史遗产指数;

_ 城市与基础设施压力指数;

_ 能耗指数;

_ 经济状况。

利用Saaty[1]多指标矩阵，向构建指数所需的每个指标分配一个“权重”，便可获取指标层次。计算完毕后，可通过下列公式求取正规化平均值。

$$Ind_i = (v_i - m)/(M-m)$$

其中，Ind_i是v_i-数据的指数值，M 是所有vi-数据的最大值，m是所有vi-数据的最小值。以空气质量为例，该评估方法应用及其图示参见图2所示。

在明确环境现状相关问题后，对规划者和评估者而言，估算和评价计划/规划的潜在实施影响无疑是SEA程序的最重要阶段。

根据第42/2001/CE号指令附件II的规定，应对影响特征以及受影响区域的特征加以考虑:

_ 影响的概率、期限、频率和可逆性;

_ 影响的累积性;

_ 影响的跨境性;

_ 对人体健康和环境的风险（例如发生事故）;

_ 影响的规模和空间范围（潜在受影响的地理区域和人口规模）;

_ 潜在受影响区域基于下列内容的价值和脆弱性:

  _ 特殊的自然特征或文化遗产;

  _ 超出环境质量标准或限制;

  _ 土地集约利用。

_ 对国家、社会或国际公认保护区域的影响。

计划影响评价通过第2001/42/EC号指令要求的逻辑方案加以实施，该方案指出了一系列要素和环境因素，通过对比方式突出对环境的积极和消极影响，如表2所示。通过以下色标对影响特征加以说明:

- 总体积极影响
- 总体轻微积极影响
- 总体无关影响
- 总体轻微消极影响
- 总体消极影响

对于每一结果性关键活动（对应红色），应确定适当的影响缓解或补偿措施（图2）。

normalized by using the following formula:
$Ind_i = (v_i - m)/(M-m)$
Where Ind_i is the index value for the v_i-data,
M is the maximum value for all v_i-data,
m is the minimum value for all v_i-data. An example of this assessment methodology applied to air quality and its representation on the map is given in Figure 2.
Once the relevant aspects of the current state of the environment have been outlined, the most important stage as regards the SEA process, from both the planner and assessor's standpoint, is undoubtedly that in which the potential impacts deriving from plan/program implementation are estimated and assessed.
According to Annex II of Directive 42/2001/CE, the characteristics of the effects and of the area likely to be affected, should take into account:
_ the probability, duration, frequency and reversibility of the effects;
_ the cumulative nature of the effects;
_ the transboundary nature of the effects;
_ the risks to human health or the environment (*e.g.* due to accidents);
_ the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);
_ the value and vulnerability of the area likely to be affected due to:
  _ special natural characteristics or cultural heritage;
  _ exceeded environmental quality standards or limit values;
  _ intensive land use.
_ the effects on areas or landscapes which have a recognized national, community or international protection status.
The evaluation of the effects of the plan was carried out by using the logical scheme required by Directive 2001/42/EC, which sets out a number of components and environmental factors as key elements for comparison to highlight the presence of effects – both positive and negative – on the environment, as shown in Table 2.
The effects were characterized according to the following chromatic scale:

- Total effect positive
- Total effect slightly positive
- Total effect irrelevant
- Total effect slightly negative
- Total effect negative

For each of the resulting critical actions (corresponding to the color red), appropriate impact mitigation or compensation measures should be identified (Table 2).

Impact of the SEA on the Territorial Planning Processes

The SEA Directive has certainly contributed to the systematic and structured consideration of environmental concerns in planning processes and better integration of environmental considerations upstream. In addition, by means of its requirements, it ensures better and harmonized planning procedures and contributes to transparent and participatory decision-making processes.
The current situation in Italy is showing good results, as demonstrated by the establishment of specific SEA procedures in many regional regulations.
However, the application process has encountered certain difficulties in making its mechanism efficient and in guaranteeing adequate repercussions on planning. The biggest hindrances to the correct application of SEA are:
_ the shortage of accurate, up-to-date data, due to an incomplete measurement and monitoring network and data diffusion systems that are not yet fully developed;
_ the lack of standard assessment methods, due to the different conditions and environmental problems of the individual areas and the shortage of a standard procedure, which makes the evaluation and approval of SEA-related documents difficult;
_ the difficulty faced by administrations in implementing the kind of data collection and elaboration process required for SEA, which requires diversified specialist expertise in order to be efficacious.
It is in this context that a SEA drafting support software program was developed within the DIVAS Project, as part of the CARDS/PHARE European Interreg Program (*www.progettodivas.org*).
The purpose of the project, which was promoted by the Veneto Regional Authority, Abruzzo Regional Authority and Ca'Foscari University – with the technical support of eAmbiente Srl – was the creation of a software program to support decision making for the strategic environmental assessment of urban town planning regulations.
DIVAS has been developed as a DSS (Decision Support System), *i.e.* a system that provides the decision maker

SEA对国土规划过程的影响

毫无疑问，SEA指令已促进规划对环境问题的系统性和结构性考量，并改善了与上游环境因素的整合。此外，SEA通过自身要求，确保了良好、和谐的规划过程，并促进了决策过程的透明度与参与性。

目前，意大利在许多区域法规中设置了具体SEA程序，并取得了良好效果。但在应用过程中仍存在难于确保机制效率以及规划响应不足等困难。正确实施SEA的最大障碍在于:

_ 由于测量和监控网络不完善且数据扩散系统尚不健全，导致缺乏最新的准确数据;

_ 由于各区域的情况和环境问题不同并且SEA相关文件的评估和审批无标准程序可依，导致缺乏标准的评估方法;

_ 在执行SEA所需数据收集和处理过程中存在管理困难，需通过多样化的专业知识确保有效性。

正是在这样的背景下，DIVAS项目内部开发了SEA起草支持软件计划，并将其纳入CARDS/PHARE欧洲Interreg计划(www.progettodivas.org)。

项目由威尼托区大区当局、阿布鲁佐大区当局和Ca' Foscari大学发起，并由eAmbiente Srl提供技术支持，其目的是针对城市规划条例的战略环境评价，建立决策支持软件程序。

已开发的DIVAS为DSS（决策支持系统），旨在向决策者提供一套分析功能和模式，用以促进决策模型的效能和效率。在本方法手册中，DIVAS还针对基于GIS（地理信息系统）工具的影响评估提供了各种实例。方法结构逻辑基础所依据的流程图符合第42/2001/EEC号指令（最新版）以及第152/2006号法令（及其后续修订）的指示。

DIVAS旨在提供一个操作工具，可在整个SEA起草过程的程序和方法层面上为用户提供帮助。它有助于用户确认技术和非技术文件的所需要素，并特别注意环境报告的起草（目标与行动、关键环境问题等等）和指标的选择。

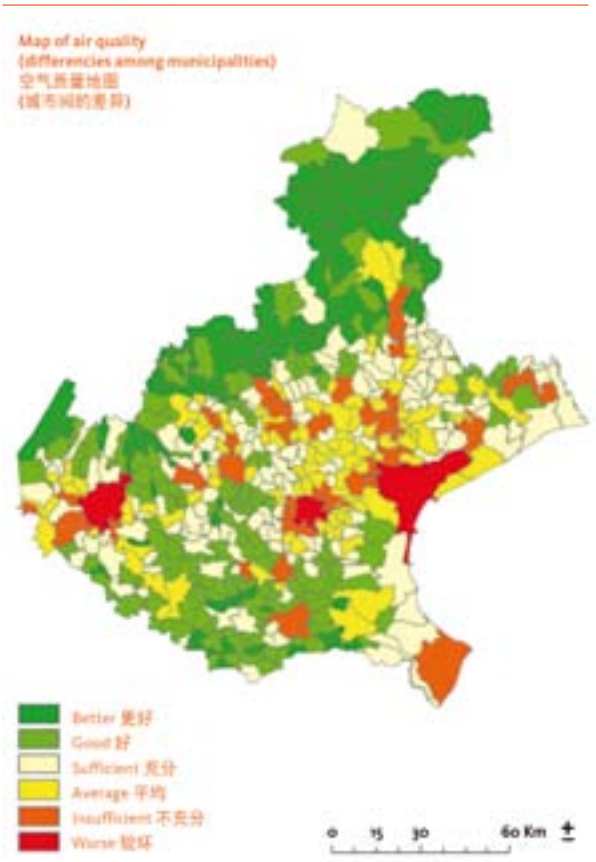

Figure 2. Air quality index used in SEA of the Territorial Plan of the Veneto Region
Source: Arpav and Sistar data processed by the Veneto Region Government
图2. 威尼托大区国土规划SEA所用空气质量指数
信息来源: ARPAV和SITAR数据由威尼托地区政府部门整理

Indicator	Weight
Industrial emission (NO_x+PM_{10})	0.34
Percentage of urbanized area on municipal surface	0.26
Km of main roads and highways per town	0.20
Vehicles with internal movement, to and from the outside of the municipal territory	0.16
Number of companies at risk of major accident	0.05
Total	1.00

指标	权重
工业排放 (NO_x+PM_{10})	0.34
城市化地区占城市面积的百分比	0.26
各城市主要街路公里数	0.20
在市内行驶的进出市区车辆	0.16
具有主要事故风险的公司数量	0.05
总数	1.00

Table 2. Chromatic matrix used in SEA of the Territorial Plan of the Veneto Region

Aspect: Economic Development and Housing	Biodiversity	Population and health	Soil	Water	Air	Climate factors	Material Good	Cultural heritage and landscape	**Action plan**
Requalification of urban systems									Priority for the recovery of existing buildings. Enlargement of urban areas endowed with all connections (e.g. sewage)
To define new planning criteria									Obligatory certification of energetic buildings: increasing construction costs but reducing management.
Location of industrial area									The strategy of the plan is to give priority to retaining the existing area, to limit expansion, and to check and limit its impact.
Development of port area (Venice)									The forecast development of the port area and the lack of punctual controls in such a unique environment determines problems in the impact assessment.
New motorway tollgates and new accesses									By limiting their localization, the law negatively influences the economy, but reduces soil exploitation.
New thermal power plant									The plan foresees a new plant whose impact on air and population is subject to assessment every time (EIA).
Development of renewable sources									The final plan is positive, with the development of photovoltaic panels on the roof and biomasses.

表2. 威尼托大区国土规划SEA所用彩色矩阵

情况: 经济发 展与住房	生物多样性	人口与健康	土壤	水	空气	气候因素	物质资料	文化遗产与景观	计划行动
重新安排 处理系统									优先恢复当前建筑。结合所有相关系统 （例如排水系统...）开展广泛区域处理
制定新规 划标准									能源建筑认证职责: 建筑成本高但管理成本低
工业区位置									计划战略是保留当前工业区、限制扩张、 检查并确保无消极影响。
港区开发 （威尼斯）									从极端的环境单一性角度预测港区发展， 确定影响控制问题。
新建高速公路 收费站和入口									规划标准限制对经济的影响并保护土地 /土壤。
新的热 电联厂									计划预测新工厂——对空气和居民的影响应予 以评价（EIA）。
开发可再 生能源									包括屋顶太阳能光电板和生物质能的项目 （规划）取得较好结果。

with a set of analysis, functions and models to improve the efficacy and efficiency of the decision-making model. In this methodology manual, DIVAS also provides various examples for the evaluation of effects through GIS (Geographic Information System) tools. The logic underlying and supporting the methodological structure is based on a flowchart that follows the indications provided by Directive 42/2001/EEC, updated where possible by Legislative Decree no. 152/2006 (and subsequent amendments). DIVAS aims to provide an operative tool that accompanies the user throughout the whole SEA drafting process on a procedural and methodological level: it helps the user to identify the elements to include in the technical and non-technical documentation, and special attention was dedicated to the drafting of the Environmental Report (objectives and actions, critical environmental aspects, *etc.*) and to the choice of indicators.

Conclusions

The planning sector requirements that have emerged in Italy over the past decade can be summarized as follows:

1. greater consideration of the context and environmental variables when defining new projects, in order to avoid pushing the system beyond the threshold values at which the environmental impact can become harmful;
2. the assimilation of requests from the local population and interest groups, in order to take public opinion into greater account when making key decisions;
3. the achievement of the above points in a constructive manner, integrating them in the planning process as further input that can improve town planning regulations, promoting an instrument able to combine the requirements of development and conservation and consequently achieve shared and lasting sustainable development.

Although different tools have already been implemented for the integration of environmental considerations in the preparation and adoption of certain P&Ps (*e.g.* the DIVAS project), there is still the need for further guidance, in particular on the interpretation of specific key concepts of the SEA Directive, such as screening criteria, identification of alternatives, coordination mechanisms and/or joint procedures for fulfilling the requirements for assessment under other directives – the link between SEA and EIA.

In this regard, consideration and identification of alternatives in the environmental report is still one of the most problematic issues. Italian legislation does not provide a specific definition of "reasonable alternatives" or a number of alternatives that must be assessed (only the "do-nothing" alternative has to be included in the environmental report on a mandatory basis); the choice of "reasonable alternatives" is still determined by means of a case-by-case assessment. Further development of specific guidelines is therefore needed in order to provide support for the identification and selection of reasonable alternatives in individual procedures.

Notes

1 Saaty, 1980; 1987.

结论

意大利在过去10年中编制规划的情况总结如下:

1. 在确定新项目时更多地考虑背景和环境变量，以免系统超过相关临界值，对环境造成有害影响;

2. 听取当地居民和利益集团的要求，以便在作出关键决策时充分考虑公众意见;

3. 以具有建设性的方式实现以上各点，将其纳入规划过程以改进城市规划条例，并推广相关工具以融合开发和保护要求，进而实现长期和可持续的共同发展。

虽然在相关计划和规划（例如DIVAS项目）的制定和采用过程中，已运用了不同工具对环境因素进行了整合，但仍有必要对以下内容提供进一步指导：SEA指令特定关键概念（例如筛选标准）的解释、备选方案的确认、根据其他指令执行评价要求的协调机制和/或联合程序 – SEA和EIA（环境影响评价）的关系。

总体来说，环境影响报告中备选方案的考量与确认仍是最棘手的问题之一。意大利法律并未针对需予评价的“合理备选方案”或一系列备选方案（只有‘不行动’方案必须纳入环境报告）给出具体定义。“合理备选方案”的选择仍需根据具体评价而定。

因此，有必要进一步制定具体指南，以便在个别程序中为合理备选方案的确认与选择提供支持。

注释

1 Saaty, 1980; 1987.

on focus

Strategic Environmental Assessment and Risk Management

PEIA in China: Management System Analysis

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Abstract: Three national-level policy management: the evaluation model, the process of monitoring and the legal liabilities which would influence the Strategic Environmental Assessment (SEA) implementation rate and effect were analyzed in this paper based on the promulgation of the "Chinese Planning Environmental Impact Assessment (PEIA) Regulations" in 2009. Aimed at the problems existing in the management system, we suggested some solutions to improve the effectiveness of PEIA, such as the adoption of a new mixed-evaluation model, the participation of the NGOs and Environmental Resource Committee of NPC in the monitoring process, and more appropriate legal liability.
Key Word: PEIA, Evaluation Model, Process Monitoring, Legal liabilities

1. Introduction

Since the law of Environmental Impact Assessment (EIA) was released in 2003, only a limited number of PEIAs have been carried out, and those that have been carried out have not been very effective. According to the environmental performance assessment report issued by OECD in 2006, environmental policies and laws including PEIA are not very effective, rooted in system defects and weak implementation. On the other hand, most of the experts are committed to studying the techniques and methods of PEIA, but the environmental policy analysis in the management systems is lacking. Three national-level policy in management systems: the evaluation model, the process of monitoring and the discipline system – which would influence the rate and effect of the PEIA – were analyzed in this paper, based on the promulgation of the "Chinese Plan Environmental Impact Assessment Regulations" in 2009. Some comments and suggestions were also put out.

2. The Overview of the PEIA Management System[1]

The management system can be classified as information management, implementation management, supervision management and financial management[1]. Information management is essentially the information-sharing system for PEIA. The asymmetry of environmental information among environmental authorities, planning departments, PEIA units and the public (who cannot fully access environmental information) often leads to a mixed understanding of environmental problems and, consequently, the failure to find an effective solution to environmental problems. For this reason, the information-sharing system needs to be established as soon as possible.

Implementation management includes the qualification management of PEIA units, the process management of the report preparation and the quality management of the final report, *etc.* The process management of PEIA, which can also be divided into evaluation model selection, the review of PEIA *etc.*, may be the most important part according to the characteristics of PEIA.

The supervision management of the PEIA usually includes two parts: one is the supervision of the process by environmental protection departments, the media, the public and the community, *etc.*; the other is the discipline system of the planning authority, the approving authority, the PEIA preparation agencies, the review team and so on.

The fund management of the PEIA deals with the source of the fund and the expenditure management of the fund. The PEIA management system is shown in Figure 1.

3. The Management System Analysis and Suggestions from the PEIA

In my opinion, the key issues which impact on the effectiveness of implementing PEIA are the evaluation model, the process of monitoring and the discipline

焦点

战略环境影响评价和风险管理
中国规划环评的管理制度剖析

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摘要：本文以2009年颁布的《规划环境影响评价条例》为切入点，着重分析了影响规划环评实施率及实施效果的三项政策管理制度，即评价模式、过程监督和问责体系。建议主要包括采用“三外一内”的混合评价模式，即在规划目标确立之前就启动规划环评程序，在形成初步的规划草案后再由专门的规划环评机构对其进行系统、全面的环境影响评价，修正和完善规划草案；以NGO、环资委等第三方机构作为公众利益的代言人参与规划环评；尽快扭转《条例》中倒挂的法律问责顺序，旨在提高规划环评在中国的有效实施。

关键字：规划环评，评价模式，过程监督，问责体系

1. 引言

2003年《环境影响评价法》（以下简称“环评法”）出台至今，真正根据法律要求实施的规划环境影响评价（以下简称“规划环评”）数目极为有限，已经开展的规划环评也存在着有效性差的问题：一方面，根据2006年国际经济合作与发展组织（OECD）的环境绩效评估报告，我国包括规划环评在内的环境政策和法律的有效性和效率还不够高，其根源在于目前的体制缺陷和环境政策的实施问题；另一方面，目前大多数的专家学者都致力于规划环评技术方法的研究，缺乏对于该项环境政策在管理制度方面的剖析。本文以2009年颁布的《规划环境影响评价条例》为切入点，着重分析了国家层面上影响规划环评实施率及其效果的3项政策管理制度，即评价模式、过程监督和问责体系上存在的缺陷，并对今后开展的规划环评管理工作提出了相应的意见和建议。

2. 规划环境影响评价的管理制度体系概述[1]

管理制度通常可以划分为信息管理、实施管理、监督管理、资金管理4个方面[1]。而对于规划环评这一环境政策，信息管理主要是规划环评的信息共享制度。环境信息的不对称，常常会导致对环境问题认识上的差异，继而影响了环境问题的有效解决。当规划及环保主管部门、规划编制部门、规划环评单位和公众不能全面获取环境信息时，就可能会影响到环境问题的有效解决。因此，需要建立一个信息共享制度来更好地施行规划环评制度。规划环评的实施管理包括规划环评承担单位的资质管理、规划环评实施过程管理、规划环评质量管理等。其中最重要的就是规划环评实施的过程管理，又可以分为评价模式选择，规划环评文件的审查等，直接关系到规划环评文件的质量和规划环评的时效性。规划环评的监督管理一般包括环保部门、新闻媒体、公众和社团对规划环评具体实施过程的监督，以及对规划编制机关、审批机关以及规划环评编制机构、审查小组等违反相关规定的问责体系两个部分。规划环评的资金管理即实施规划环评所需费用的来源和支出管理。规划环评的管理制度体系如图2-1所示。

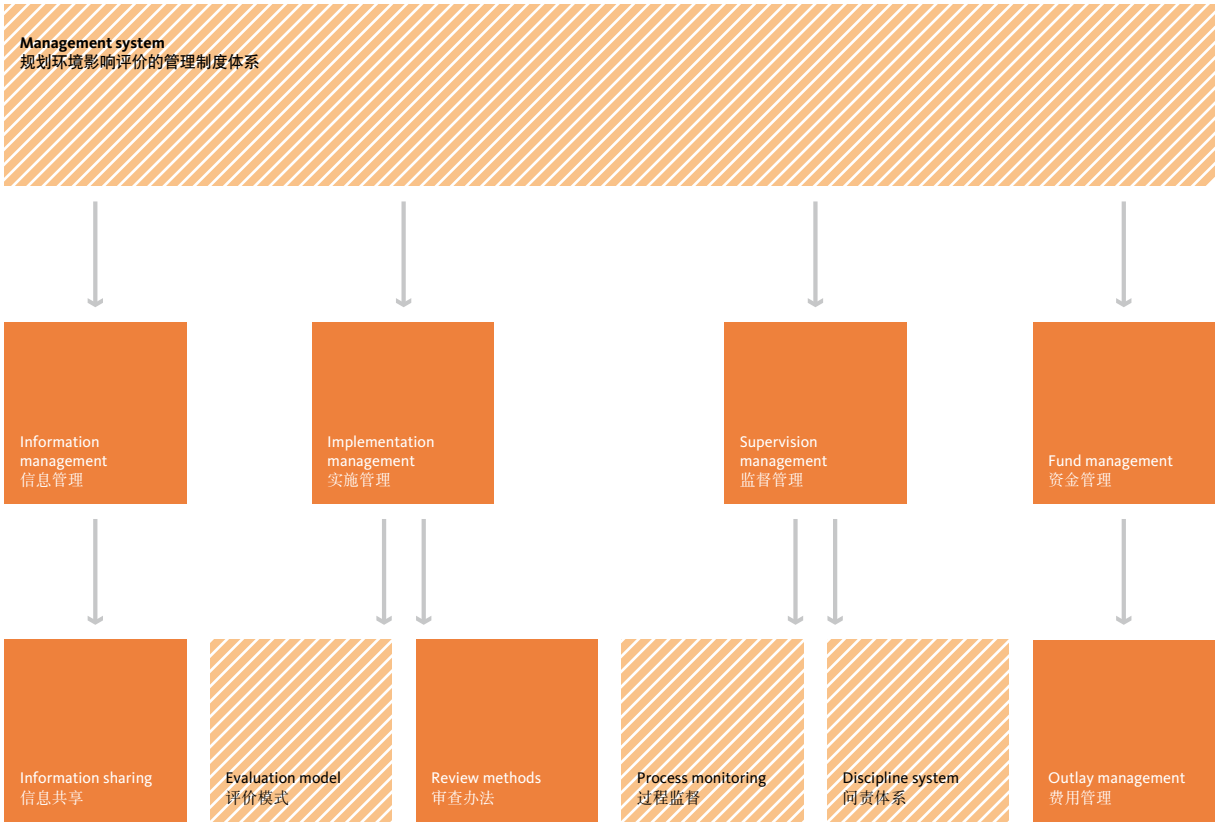

Figure 1 The PEIA management system
图1 规划环境影响评价管理制度的组成

system. The reasons are as follows: the evaluation model is the base, and a proper evaluation model is useful to recognize the potential environmental problems; the process of monitoring and the discipline system are the guarantee, and PEIA will lose its function without an effective public participation mechanism and a strict discipline system.

3.1 Evaluation Model

When it comes to the evaluation model, domestic scholars hold different views on the self-evaluation model (to implement the PEIA by itself) and the third-party evaluation model (PEIA is carried out by a third party but not the agency who prepared the planning). Li Tianwei *et al*.[2] thought that the technical work of planning EIA should not be prepared by the planning departments or local government because of the different interests of government departments and the professional technical requirement of PEIA. Li Jianguo[3] believes that the self-evaluation model reflects the original intention of PEIA while the third-party evaluation model only suits to stable objects, such as project EIA. Zhao Yanbo *et al*.[4] thought that the third party evaluation model is actually a kind of "terminal management" because it cannot be carried out until the planning text has been completed, though this model could deal with some highly specialized types of PEIA.

Although the law of EIA, released in 2003, and the PEIA Regulations, implemented in 2009, have both stipulated the intervention timing of the PEIA, they don't clearly point out which evaluation model to choose.

In my opinion, self evaluation should be eventually integrated into the process of planning preparation with the increasing environmental awareness of the planner, and it can be a process of planning rather than a process of EIA. This kind of integration essentially involves sufficient consideration of the environmental problems

3. 规划环评的管理制度分析及其建议

影响规划环评制度实施有效性的关键问题在于评价模式、过程监督和问责体系三个方面。其中，评价模式是基础，恰当的评价模式有助于识别出规划的潜在环境问题；过程监督和问责体系是保障，如果缺乏一个有效的公众参与机制和严格的法律问责体系，规划环评就容易走过场。

3.1 评价模式

规划环评模式通常有自我评价模式（规划编制机关自己进行规划环评）和第三方评价模式（规划编制部门委托具体编制规划的单位意外的单位进行规划环评）。李天威[2]等人认为规划环评的技术工作不应当由组织编制规划的有关部门或地方政府自行承担：一方面由于政府部门之间的利益博弈，容易使规划环评走过场；另一方面是由于规划环评是一项较复杂的技术性、专业性工作。李建国[3]等人认为自我评价很好地体现了规划环评的初衷，而第三方评价适用于稳定的评价对象，诸如各类建设项目的环境影响评价。赵艳博[4]等人认为第三方的评价模式虽然可以应对专业性强的规划环评问题，但由于不能从规划编制的开始阶段融入对环境因素的考虑，因此这种评价模式实际上是“末端管理”的思想体现。

然而，不管是《环境影响评价法》还是《规划环境影响评价条例》，都没有明确规定应采用“自我评价”模式还是“第三方评价”模式。随着国家对各类规划在环境保护方面的要求逐渐提高，以及各规划编制人员环境意识的不断加强和具有环境学背景的专业人士加入到规划编制队伍，“自我评价模式”将更容易融入规划编制过程。这种融合更有利于在规划编制中尽早地、充分地考虑对可能产生的环境问题。

在规划编制的初期，尤其是从规划目标选定到规划方案初步形成这一阶段，应该有足够的机会来改善规划甚至是改变规划走向。但是，由于缺乏环境学科背景知识或规划编制部门出于部门利益的考虑，一些可能会产生不良的、显著的环境问题的规划因素，很可能被忽视。而且，规划编制部门通常处在信息链的上游，由于缺乏信息共享，环保部门也难以觉察潜在的“环境危机”，也就丧失掉通过规划环评改进和优化规划的机会。因此，有必要在规划目标确立之前就启动规划环评程序，以确保整个规划编制及今后的规划实施满足特点的环保要求。而在形成初步的规划草案后再由专门的规划环评机构对其进行系统、全面的环境影响评价，修正和完善规划草案，既避免了不必要的资源浪费，又提高了规划环评的有效性。这样，就形成了“三外一内”的混合规划环评模式（见图2）：图2.

在以往的规划环评过程中，后面两项外部评价的程序是比较通用和常规的，也已经由国家相关法律作出明文规定。而第一项外部评价程序，即“环境约束目标”实践得比较少，但它却是规划环评早期介入的一个关键步骤。这一过程可以通过环境管理的基础研究，包括功能区划、环境承载力研究、重点地区与行业生态效益或门槛值的研究、生态规划研究等落实，在具体规划环评中先基于这些基础研究的成果，识别出本次规划相对的环境约束目标与要求。

当然，不同的评价模式都有各自的特点，它们之间的比较如下表所示:

3.2 过程监督方面

规划环评的过程监督主体包括环保主管部门、新闻媒体、社团以及公众等，尤其是公众应该发挥更大的监督作用。然而，虽然《环评法》和《条例》都明确规定了公众参与规划环评，但在具体操作中，公众参与往往表面化、形式化，而没有发挥公众参与的真正作用。具体如下:

第一，仅有相关法律法规的规定应该开展公众参与，没有规定如果未实施公众参与或公众参与失

that may arise during the implementation of the plan. In the early stages of planning, planning objectives are chosen, planners are upstream of the authority and information chain, and they have ample opportunity to decide the direction and development trend of the planning before the planning scheme is initially formed. However, due to planners having their own values and interests, the potential environmental problems cannot be fully considered or integrated into the planning report. Therefore, it is necessary to bring it in during the process of establishing the planning goal, which will ensure all of the planning will move in the right direction for environmental protection. After a draft plan has been prepared, the third-party environmental assessment can take place to make some corrections and improvements to the draft plan. Such a PEIA procedure would not only avoid the wasting of resources, but also greatly enhance the effectiveness of the PEIA. The mixed PEIA model is shown in the following figure: Fig. 2.

During the past PEIA process, the later two kinds of evaluation model have always been carried out due to the certain articles in EIA law and regulations. But the first kind, "Third party evaluation to constrain the objective", which is a key phase of PEIA process, has been rarely implemented.It may be realized with the basic researches for environmental management, including planning by functions, environmental carrying capacities, eco-efficiency indicators or threshold values on key regions and sectors, eco-planning *etc.* Based on these fundamental research results, the environmentally binding objectives and requirements can be indentified for the plan.

Every evaluation model has its own characters, which is shown in the following table: Table 1.

3.2 The Process of Monitoring

The main part of the monitoring process includes environmental authorities, the news media, the community and the public. The key supervisory role should be the public. Though rules have been made for public participation in the EIA and Chinese Plan Environmental Impact Assessment Regulations, when action is taken, public participation is always ignored. The reasons may be as follows:

1. According to the regulations, we must include public participation. But if we do not bring it into force or let it become invalid, there is no rule to say it is illegal, and the institution that organized the PEIA or its principal does not take on any legal responsibility because of that. There is a lack of specific provisions in the relevant laws and regulations, which should be implemented.

2. It is difficult for the public to get access to the PEIA and government information is blocked to the public. Government websites are the main way for the public to obtain information regarding the PEIA, as they are much more accessible and allow for a faster reply. However, according to the website statistics, among the 32 provinces, autonomous regions and municipalities directly under the central government, only Xinjiang, Henan, Jiangsu, Liaoning have listed information regarding the PEIA's acceptations and reviews in their environmental websites. Sichuan, Jiangxi, Hebei and Inner Mongolia have listed the measures to promote and enforce the PEIA. Qinghai and Shanxi Province have only listed the Chinese Plan Environmental Impact Assessment Regulations and related policy. In the other provinces, autonomous regions and municipalities, there is almost nothing about the PEIA in their environmental websites.

3. The public does not have enough awareness or ability to take part in the PEIA. Most of them are not capable of participating in government decisions or providing suggestions for the PEIA. Moreover, compared with the general construction projects, it is hard to find members of the public who are directly affected by the PEIA[5]. So, given that the public does not have a high level of environmental awareness, we should choose people from all levels of the NPC of Environmental and Resource Committee, specialized environmental organizations (NGO) as well as enthusiastic professionals to take part. In this way, the process of monitoring will be effective, because these organizations and people not only have a high level of awareness of environmental protection, but they also have a strong background and expertise. In addition, the public should participate in the PEIA in its early stages so that their suggestions will be considered. When the PEIA has already established a general idea, major content, or an architectural project, public participation would be useless. Whilst the public has found some existing problems and shortcomings, it is difficult to modify a PEIA that has already been completed.

3.3 Discipline System

The positive side of the PEIA Regulations is obvious. However, compared to the Law of EIA there has been no substantial progress in the discipline system within the planning with respect to liability.

"EIA Law" Chapter IV: "The directly responsible executive officers and other staff of the planning approval

效即为违法这一法律约束机制。这样，规划编制机关以及相关负责人都不会因为公众参与的缺失和失效而承担任何法律责任。而且，在相应的制度规定中也缺乏将法律法规的具体条款进行制度化。

第二，公众参与渠道不畅通，公众获取政府信息存在很大阻碍。政府网站是公众获取相关规划环评执行情况的一个重要渠道，其及时性和直接性是其他方式无法企及的。然而，根据网站公示的统计信息：在全国32个省、自治区、直辖市中，只有新疆、河南、江苏、辽宁等环保网站上已经列出了开展相关规划环境影响评价的受理、审查等事宜；四川、江西、河北、内蒙古等环保网站都已列出相关办法，要求推进并加强实施规划环评；青海、山西等网站则仅列出国家规划环评政策法规这一阶段；其余省、自治区、直辖市的环保厅网站几乎没有涉及规划环评的相关内容。

第三，公众参与规划环评的意识薄弱和能力不够。许多公众缺乏参与政府决策、对规划环评提供相关意见和建议的意识和能力。此外，与一般建设项目相比，大多数规划很难找到直接接受影响的一般公众[5]。因此，在当前公民环境意识普遍偏低的情况下，通过各级人大环资委、专门环境组织（NGO）或热心的专业人士可将公众意见反映对决策过程，这些机构或人士大多具有强烈的环境保护意识，又有很强的行动力和专业知识背景，将其作为公众环境权益的代言人可以大大提高公众参与规划环评的有效性。

此外，公众也应该尽早参与规划环评，使公众的意见和建议在规划环评尽早得到充分考虑。如果到了规划环评的后期公众才开始介入，则由于此时规划环评文件的总体思路、体系结构、主要内容等已基本确定，加之公众参与长期处在一直被忽视，即使通过公众参与发现了一些确实存在的问题和缺陷，也难以撼动已经成文的规划环评文件。

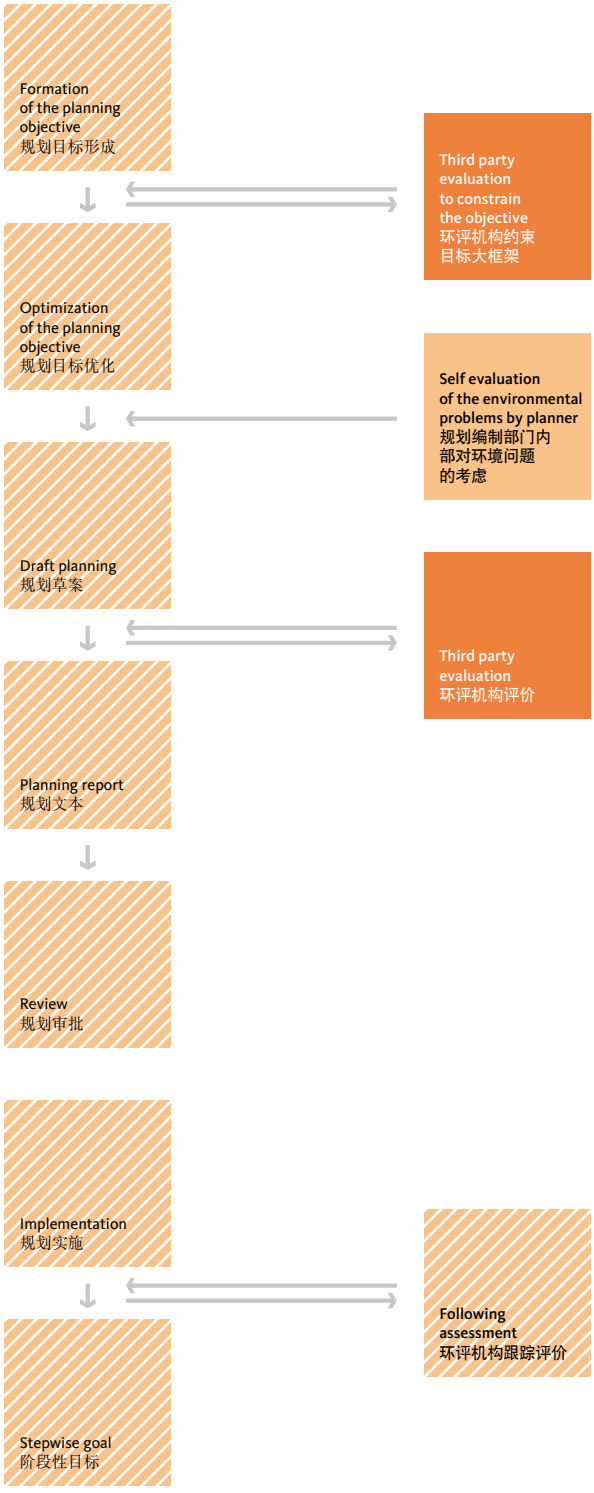

Figure 2 The new mixed evaluation model
图2 “三外一内”的规划环评模式

Table 1: The comparison of the three evaluation models

Evaluation model	Advantages	Disadvantages
Self evaluation model	PEIA can be involved in the planning process as soon as possible, interact with the planning and influence the decision -making effectively.	Subjective bias may not be avoided in the PEIA, which could lead to some kinds of fake evaluation results. At the same time, the planners usually do not achieve the technical requirements of the EIA.
Third party evaluation model	PEIA result can be objective and equitable. The problems existing in the planning and the corresponding measures will be pointed out relatively completely.	PEIA cannot be carried out until the planning text has been completed or preliminarily completed. So it is difficult to evaluate and correct the planning in time.
The new mixed evaluation model	The framework of planning goal can be confirmed firstly by the third party, and different models are used in different phases of the PEIA, which can lead to an effective and general evaluation result.	The process is somewhat complex and verbose. It needs the efforts from all the related departments.

表1 不同评价模式之间的优缺点比较

评价模式	优点	缺点
自我评价	可以及时介入，与规划的编制有互动，易于对决策产生有效的影响	不可避免地会出现一些主观的偏颇，导致评价结果的失实；同时，规划编制单位也未必达到了进行规划环评的技术要求
第三方评价	可以客观公正地对已完成的规划进行评价，指出其存在的具体问题和提出相应的对策措施，评价结果真实可靠	往往只能等到规划文本完成或初步完成以后进行，因此很难在对规划的编制进行及时的评价和纠正
“三外一内”的混合评价模式	首先在第三方的约束下确定规划编目标制的大框架，然后在规划编制的不同阶段采用不同的评价方法，循序渐进地对规划提出环境保护方面的约束	程度上可能比较繁琐和复杂，需要相关部门的积极配合

3.3 问责体系方面

《环评法》第四章第三十条规定：“规划审批机关对依法应当编写有关环境影响的篇章或者说明而未编写的规划草案，依法应当附送环境影响报告书而未附送的专项规划草案，违法予以批准的，对直接负责的主管人员和其他直接责任人员，由上级机关或者监察机关依法给予行政处分。”相对于《环评法》，《条例》在问责体系方面却依然没有实质性的进展。

按照两个法律法规，如果相关规划未进行规划环评，有关职能部门就应承担违法的责任。但事实上，我国规划环评的执行率非常低，很多规划存在“先上车，后补票”甚至“只上车，不买票”的情况。若严格按照《环评法》的相关规定执行，那么应该有很多职能部门需要被列入“处分”之列，但实际上却鲜有规划编制机关及相关责任人被问责。主要原因有以下两点：

第一，规划编制和审批机关还没有意识规划环评意义，在编制和审批时，允许提交后补规划草案后再补交环评文件，甚至允许未经环评的规划直接进入批准、实施环节；第二，在规划环评追究法律责任的过程中，违法的主体通常是规划编制机关、规划审批机关等，其在政府序列中往往高于环保部门，而且对其进行问责往往会影响到这些部门的“面子”，这就使得规划环评中的违法问责举步维艰。对于违法所应承担的法律责任，规划环评中的规划编制机关、审批机关及审查小组里出现的各种弄虚作假或失职行为界定为轻微的违法失职行为，仅给予行政处分；规划环评技术机构出现弄虚作假或者有失职行为造成环境影响评价文件严重失实时处所收费用1倍以上3倍以上的罚款，构成犯罪的，依法追究刑事责任。规划环评责任者是规划编制机关，以及负责环评文件审查的是各级政府，而规划环评的结论直接影响到的是规划编制机关的部门利益，规划环评的技术机构只是履行合同义务，从中收取一定报酬，没有弄虚作假的直接动机。但是，规划环评技术机构却可能在规划编制机关“迫使”下编写出与事实不相吻

authority, who illegally approve the planning draft, which should have been prepared with the chapter or introduction related to the environmental impact or attached to the environmental impact report, should be sanctioned administratively by the higher authority or the supervisory organization" *Planning Environmental Impact Assessment Guidelines* effected in 2009 deepened the rule into four specific provisions through the planning review and other processes of the PEIA. In accordance with the provisions of the two regulations, the main body of implementation of EIA is the relevant functional departments. Therefore, if the functional departments don't carry out the EIA according to the law, they will bear the responsibility of breaking the law.

The implementation rate of environmental impact assessment law is in fact very low. If the law were strictly implemented, then many functional departments would be listed on the punishment roll. However, rarely is a responsible person accountable for the PEIA. There are two reasons for this. Firstly, a large part of the planning department and the executive authorities has not conceptually established the idea and consciousness of the EIA law and don't strictly enforce the relevant regulations when planning and reviewing. Secondly, in the investigation of legal liability, usually the main entity breaking the law is the planner, planning approval authority or the governor of the environmental protection department. However, they have a direct relationship with local economic development and revenues, which makes accountability difficult when lawbreaking arises.

With regard to legal liability, an administrative sanction is a sanction given to respective staff working in state organizations, enterprises and institutions when minor illegal acts are committed which are not serious enough for criminal punishment. It is carried out according to the law or regulation constituted by the state organization, enterprise and institution. Obviously, it is defined as a minor illegal act when fraudulent or negligent conduct appears in the PEIA. However, Article 34 stipulates: "Where an EIR is seriously inconsistent with facts due to fraud or neglect of duty by any PEIA consultants, the CAEP of the State Council should circulate a notice to this effect. The fine is more than one and below three times the consultation fee. If the PEIA consultants' activities constitute a crime, responsibility for the crime should be investigated according to law". This upends the legal liability of the main body during the PEIA planning process. The main organizer of the PEIA is the planning authority. All levels of government are responsible for reviewing environmental assessment documents. The conclusion of the PEIA has a direct impact on the interest of the planning departments. The PEIA institutions simply fulfill their duty and find benefits. They don't have a motive to be fraudulent. However, these institutions may produce reports that are inconsistent with the facts when they are driven by the benefits. For this reason, the planning departments and review authority are on the top of the liability chain. However, the PEIA technical institutions are on the bottom. It is unfair to charge the top chain with a weak administrative sanction and the bottom chain with a strong fine. When the environmental assessment files are seriously inconsistent with the facts, the blame is initially laid on the supervising department. Strong administrative and legal sanctions are given to them. The key to ensure a true and reliable PEIA is to prevent the possibility of fiddling with them from the beginning.

4. Conclusion and Discussion

The ultimate goal of the PEIA is to be involved in major decision making and to solve environmental problems from the very beginning. However, the realization of this goal is mainly determined by acceptable levels within the PEIA, which is reflected by a perfect legal status and an effective management system. According to the current political system, a comprehensive mechanism for the PEIA system must be established in order to improve its effectiveness. The mechanism, including the PEIA intervention in the early stage of planning, prompts public participation and tries to eliminate the closed operation in the process of planning and implementation as much as possible. In addition, in order to deter law breaking related to the PEIA, we should keep in mind that weak administrative sanctions will not lead to a bright future for the PEIA.

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Note

1 National Natural Science Foundation of China (40971305): The Index System of Urban Planning Environmental Impact Assessment based on the Sustainable Development

合的环评文件，因此规划编制机关或审查机关处于“责任链”上端，应负主要责任，规划环评技术机构位于下端，仅是协从责任。对责任链上端的部门采取疲软的行政处分手段，而对责任链下端的规划环评技术机构采取罚款甚至追究刑事责任等处罚手段，这不能不说是本末倒置。

因此，一旦出现环评文件严重失实的情况，首先应问责包括规划编制机关、审批机关的规划主管部门，对其进行严厉的行政和法律制裁，从源头上杜绝可能出现的弄虚作假行为才是保证规划环评真实可靠的关键。

4. 结论与讨论

规划环评的最终目的在与参与到重大决策中，从决策源头解决环境问题。这一终极目标的实现与否完全取决于国家对于这一政策工具的认可程度，其具体就体现在对其法律地位的确定以及形成一套自上而下的严密的、有效的管理制度上。在当前政治体制下，要切实提高规划环评的有效性，就必须建立一套完备的规划环评制度机制，包括从规划环评早期介入规划编制、公众参与等，尽可能杜绝规划编制与实施过程的封闭运行；此外，要增强规划环评相关法律中对于违法惩处的威慑力，疲软的行政处分不能给规划环评一个光明的未来。

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注释

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基于可持续发展的城市规划环境影响评价指标体系

on focus

Strategic Environmental Assessment and Risk Management

A Snapshot of Strategic Environmental Assessment in China: Context, Legislation and Perspective

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Abstract: Strategic Environmental Assessment (SEA) is regarded as a useful tool to integrate environmental concerns into the process of strategic decision making. In China, Regional Environmental Impact Assessment (REIA) has been carried out successively since the 1980s and laid a good foundation for further SEA development in China. As the Environmental Impact Assessment (EIA) law came into effect in 2003, Plan Environmental Impact Assessment (PEIA) became the principal form of SEA in China. So far, China has done plenty of work on pushing SEA practice, including improving execution guidelines, industrial/regional demonstration projects and technical training. However, in the process of SEA development and application, there are still some challenges, especially the lack of tailored effective SEA methodology adapting to the rapid economic growth and increased environmental pressure.
Keywords: Strategic Environmental Assessment (SEA), Plan Environmental Impact Assessment (PEIA), Regional Environmental Impact Assessment (REIA), Environmental Impact Assessment (EIA) law, perspective.

Internationally, SEA is broadly defined as a systematic, ongoing and comprehensive process for evaluating the environmental impacts of policy, planning or program (PPPs) and its alternatives at the earliest appropriate stage. It is broadly believed that SEA provides many benefits in promoting environmental considerations into the strategy and planning process. In China, the EIA law came into effect on September 1, 2003. The law adopted a form of SEA only at the level of the plans or planning (PEIA) with an objective of rationalizing the development alternatives based on regional environmental carrying capacity and long-term ecological security. From 2005 to 2008, the Chinese Ministry of Environmental Protection (MEP) had developed three rounds of PEIA demonstration projects mainly for the typical regions and key sectors and a series of training courses for PEIA managerial staff and technicians. Based on the experience acquired from the pilot works, MEP had consecutively issued a set of technical guidelines on PEIA including the Technical Guideline for PEIA (on trial) (2003), the Provisional Measures for Public Participation in EIA (2006), the Technical Guideline for PEIA on the Master Plan of a Coal Mining Area (2009), and, as a milestone of the China SEA development, the Ordinance for PEIA, which took effect on October 1, 2009. All of these measures attempt to set up a comprehensive management and technique system ensuring the effectiveness of PEIA. However, there is plenty of scope to improve and refine the existing PEIA system, which calls for more extensive theoretical research and practical experience accumulation.

SEA Context in China

China has more than 30 years of experience in EIA and was one of the first developing countries to introduce it. EIA was legislated in China in 1979 and the first official EIA was implemented for a copper mine in the same year. Since then, the rate of EIA enforcement on development projects grew steadily to 90% in 2000. REIA has also been conducted, though its enforcement rate is relatively low: 31% of all relevant projects implemented between 1981 and 1992.
In China, the concept of SEA was initially legislated in the EIA law. The promulgation of the EIA law in 2003 marks a significant advancement in the development of environmental assessment in China by embracing the strategic dimension in the scope of assessment practices in China. Currently, PEIA is the principal form of SEA implementation. The scope of PEIA was regulated in the EIA law to cover all kinds of plans, for example, economic development plans, resource-utilization plans and plans at a municipal level and above.

焦点
战略环境影响评价和风险管理
中国战略环境评价概览: 基本框架、法规建设与发展前景

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摘要：战略环境评价被普遍认为是将环境因素纳入到战略和规划决策中的重要环境管理手段和工具。在中国，自从1979年颁布的环境保护法明确了环境影响评价制度以来，建设项目环境影响评价（EIA）和区域环境影响评价得以相继开展并为战略环境评价奠定了实践基础。随着环境影响评价法的实施，战略环境评价（SEA）主要在各种类型的规划层面上开展，规划环境影响评价是目前中国SEA的主要表现和实践形式。尽管中国在规划环境影响评价方面开展了诸如完善实施细则，区域和行业试点，技术和管理培训等工作并取得了明显成效，但是中国的战略环境评价发展和实践仍然面临着诸多挑战，这其中最主要的就是缺乏有效应对经济快速发展和环境压力持续加大之间矛盾的专门方法学。

关键词：战略环境评价（SEA）；规划环境影响评价（PEIA）；区域环境影响评价（REIA)；环评法（EIA)；发展前景

国际上，战略环境评价（SEA）被广泛接受的定义是：在规划早期合适阶段就对政策、规划和计划及其替代方案的环境影响进行评估的过程，普遍认为SEA对于将环境因素纳入到战略和规划过程中具有重要意义。

随着2003年9月1日《环境影响评价法》实施以来，中国的SEA主要集中在规划层次上开展，基于区域环境承载力和保障长期生态安全来来优化规划方案。2005年~2008年，环境保护部（MEP），开展了三轮典型区域和重点行业规划环境影响评价试点工作，以及一系列相关管理和技术人员的培训工作。根据试点工作取得的主要经验，环保部相继制定了一系列的技术导则，主要有：《规划环境影响评价技术导则（试行）》（2003），《环境影响评价公众参与暂行办法》（2006），《煤矿规划环境影响评价技术导则》（2009）。2009年10月1日施行的《规划环境影响评价法》更是中国战略环境评价事业发展中的里程碑。相关法律法规和技术导则的制定建立了一个较为全面的管理和技术体系，保证了规划环评的有效性。但是，中国规划环评体系仍有较多的不足和提升改进的方面，有待更多的理论研究和实践经验积累。

中国SEA的发展历程

作为最早开展环境影响评价（EIA）的发展中国家之一，中国在EIA方面有三十多年的经验。1979年，在中国《环境保护法（试行）》中，最先引入了环境影响评价制度，并且正式开展了首例关于铜矿开采的环境影响评价；在1979年至2000年，在建设项目中实行环境影响评价的比例稳步提高到90%，区域环境影响评价也逐步开展，不过其实施水平相对较低；在1981年到1992年间，仅有31%的相关工程开展了区域环境影响评价。

在中国，战略环境评价最初的立法来源于环境影响评价。早在80年代，区域环境影响评价的开展就为战略环境评价的实施进行了初步的探

There is a strong political will in China for applying SEA. President Jiang Zemin (at that time) indicated in 1996 at the Fourth National Environmental Protection Meeting that "it is necessary to establish a mechanism of IEDD [Integration of Environment and Development in Decision making] when formulating significant economic and social development policies, planning major resource exploitation and making important project decisions". In the meantime, various documents and regulations stress the importance of introducing the concept of SEA in administrative decision-making processes: for example, 21st Century Agenda of China: White Book of China's Population, Environment and Development, 1994; 21st Century Agenda of China's Environmental Protection, 1995: The State Council's Decision on Some Environmental Protection Problems, 1996; The State Council's Document on Establishment of SEPA (State Environmental Protection Administration), 1998. SEA was adopted more in the 1980s in Hong Kong's Special Administrative Region (SAR) for a number of strategies such as: the Territorial Development Strategy for land use planning; the Transport Development Strategy; and other strategies relating to sewage disposal, waste-to-energy incineration, and power-generation policies.

SEA Legislation and Practice in China

In China, the implementation of SEA was initiated through the practice of REIA in the 1980s. The development of PEIA was thus based upon the experience of REIA. From "Interim Regulations on Environmental Management of Foreign Economic Opening Zones" (1986) to the EIA law (2002) and "Circular on Improving the Implementation of PEIA" (2006), the development of the legal foundation of REIA and abundant experience has enabled the formation of a solid and concrete base. REIA has covered all kinds of regional development activities. Basically, the contents and procedures of REIA management are similar to those of Project EIA. Since the promulgation of the EIA law, the applicable scope was extended from projects to plans. Plans subject to PEIA were explicitly stipulated in the EIA law, "Specific Plans Subject to Compile PEIA Statement (on trial)", and "Specific Plans Subject to Compile Chapter/Explanation of Environmental Impacts (on trial)." The reviewing, approving, public participation and follow-up assessment of PEIA were regulated therein. The "Regulations on Plan Environmental Impact Assessment" were implemented on October 1, 2009 to refine and deepen the EIA law, as well as to enhance the applicability of the PEIA system.

New EIA law.

The Environmental Impact Assessment Law of the People's Republic of China (EIA law) became effective in September 2003. Although it does not modify the existing EIA system in a radical way, this new law requires an environmental assessment beyond EIA; environmental assessment of government plans is mandatory. Since the words "plan" and "program" are used interchangeably in China, both government plans and programs are legally subject to SEA.

Requirement of public participation.

More noteworthy is that the law encourages public participation and that some of the SEAs are subject to comments not only by experts and concerned units but also by the public. For a plan which is categorized as special and which may cause an adverse impact on the environment, directly affecting the citizens' environmental rights and interests, public comments must be invited. Such special plans include the ones for development of industry, agriculture, animal husbandry, forestry, energy resources, water conservation, traffic, city construction, tourism and natural resources.

Administrative process and framework of EIA.

Although there is neither a formal setup of the administrative framework nor a specific procedure for SEA in China, such arrangements for EIA have been made. The Department of Supervision and Management of SEPA is in charge of overseeing and coordinating the implementation of EIA nationwide. The Appraisal Centre for Environment and Engineering (EIA Centre) is responsible for conducting technical reviews, research and training for licensed agencies and the Environmental Protection Bureau (EPB). Being in charge of environmental protection within their jurisdictions, EPBs at the national, provincial and county level approve EIA. Under this institutional arrangement, EIA is implemented in China. The actual process of EIA consists of 10 steps: screening, scoping, baseline analysis, impact prediction, evaluation of significance, mitigation, impact documentation/ communication, review of Environmental Impact Report, decision making and monitoring.

Proposed institutional and procedural setup of SEA.

There are six institutions involved in this institutional arrangement: the responsible agency, the assessor, the participant, the supervisor, the appraiser and reviewer, and the appraising institution. While the proposed

Table 1. Potential for SEA in China

Dimensions/topics	Current status	Notes
Political will	o	Strong interest/willingness among top leaders for SEA application.
Legal mandate	o	EIA law. Government plans are subject to SEA.
Administrative framework	o	SEPA responsible for overall coordination nationwide. EPBs in charge of environmental protection within their jurisdictions.
SEA procedure	x	Not existing, but established for EIA. The draft for SEPA process worked out
SEA methodology	x	Not existing, but established for EIA. Some SEA methods applied in case studies.
SEA guideline	x	Not existing.
Technical know-how	o	Expertise existing in administration and academia, based on EIA experience.
Experience in SEA implementation	–	Only a limited number of case studies available, but a number of applications of SEA in Hong Kong SAR and of REIA in China.
Public involvement	–	Less effective to date, but legally mandated for special plans.

Positive: o; Negative: x; Neutral: –

procedure of SEA is somewhat similar to that of EIA described above, the uniqueness of this study is that specific methods which might be useful in SEA are described; for example, the pressure-state-response framework developed by OECD as a potential SEA indicator system of impact evaluation.

SEA practice in China. While China has a long history of implementing EIA, the application of SEA is recent, except for the cases conducted in Hong Kong SAR, and only a limited number of case studies have been completed in other areas. Nine SEA cases have been implemented since 1995 in China. These cases vary in terms of sector (*e.g.* energy, toxic chemical, automobile) and region (*e.g.* nation, province and economic zone). Among these cases, the main problems with SEA in China are not only the procedural and methodological issues such as inadequate consideration of alternatives, but also the absence of public participation. Effective public involvement in the current EIA system in China has been lacking because "EIA originated in China very much as a top-down administrative instrument", though this custom started to change as public awareness towards environmental issues increased.

Comparative Analysis of International and Chinese SEA Approaches and Practice

Dimensions to support SEA. The international and Chinese experiences suggest the following nine dimensions as a foundation for SEA implementation: political will, legal mandate, administrative framework, procedure, methodology, guidelines, technical know-how, experience in SEA implementation and public involvement. Table 1 summarizes the existing status of SEA in China, reflecting the discussion in this paper.

表1 中国SEA的发展潜力

主题	现状	说明
政治意愿	o	高层领导对SEA的应用很有兴趣，也很有决心
立法	o	EIA法，SEA用于政府计划
管理框架	o	SEPA负责全国范围的协调。 EPBs负责其立法范围内的环境保护
SEA程序	x	尚欠缺，EIA已有，程序是由学术界提出的一种对于EIA的实践拓展
SEA方法论	x	尚欠缺，EIA已有， 一些SEA的方法已用于案例研究
相关导则	x	尚欠缺
专业技术	o	基于EIA经验已有管理和学术的专业技术
SEA的经验	–	只适用于有限的案例研究， 但许多用于中国和香港特别行政区的SEA和中国的REA
公众参与	–	缺乏效力，但对特殊计划有法律要求

o: 积极；x: 消极；–: 中立

索。2003年《环境影响评价法》（以下简称环评法）的颁布是中国环境评价发展中重要的一步，从此中国环境评价进入了一个新的阶段，以法律的形式确保环境保护参与综合决策，将环境评价扩展到了各层次的发展规划。规划环境影响评价也成为当前战略环境评价在中国主要表现方式。环评法规定，国务院有关部门、设区的市级以上地方人民政府及其有关部门，对其组织编制的工业、农业、畜牧业、林业、能源、水利、交通、城市建设、旅游、自然资源开发的有关专项规划，应当在该专项规划草案上报审批前，组织进行环境影响评价。

中国政府在应用战略环境评价方面有强烈的政治意愿。中国高层领导的正式演讲被视为特殊的或被认可的政策。前任主席江泽民同志在1996年的国际环境保护会议中提出：“在经济和社会发展和主要资源的开发进行规划决策中建立发展与环境相结合的决策制定（IEDD）机制”与此同时，各文件和规章也强调了将SEA引入管理决策制定过程的重要性。如《中国21世纪议程：中国人口，环境与发展白皮书》（1994），《中国环境保护21世纪议程》（1995），《国务院关于环境保护若干问题的决定》（1996）都有相关要求和说明。

在中国香港特别行政区，早在20世纪80年代SEA就被采纳并应用于一系列的战略规划，如针对土

地使用规划的国土开发战略，交通发展战略以及包括污水处理，废物资源化再利用，及电力开发政策等的其他市政规划。

中国SEA的立法和实践

SEA在中国的最初实践是20世纪80年代区域环境影响评价。该阶段国家出台的规定和文件有：《对外经济开放地区环境管理暂行规定》（1986），《中华人民共和国环境影响评价法》（2002），《关于进一步加快开展区域环境影响评价工作的函》（2006），中国区域环境影响评的法律基础不断完善，积累了丰富的经验，打下坚实的基础。区域环境影响评价的范围涵盖了各种类型的区域开发活动。基本上，区域环境影响评价管理的内容和流程与项目环境影响评价相同。自从《环境影响评价法》颁布，其适用范围就从项目环评扩展到了规划环评。在《环境影响评价法》、《编制环境影响报告书的规划的具体范围(试行)》和《编制环境影响篇章或说明的规划的具体范围（试行）》中明确指出了需要进行规划环评的规划类型。规划环评的审查，批准，公众参与以及后续评估在上述文件中都有明确的规定。2009年10月1日，《规划环境影响评价条例》颁布，它是对《环境影响评价法》的提炼和加强，也是对规划环评应用的强化。

环境影响评价法 环评法于2003年9月生效，尽管没有从本质上改变现行的EIA体系，但是它对项目环境影响评价(EIA)以外的环境影响评价提出了要求。由于规划和计划等字眼在中国被混用，因此政府的相关规划和计划都必须依法开展SEA，即规划环境影响评价。

对公众参与的要求 环评法鼓励公众参与，一些SEA不仅要通过专家与相关部门的评议，而且还须通过公众的评议。可能对环境产生不良影响，并且直接涉及到公众的环境权益的规划，必须进行公众参与。

EIA的管理体系和程序 尽管中国既没有建立正式的SEA管理体系，也没有特定的程序，但是初步形成EIA的相关管理框架。原国家环保总局（SEPA）的监督管理部门已在全国推行EIA的管理与协作机制。环保部环境工程评估中心负责为授权机构和环保局提供技术支持，并开展了相关研究和培训。国家环保部及各省市环保局在其行政职责范围内负责环境保护工作并审批EIA。EIA的实施过程包括以下10个步骤：筛选，确定范围，基线分析，影响预测，影响评估，不良环境影响减缓措施，编制环评报告书（表），环境影响报告审查，决策制定，后续监测与评价。

SEA机构设置和程序 SEA相关机构包括：委托方，评价机构，利益相关方，审查机构，审批机构以及复审与评估机构。SEA程序与EIA程序有相似之处，不同点在于SEA中使用了一些特殊技术方法。

项目环境影响评价中国的已有较长的历史，但SEA是近年才广泛应用。除香港特别行政区外，其它地区仅完成了少量的案例研究。中国的SEA面临的主要问题不仅有程序和方法学问题如替代方案考虑不充分，而且还缺乏公众参与。这是因为“中国最初的EIA体系很像是一个自上而下的管理工具”。不过随着公众的环境意识已有所提高，这一状况已有所改变。

中国与国际SEA的方法与实践的比较分析

开展SEA的基础 中国发展SAE有如下9个方面SEA的基础：政治意愿，法律保障，管理框架，程序，方法，相关导则，专业技术，完成SEA的实践经验以及公众参与，表1总结了目前中国SEA的状况（表1）。

中国SEA的潜力 表1反映了中国SEA的优点和不足。实施SEA的强烈政治意愿对其将来的应用具有推动作用，也是开展SEA的一个有利的条件。基于EIA的长期广泛实践的法律框架和管理机制为SEA的应用奠定了基础，管理和学术研究中的专业技术方法也帮助SEA实践者树立积极态度。

Potential for SEA in China. In table 1, the strengths and weaknesses of SEA in China are recognized. Strong political will towards SEA would give momentum to its future application, providing favorable conditions. A solid institutional framework such as EIA law and the administrative setup, based on the long and ample experience in EIA in the country could provide a basis for SEA application. Technical know-how, nurtured in the administration and academia through EIA implementation, would also benefit the SEA practitioners. However, because of the little experience in actual SEA practice, there is no formal procedure or methodology for SEA in China. The practitioners may be required to perform a repetition of trial and error until the appropriate SEA process and methods which suit the country's conditions and needs are identified. Moreover, there is concern about inadequate public involvement in China. Demands for the public to be more involved in decision-making processes will be heightened; consequently, a "top-down" style of decision making might be reexamined not only to satisfy public demand but also to improve the quality of SEA (Table 1).

Opportunities and Future Challenges for SEA Application in China

In order to improve the effectiveness of EIA and to accumulate experiences and lessons from practices, the Chinese SEA system is still evolving through fine-tuning, adjustment and improvement in such ways as: (i) to expand the target and scope of SEA by incorporating policies and plan of national economic and social development into the scope of assessment; (ii) to enhance public participation especially for NGOs; and (iii) to build a platform of SEA information through integration of data and information from all relevant institutions. Even though they might face difficulties in its implementation, the practitioners in China would realize more advantages of SEA. The comparative analysis shows the weakness or challenges for SEA in China, such as: (i) lack of SEA procedure and methodology; (ii) absence of SEA guidelines; and (iii) less public involvement. These problems are not easy to solve, so it would require time and effort to conquer these problems. Nevertheless, both the analysis and other international literature suggest that there are more opportunities for the country. Such prospects include: (i) strong political will; (ii) solid institutional and technical capacity nurtured through EIA; (iii) available lessons or case studies of international experiences; and (iv) experiences of SEA in Hong Kong SAR, China, and those of REIA in China. Therefore, by utilizing both internal and external experiences and capacities, the difficulties could be overcome; as a result, the country would benefit the most from its SEA application.

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然而，由于真正的SEA的实践经验较少，中国的SEA还没有正式的程序和方法，实践者必须不断反复地尝试以找到适合中国状况和要求的SEA程序和方法，更多地鼓励公众参与到决策制定的过程中来，重新审查自上而下的决策制度体系，这样不仅能满足公众需求还有利于提高SEA完成的质量。

中国未来战略环评发展的机遇与挑战

为了提高战略环评的有效性并从不断的实践中累积经验和教训，中国的SEA体系仍再不断的调整、完善和提高过程中，主要表现在：（1）将尝试扩大SEA的对象和范围，将国民和社会发展政策和计划纳入其中；(2)加强公众特别是非政府组织的参与；（3）通过整合来自各种机构的数据和信息来构建一个SEA信息平台。在这一过程中，尽管中国的SEA实践者们可能会遇到各种各样的困难，但是他们已经充分认识到了SEA这一环境管理工具所具备的优势和潜力。

通过前面的比较分析可以看到，中国的SEA发展所面临的挑战是：（i）缺少战略环境评价的程序与方法论支持，（ii）缺乏相关战略环境评价技术导则，（iii）公众参与不足。这其中每个问题都不是轻易能够解决的。因此克服这些困难仍需要时间和不懈的努力。然而中国的SEA的发展仍有很大的机遇：主要包括：（i）强烈的政治意愿，（ii）通过EIA培养的成形的稳固体制和技术支撑能力，（iii）可供借鉴的国际经验和案例研究（4）中国的区域环境评价与香港特别行政区SEA应用经验。因此，依靠不断丰富和发展的国内外SEA经验和能力，上述这些困难是能够克服的，中国必将从SEA的应用中受益。

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on focus

Strategic Environmental Assessment and Risk Management

Risk Management: The SIMAGE Case Study

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Risk Management in the EU and in Italy

Industrial accident risk represents one of the most critical issues that industry needs to consider and manage for its own development and survival. Since the industrial revolution and the development of modern society, even more complex and diverse risks have emerged. While modernity has, on the one hand, improved quality of life with scientific and technological progress, on the other hand, it has created new risks such as environmental pollution. Risk management deals with identifying, assessing and controlling hazards that pose a threat to people, the environment and production. It also manages the potential risks after having put in place risk prevention and controlling measures.
The management of industrial risks has changed over time from the perspective of only protecting the health of workers to a broader perspective encompassing the environment and surrounding population.
In doing so it recognizes the close relationship between companies and the territories in which they are located. This extended industrial risk management, to be effective, must include the involvement and coordination of all of the various stakeholders, especially the authorities responsible for monitoring, control and decision making, and the institutions acting in the field in case of emergency, and not least the public. A system of industrial risk management, therefore, cannot be based solely on scientific and technological support, which is obviously crucial, but must also include an appropriate governance and organizational system.
These findings became particularly clear in the 1970s with the onset of the registration of numerous industrial accidents. Many of these accidents were due to the development of the chemical and petrochemical industry that operates with and/or releases these hazardous substances. Among these accidents, the Seveso and the Bhopal disasters strongly influenced the development of the legislation on risk management in Europe and around the world. The EU legislation reference for risk management is represented by the Seveso directives and has evolved over time to include different aspects considered to be fundamental.
In particular, from Seveso I (Directive 82/501/EEC) to Seveso III (Directive 2003/105/CE) the relevance of the link between industry and its territory as well as the communication to the public acquired legal importance.
The Italian legislation for risk management evolved mainly through the transposition of the EU directives into national laws. In particular, the main reference law is No. 334/1999 that, among others, requires the valorization of the dialogue between firms, authorities and the public to prevent relevant accidents. It also requires the introduction of safety management systems in the plant to confront, manage and control industrial accidents, plus the development by the firms of external emergency plans, including procedures for communicating with the authorities in the event of an accident.

An Italian Case Study: Porto Marghera and SIMAGE

Introduction

Venice's industrial area, Porto Marghera, represents one of the major Italian chemical industrial sites. Even though in the last few years this industrial area has turned towards logistics and the commercial sector due to the crisis in the Italian chemical industry, traditional activities at Porto Marghera continue to represent 10% of the companies and almost 40% of the employees in the area.
Due to the activities carried out in the area and its history, Porto Marghera is a high environmental risk area with regard to pollution from past activities and the potential hazard of accidents now. For this reason,

焦点
战略环境影响评价和风险管理
风险管理SIMAGE案例研究

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欧盟和意大利的风险管理

行业事故风险是行业自身生存发展中必须考虑并控制的最主要问题之一。

随着产业革命和现代社会的发展，风险趋于更加复杂和多样化。一方面，通过科技发展，人们的生活质量得到了提高；另一方面也产生了环境污染等新的风险。风险管理涉及识别、评估和控制对人类、环境和生产构成威胁的危险。还包括采取风险防范和控制措施后的潜在风险管理。

随着时间的推移，行业风险管理也发生了改变，从仅仅保护工人健康的角度发展到更广的范围，涵盖环境和周边居民。这肯定了公司与其所在地区有着密切的关系。

有效开展行业风险管理必须包括各利益攸关方的参与和协调，尤其是监控决策部门和应急处理机构，而不仅仅是公众。因此，对行业风险管理系统而言，以技术支持为基础固然重要，但还必须有适当的管理和组织机制。

20世纪70年代，行业事故频发，这些研究结果的重要性就尤为明显。因为石化业经营涉及和/或释放有害物质，所以大部分事故是随着石化行业的发展而产生的。在这些事故中，塞维索（Seveso）和博帕尔（Bhopal）的灾难性事故对欧洲及全球风险管理立法的发展产生了巨大影响。欧盟立法中有关风险管理的内容体现在了塞维索指令中，并且随着时间的推移，包括了不同的基本面。特别是，从塞维索1号指令（82/501/EEC）到塞维索3号指令（2003/105/CE），行业与其所在地区的关系以及与公众的沟通得到了法律重视。

意大利的风险管理立法主要是将欧盟指令纳入其国家法律。特别是，主要参考法律（334/1999）及其他法律要求公司、主管部门和公众展开定期对话，防止相关事故的发生。同时还要求引入设备安全管理制度，以应对、管理和控制事故，并要求企业制定外部应急计划，包括发生事故时与主管部门的沟通程序。

意大利案例研究：马尔盖拉（Marghera）港与SIMAGE

简介

威尼斯工业区马尔盖拉港是意大利主要化学工业基地之一。因意大利化工业危机，尽管过去几年里该工业区已向物流和商业区转变，但马尔盖拉港仍有10%的公司和近40%的工人继续从事传统经营活动。

鉴于该地区开展的活动及其历史，马尔盖拉港属于环境高危地区，既受到过去活动的污染，又存在潜在事故风险。因此，人们有了进行风险管理和引入相关立法的新意识，而马尔盖拉港作为一个工业园区，其生存和未来发展与风险管理能力密切相关。与马尔盖拉港有关的公共和私人利益相关者已经意识到了这一点，并在1998年签署了《马尔盖拉港化学产业纲领协议》。该协议旨在通过找出减少和管理环境风险以及地区重建的基

with the new awareness for the need to manage risks and the introduction of relevant legislation, the future and survival of Porto Marghera as an industrial park has been strictly tied to the capacity to manage the risk. The main stakeholders involved in Porto Marghera, both public and private, have realised this and reacted by signing the "Accordo di Programma per la Chimica a Porto Marghera" (Programmatic Agreement for Chemistry in Port Marghera) in 1998. The main objective of this document was to create and maintain over time the ideal conditions for the coexistence of environmental protection, development and productive transformation of the chemical sector of Porto Marghera, by identifying as fundamental, goals to reduce and manage environmental risk and redevelop the area. Among the activities within the agreement, the signatories committed themselves to develop SIMAGE, an integrated system for environmental monitoring and emergency management. The system was promoted by the Veneto regional government and developed by the Regional Agency for Environmental Protection (ARPAV) in collaboration with the Industrial Association of Port Marghera (EZI).
The system, in operation since 2007, provides real-time monitoring in Porto Marghera and, in the case of industrial accidents, guarantees fast and efficient communication, as well as adequate technical support to the decision authorities (the prefect, the mayor *etc.*) in order to minimize response time, and possible warnings to the public.

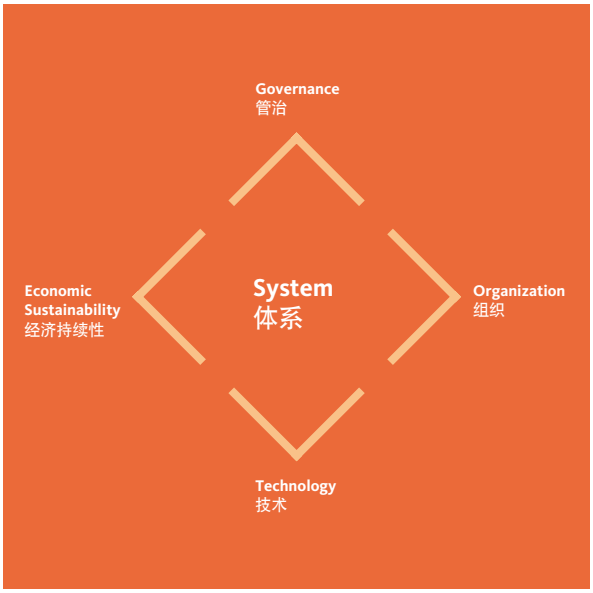


Figure 1 The SIMAGE system
图1 SIMAGE系统

The System and its Phases

SIMAGE is the result of a voluntary agreement between private stakeholders and public authorities, which is overcoming traditional schemes of risk management based on *command &control* relations: laws on environmental protection are still necessary, such as the monitoring and control of compliance by authorities, but this is not enough to improve the environmental quality of an area in the medium to long term. To achieve that, we need to overcome a potentially conflictual relationship between authorities and entrepreneurs, controllers and those controlled, in order to cooperate to achieve a common objective: a safe environment.
Collaboration among different stakeholders involved in industrial risk prevention and management makes it possible to plan and implement a comprehensive model for environmental prevention that integrates three different phases for risk management: monitoring, analysis and emergency management.
Continuous **monitoring** is essential for constant real-time observation of the level of industrial emissions in the petrochemical and surrounding areas. To do that, SIMAGE has developed a monitoring network designed specifically for the products and substances used in the area. The result is a complex monitoring network, composed of sensors located in the plants – close to potential sources of risk for an immediate warning – and sensors located within the petrochemical area and nearby urban areas – to estimate the effects of a potential event.
The **analysis** and interpretation of the data measured and the phenomena that has occurred in an area is another key aspect that SIMAGE manages centrally through a control room, which is active 24/7. The staff, supported by an *ad hoc* information system for the collection and processing of data and information, makes technical analysis to identify and predict possible emergency cases and support decision makers.
The information system allows the rapid processing, analysis and assessment of current and potential risks through a system that integrates data from multiple sources (monitoring network, information on companies in the plant, substances and related hazards *etc*).

本目标，然后假以时日，努力推动和实现马尔盖拉港环境保护、开发和化学工业生产转型共同发展的理想状态。
根据协议规定，签署各方承诺发展环境监测和应急管理集成系统SIMAGE。该系统由威尼托大区政府推广，地区环境保护机构（ARPAV）与马尔盖拉港产业协会（EZI）合作开发。
自2007年以来，该系统一直对马尔盖拉港进行实时监测，发生事故时能确保快速、高效地沟通情况，并为决策者（地方首长、市长等）提供充分的技术支持，最大限度缩短响应时间，并在可能的情况下向公众发出警告。

系统及实施阶段

SIMAGE是私人利益相关者和公共机构达成自愿协议的结果，优于基于命令和控制关系的传统风险管理方法。环保方面的法律仍然是必要的，如由主管部门实施遵从监控，但这对在中长期改善一个地区的环境质量而言是不够的。为此，我们需要消除主管部门和企业、控制者和被控制者之间的潜在冲突关系，开展合作，实现拥有安全环境的共同目标。
参与行业风险防范和管理的不同利益相关者开展合作能促进规划和实施综合环境预防模式，包括三个不同的风险管理阶段： 监测、分析和应急管理。
连续监测对持续实时观测石化企业及周边地区工业排放水平而言至为重要。为此，SIMAGE专门针对该地区的产品和物质，开发了一个监测网络。这个复杂的监测网络在设备潜在风险源附近设有传感器，便于即时警示，而设在石化企业及周边城区的传感器则用于评估潜在风险事件的影响。对测得数据及某地区发生的现象进行分析和说明是另一个重要因素，目前SIMAGE通过全天候运行的控制室来处理这方面的工作。工作人员在特定的数据及信息采集处理系统的支持下进行技术分析，以确定和预测可能出现的紧急情况，并为决策者提供支持。借助于一个集成多个来源（监测网络，公司的设备、物质及相关危害信息）数据的系统，该信息系统能快速处理、分析和评估现有及潜在风险。该系统重点分析来自监测网络的数据，当一个或多个探测器显示异常时，能隔离潜在危险情况。并能结合SIMAGE数据库中的数据，检查和分析地理参考数据，然后与公司实时确认，作为模拟示范系统的基础。
正常情况下可能出现的事故及相应的风险规划和防范。
紧急情况下估计可能产生的影响，模拟污染物在环境中的扩散情况。
SIMAGE控制室在应急管理的最后阶段也发挥了根本性作用，如参与应急管理的人员必须紧密配合，及时决策和采取行动，及时向公众发布准确的信息。
通过SIMAGE系统建立起一套便于参与者在应急管理的各个阶段（决策、行动协调、地面环境安全措施、人员拯救、技术支持）以各种方式进行沟通的流程，并规定了公众沟通的程序和工具，包括：人员集中区（如机场）的标识（互动/多媒体站），主干道上的可变信息标志（VMP）、警报/广播/电视信息、互联网网站和手机短信。

示范规模

SIMAGE是行业风险管理的有趣示例，不仅涵盖点源监测过程、分析和应急管理，而且涉及多个不同的层面，包括管理、组织、技术和经济可持续性。
威尼托大区政府和环保机构促进了公共机构（市政当局、地区环保机构、医疗机构、公安消防等部门）和私人机构（公司及企业协会）等不同利益攸关方之间的合作和协调。无论从做出承诺、主动提高信任度的战略层面，还是从开展有效合作的操作层面上来说，项目整体管理都意义重大。
从组织的角度来看，项目的重点是在下列基础上构建专门的机构:

The system analyzes, in particular, data from the monitoring network, isolating potentially-critical situations when one or more of the detectors indicate anomalies. The geo-referenced data is reviewed and analyzed together with that contained in the SIMAGE database, and then verified in real time with the firms, and is the basis of a modeling system for simulations:
_ in ordinary situations, of possible accident scenarios and the subsequent planning and prevention of risks;
_ during emergency situations, in order to estimate possible impacts and model the dispersion of pollutants in the environment.
The SIMAGE control room also plays a fundamental role in the final phase of **emergency management**, as those involved in emergency management must cooperate, make decisions and act promptly, and the information given to the public must be timely and correct.
Through the SIMAGE system, a process and flow of communication has been established between the different participants in various ways and at different stages of emergency management (decision, activity coordination, action on the ground for environmental safety measures, human rescue, technical support *etc.*) and a set of procedures and tools for communication with the public have been defined: a *totem* (interactive/multimedia station) located in areas with a high concentration of people (*e.g.* airports), variable message signs (VMP) along major routes, sirens, radio and TV messages, internet web site and mobile text messages.

The Dimensions of the Model

SIMAGE is an interesting example of managing industrial risk not only by covering the end-to-end process of monitoring, analyzing and managing emergencies, but also for its different aspects and multidimensional approach, integrating different dimensions such as governance, organization, technology and economic sustainability.
The Veneto regional government and the Regional Agency for Environmental Protection have promoted the collaboration and coordinated the participation of different stakeholders, both public authorities (municipalities, environmental local agencies, health institutions, fire and other public security authorities) and private ones (firms and their associations). The **governance** of the overall project has been important both at a strategic level, for setting commitments and increasing trust in the initiative, and at an operational level, in order to develop an effective collaboration.

From an **organizational** point of view, the strength of the project has been the creation of a dedicated structure based on:
_ a control room in which qualified employees from ARPAV and petrochemical firms work for technical analysis and support in case of industrial accidents;
_ a decision room in which authorities supervise operations and make decisions.
There has also been a definition of the workflow of information and communication and the setting of detailed procedures in order to ensure coordination and connections between partners involved in emergency management.
The effectiveness of the overall system has been guaranteed by the widening of the **technological dimension** and the development of an integrated informative system. ICT supports the control room during the phases of monitoring, analyses and emergency management.
Concerning the **economic** dimension of the model and its **sustainability**, the system is the result of a public-private partnership that involves the Veneto regional government and the private firms of the area through the Industrial Association of Porto Marghera. The Veneto region and the private firms equally contribute and are responsible for the system; they also share 50/50 the management costs of the system (personnel costs, information system and connectivity costs, and control room overheads) thus guaranteeing its sustainability.
This strategy is perfectly in line with the nature of the Programmatic Agreement for Chemistry in Porto Marghera that, as mentioned, sees public authorities and private stakeholders collaborating together for the survival and further development of the area (Fig.1).

Conclusions

The experience covered in Porto Marghera's petrochemical industrial area with the SIMAGE system is very interesting in terms of environmental monitoring and emergency management.
SIMAGE represents a reference model for industrial risk management in terms of scale of action, phases considered in an integrated way, governance systems linking private and public institutions to be developed, technical and organizational structures built, technological dimensions widened and economic sustainability achieved. For this reason, its extension and replication in other realities is an important tool for promoting risk management.

具备资质的ARPAV和石化企业人员在控制室中进行技术分析，发生意外时提供支持；
主管部门在决策室运筹帷幄。
同时规定了信息和沟通流程的定义，并制定详细的措施，以确保应急管理参与人员保持协调和联系。
系统的整体有效性通过扩大技术面和开发综合信息系统来保障。信息通信技术（ICT）在监测、分析和应急管理的各个阶段对控制室提供支持。
考虑到示范的经济规模及其可持续性，该系统通过马尔盖拉港产业协会，由公共机构威尼托大区政府与该地区私营企业合作开发。威尼托大区政府和私营企业共同开发系统，共同对系统负责，并平摊系统管理费用（人员费用、信息系统和连接费用、控制室运营费用），从而确保了系统的可持续性。这一战略完全符合前面所述《马尔盖拉港化学产业纲领协议》的精神，公共机构与私人利益相关者相互合作，为这一地区的生存和进一步发展而努力（图1）。

结论

就环境监测和应急管理而言，马尔盖拉港石化产业区的SIMAGE系统示范非常有趣。
SIMAGE在行动范围、综合考虑实施阶段、开发联系公共及私人机构的管理系统、构建技术和组织机构、扩大技术面及实现经济可持续性方面提出了行业风险管理的参考模型。通过在其他行业推广其应用，必将为促进风险管理提供重要工具。

The pictures of the SIMAGE control room are provided by ARPAV.
ARPAV 供给了SIMAGE控制室的图.

VIU training program echo from participants

This section is written by the Chinese participants in the trainings in Italy.
We hope hereby to provide the Newsletter readers with an authentic flavour of the training experience.

Shanghai Environmental Protection Bureau
Low Carbon Economy

Italy, April 23 – May 4, 2010

Twenty-one trainees from Shanghai participated in the Low-Carbon Economy Training held in Italy in April 2010. Focusing on the theme of low-carbon economy, carbon emission monitoring and measuring methodology, strategies for low-carbon industry development and the EU emission trading system were all introduced within this course. Additionally, site visits on eco-building and wood-production with zero carbon emission were arranged. Through this training, the trainees got the latest information and the foremost knowledge on low-carbon economy in Italy and EU. Since Shanghai is now starting to push forward with low-carbon economy development, the trainees can apply and practice what they have learned in their future work and then contribute to the low-carbon development of Shanghai.
Benefitting a lot from the training, the trainees hope that China and Italy can strengthen their communication and collaboration for a low-carbon economy in the future. At the same time, the trainees suggest that follow-up training could focus more on low-carbon technologies, carbon certification, carbon emission trading systems and related policies.

Ministry of Science and Technology
Capacity Building on Low Carbon Economy: Experiences and Case Studies

Italy, May 1-15, 2010

The trainees generally expressed the view that they learnt a lot about the low carbon economy by participating in this course. The visit to Italy and the investigation into the operation of a low carbon economy there provided a useful reference for China.
The trainees from the management department said through the training they gained a general understanding of the international situation regarding low carbon economy and realized that there is an international consensus on climate change.
This will be of great help in the formulation of relevant policies in China in the future.
The trainees from the technology sector are starting to have opinions on the development of China's own low carbon economy. For example, some trainees said that China's new socialist countryside construction, which is being carried out now, could incorporate low carbon economy practices.
Some trainees also hope to promote low carbon housing construction by introducing Italian-style, energy-saving buildings (the TiFS building).

威尼斯国际大学培训计划 学员回音

“学员回音”由在意大利参加培训的中方学员们供稿的。希望通过刊登学员们的“回音”，能够让“培训园地”的广大读者们多少有些“身临其境”的感受。

上海市环境保护局

低碳经济

意大利，2010年4月23日至5月4日

2010年4月，来自上海市环保方面的21名学员赴意参加了低碳经济高级培训项目。围绕“低碳经济”的主题，本次培训重点介绍了低碳测算和评价方法、低碳产业发展策略和碳减排交易机制等一系列内容。同时，还安排了生态建筑和零碳排放生产的现场考察。通过本次培训，学员们加深了对低碳经济这一新兴领域的认识，学习了欧洲在低碳经济方面最先进的理念和最前沿的知识。上海目前正处于推动城市低碳转型的起步阶段，本次培训有利于学员们把有关知识和经验应用到今后实际工作中，为推动上海的低碳经济发展发挥积极作用。

培训结束后，学员们纷纷表示从本次培训中获益良多，希望中意之间能进一步加强低碳经济方面的交流和合作。同时，学员们建议能在以后的培训中更突出碳减排技术、碳体系认证、碳减排交易机制和有关激励政策措施等内容，以便于上海进一步学习欧盟的相关经验，指导未来的低碳发展。

中国科学技术部

低碳经济能力建设：经验与案例分析

意大利，2010年5月1日至15日

通过参加这次培训班，学员们普遍表示学到了很多关于低碳经济方面的内容，加深了对低碳经济的了解，尤其是实地参观、考察意大利低碳经济的运行情况，对于发展中国的低碳经济很有借鉴意义。

来自管理部门的学员表示，通过培训，他们对国际情况有了宏观的了解，意识到应对气候变化已成为国际共识。这对他们在未来制定中国的相关政策十分有帮助。

来自技术部门的学员则对中国的低碳经济发展有了初步的意见：例如，有学员表示，中国农村地区发展低碳经济可以考虑结合当前社会主义新农村建设。还有学员，对意大利的节能建筑（The TiFS Building）很感兴趣，希望可以借以推广中国的低碳住房建设。

Beijing Municipal Environmental Protection Bureau
Low Carbon City

Italy, June 12 – 26, 2010

1. The impression of the training program, not only the contents of the training, but also the trainees' comments on what they experienced and what it meant for them to participate:

1) Targeting the training theme of the Low Carbon City, the courses were well arranged, covering the environmental protection policies both at EU and Italian national levels, the EU package on climate change and energy, renewable energy and energy efficiency in eco building, and economic instruments for low carbon economy (which focus on cap and trade) such as EU emission trading and quantity and allowance management. The courses gave us a full picture of EU and Italian policies and the practices of low carbon economy.
2) The format of the training included lectures, case studies and site visits.
The case studies helped the trainees to better understand the policies and regulations put forward by the EU and Italy. The site visits not only allowed the participants to witness the successful practices on energy efficiency in eco building of the companies, but also enabled the participants to communicate directly with the engineers and managers on the related technology and management issues.
3) The lecturers were highly qualified with strong professional experience in their respective fields.
It has been suggested that for the professional participants with knowledge and experience in environmental management, the lectures could have gone into more depth.

2. What has been learned through the training, with an emphasis on creating links between the lectures/visits and China's specific issues?

Energy supply and use is of core importance in combating climate change. The EU has launched an ambitious energy plan to source 20% of EU energy from renewable resources, improving energy efficiency by 20% by 2020 (including 10% for renewable fuels in the transport sector). This is an area China (Beijing in particular) is also working on. China has announced a target of cutting carbon dioxide emissions per unit of GDP by 40-45% from the 2005 level by 2020. The sharing of clean energy technology in the future will be an important area requiring greater cooperation.

3. What needs to be continued after this training?

1) More research and study needs to be carried out into the methods and technologies for promoting a low carbon economy in Beijing.
2) Development and sharing of low carbon economy technologies, energy efficiency and GHG reduction.
3) Public awareness and communication to encourage a low carbon lifestyle is critical to promote the low carbon economy, low carbon city campaign.

4. Suggestions for next training program:

1) The lectures were useful and well prepared, but time was limited. For most courses we didn't have sufficient time for questions and discussion with the teacher. We suggest extending the duration of the training.
2) Sometimes the courses were different but the general introductions were similar or the same. We suggest the organizers take some time to review all the lectures to avoid such repetition.
3) The case studies and site visits were very impressive and the most efficient way to understand the policies and regulations. We suggest expanding these types of courses.

北京市环保局

低碳城市

意大利，2010年6月12日至26日

1 对培训项目的印象（不是陈述参加的内容，而是希望得到对参与内容的亲身经历及评价）：

1）围绕“低碳城市”主题，课程设置合理，从欧盟及意大利环保政策、欧盟关于气候变化和能源的一系列计划，新能源及绿色建筑中的能源效率到低碳经济的经济激励措施。其中经济激励措施主要探讨了总量控制和交易体制，如欧盟的排放交易及配额管理。总的来说，培训课程让我们全面了解了欧盟和意大利关于低碳经济的政策和实践。

2）培训方式包括演讲，案例分析和现场考察。案例分析的方式可以帮助学员们更好地理解和掌握欧盟及意大利实行的相关政策和法规；而现场考察不仅可以使学员见证该公司在绿色建筑中采取的节能措施的成功做法并且可以方便学员们与公司的技术人员和管理者直接进行交流。

3）演讲的老师们知识渊博，具有丰富的专业知识，但感觉有的内容稍显简单。建议对具备环保丰富经验的技术和管理人员，授课内容要有些深度。

2 通过对中国相关问题的比较，在本次学习中学到了什么?

能源供应和使用是应对气候变化的核心要点，欧盟为此设定了雄心勃勃的能源计划，即2020年时将可再生能源在总能源消费中的比例提高到20%，包括生物质燃料占总燃料消费的比例不低于10%；将能源效率提高20%。这同样是中国和北京市都关注的领域，中国也承诺2020年单位GDP二氧化碳排放比2005年下降40%到45%。 因此加强清洁能源技术的合作是未来合作的重中之重。

3 本次学习之后应该继续深入哪方面?

1）北京市低碳经济发展的方式及低碳技术还需进一步探索和研究。

2）需进一步提高低碳经济、能源效率和温室气体减排方面的技术能力，如碳捕获和存储技术。

3）在低碳经济方面需不断提高公众意识和宣传活动，倡导低碳生活方式。

4 对于下一次培训的建议:

1）课件都是经过了精心准备，但是课程时间有限，很多课程在老师讲完后学员们没有充足时间与其交流、提问。建议延长培训时间。

2）有时不同的课程在背景介绍部分有内容重复现象，如《京都协议书》、“20-20-20目标”在很多课程中均有介绍。

3）学员普遍反映案例分析和现场考察印象深刻，也是了解相关政策和法规最有效的方法。建议以后提高这方面课程比例。

Ministry of Environmental Protection Environmental Monitoring Management

Italy, June 19 – July 3, 2010,

During the period June 19 to July 3, 2010, twenty-five superintendents and technicians from fourteen environment protection organizations or entities in China attended the second special training on Environmental Monitoring at the Sino-Italian Cooperation Program for Environmental Management & Sustainable Development, co-sponsored by the Italian Ministry for the Environment, Land and Sea (IMELS) and China's Ministry of Environmental Protection (MEP). The training was well prepared and conducted in a diverse and practical way, abundant in its content and very interactive. The training in Italy helped the trainees to broaden their horizons, expand ideas and reap many benefits.

Throughout the training, trainees not only clearly saw the gap between China and Italy in respect to environmental protection, but also understood Italy and the EU's environmental protection management principles and the significant difference between Italy and China in respect to the legal effect of environment standards. In China, the departments responsible for formulating the environmental standards differ from those responsible for environmental protection procedures and legislation. Though the environmental standards are generally deemed an integral part of the environmental protection laws and policies within the administrative system, within the judicial system the judges can, with limitations, apply the laws and administrative regulations.

This is in reference to the departmental regulations and local government regulations and in accordance with the general provisions of the laws and regulations. However, not all kinds of standard documents including the environmental standards fall within the scope of law applicable to judges.

At present, China needs to further improve its procedures to formulate environmental standards. The trainees put forward such proposals as: 1. to make a greater effort to promote public participation in the standard formulation process; 2. to prepare some special research themes to study whether it is viable to change the legislative procedure of the departmental regulations to the formulation of the legislative forms so as to formulate the environmental standards based on the current standard formulation procedures so as to lay a strong theoretical and practical foundation for greatly enhancing the legal effect of the environmental standards; China's environmental monitoring policy system leaves a lot to be desired and is particularly deficient when it comes to the compatibility between the policy system and the technical monitoring system, so it is strongly suggested that a comparative study of the environmental monitoring policy and technical system be carried out between the EU, Italy and China.

The Italian side was fully prepared for this training with abundant opportunities for study and on-site visits, so all of the trainees cherished the opportunity for face-to-face exchange and communication with the international experts and availed themselves of this hard-won opportunity to fully understand the information and experiences of Italy and EU in the area of environmental protection. At the same time, it is hoped that future training will be broadened in certain fields and attention given to the exchange and interaction within the training courses, coupled with more on-site inspections with respect to the technical application of environmental protection. It is also hoped that efforts will be made to help trainees attain proficiency in professional translation so they can better comprehend the information.

中国环境保护部
环境监测管理

意大利，2010年6月19日至7月3日

2010年6月19日至7月3日，来自中国14个单位的25位环境保护管理人员和技术人员赴意大利参加了“中意合作–环境管理与可持续发展第二期环境监测专题培训”，该培训由意大利环境、领土与海洋部与中国环境保护部联合举办的。此次培训准备充分、内容丰富、方式多样，具有较强的互动性。通过在意大利的培训经历，学员们开阔了视野、拓宽了思路，收获颇丰。

通过此次培训，学员们不仅看到了中国与意大利在环境保护方面的差距，更了解了意大利和欧盟的环境保护管理理念。其中，环境标准的法律效应方面与中国存在重大区别。在中国，环境标准的制定部门与程序与立法有所不同，虽然行政系统内将环境标准作为环境法律政策的有机组成部分，但在司法系统内，根据法律规定，法官仅限于适用法律和行政法规，参照部门规章和地方政府规章，而包括环境标准在内的各类标准文件并不属于法官可以适用的法律范围。目前，中国需要进一步完善环境标准制定程序。学员们提出了几点希望，一是加大标准制定过程中的公众参与力度，二是可设立专门课题，研究在我国现有标准制定程序的基础上，过渡到以部门规章的立法程序及立法形式制定环境标准是否可行，以便为环境标准法律效力的提高打下理论和实践基础；我国环境监测政策体系尚不健全，特别是与监测技术体系衔接上还有很大欠缺，建议组织开展欧盟暨意大利与中国环境监测政策、技术体系比较研究。

此次培训意大利方面准备充分，学习和参观的内容丰富详实，涉及到的领域广泛，大家都非常珍惜这种面对面与国际专家的交流，利用这一难得机会充分了解意大利和欧盟在环境保护方面的信息和经验。同时也希望在今后的培训中，增加某些领域深度，加强培训课程中的交流与互动，增加环保技术应用方面的实地考察。希望加强专业翻译水平，让学员们更好的吸收学习内容。

VIU training program activities report

Pollution Source Management – Permit and Emission Trade, BMEPB
Italy, September 4-18, 2010
15 participants

Among the trainings organized this year by the Venice International University, in collaboration with the Beijing Municipal Environmental Protection Bureau, a new course was developed to deal with the theme of Pollution Source Management, with a particular focus on Emission Trading Schemes (ETS). With regard to emission control, the worldwide concern about GHG remains elevated and the adoption of strategic tools such as the ETS and emission inventory continues to rapidly evolve.
This course was structured to offer the participants firstly a theoretical background from a legal perspective, including an overview of the EU organization and environmental policy, with a special focus on the EU Cap & Trade policy and legislation.
Secondly, during their stay in Italy, the participants then discussed practical cases regarding the development and update of the ETS and the emission inventory. The case study introduced was on the recent update of the Veneto Region emission inventory and the effort to combine the data and statistics both from the national and local level.
The issue of mobile source emissions has a central relevance for China, which has been adopting several measures to deal with this problem, for example, through the development of electric vehicles and their use in the major Chinese cities.
This is also a problem for Italy and the city of Milan has adopted several measures that were presented to the BMEPB delegation during its visit.
Finally, the theme of industrial pollution sources was stressed throughout two days of site visits to the industrial area of Porto Marghera and its monitoring system (SIMAGE). Moreover, a new topic - the occurrence and health effects of asbestos - was presented, thanks to the involvement of the Turin Public Prosecutor.

威尼斯国际大学培训计划 培训活动

污染源管理——许可与排放交易, BMEPB

意大利，2010年9月4日至18日

15名参与者

在本年度由威尼斯国际大学与北京市环保局联合组织的培训中，开设了一项处理污染源管理问题并特别关注排放交易计划的新课程。 在排放控制问题上，全世界对GHG的关注不断增加，并且诸如排放交易计划和排放清单等战略工具的运用获得了持续快速的发展。

该课程的结构设计首先从法律角度向参加者提供理论背景，包括欧盟组织机构与环境政策，并特别关注碳总量管制与交易政策和法规。

其次，参加者在意大利期间将排放交易制度与排放清单的发展与更新作为实际案例展开探讨。该案例是关于威尼托地区排放清单的近期更新以及结合国家级和地区级数据和统计资料所作的努力。

机动车排放问题与中国紧密相关，中国政府正采取多项措施处理这个问题。例如，开发电动交通工具并在主要城市采用它们。意大利也存在相同问题，不过米兰已采取了多项措施。在北京市环保局代表团访问期间，米兰将这些措施分享给了代表团。

最后，对马格腊港工业区（Porto Marghera）及其监控系统（SIMAGE）进行了两天实地考察，深入了解工业污染源问题。此外，在与都灵检察官的研讨中下，提出了石棉及其对健康的影响这一新课题。

Strategic Environmental Assessment, SEPB

Shanghai, September 16-18, 2010
116 Participants

Shanghai has been at the center of the world's attention during the year as it hosted the 2010 World Expo. The main theme of the international exposition, "Better City, Better Life", represents one of the most important issues the international community must deal with for sustainable development.
During the last two centuries the urban population has risen from 2% to nearly 50% and China is one of the countries where this increase is most evident, especially in the last few decades. Trying to conciliate cities' development with a better urban lifestyle is proving to be a real challenge.
Given the importance of the expo with regard to this matter, the decision was made to wrap up the training organized with the Shanghai Environmental Protection Bureau and focus on Strategic Environmental Assessment in the Italian Pavilion, presenting both Venice urban development and the Shanghai Expo low carbon strategy case studies.
During the first two days of lectures, held at the Shanghai Academy of Environmental Sciences headquarters, participants were presented with an overview of the main SEA methodologies implemented by the European Union and how SEA is carried out by public institutions and governments. Prof. Turvani focused in particular on the risk assessment and health impact evaluation of polluted soil remediation, citing the case study of Porto Marghera, Venice.
Prof. Bao Cunkuan pointed out both the problems and possibilities of SEA implementation in the country, while Prof. Ma Weichun presented the case study of a trunk road network plan in Hubei province involving an area of 220,000 Km^2.

Innovation and Environmental Technology and Management, TSTC

Italy, September 11-25, 2010
24 participants
and
Italy, October 2-16, 2010
21 participants

The Tianjin Science and Technology Committee (TSTC), which has been a partner of VIU since 2007, asked for two training courses for the year 2010. Both focused on the innovation of environmental technology and management.
VIU offered a rich and diverse agenda covering different topics. In particular, the two-week training included lectures covering the low carbon economy policy in Italy, the monitoring of air pollution, industrial risk management, integrated water management, environmental coastal management, energy efficiency and renewable energy, sustainable transportation and the green industry. Considering that Tianjin is one of China's most important and rapidly-growing industrial cities, part of the lectures and site visits were devoted to the green industry issue. Participants appreciated the perspective that the environment and industrial activity were not considered to be in opposition: industry must make changes toward a greener economy by reducing resource consumption and waste production and by finding an eco-friendly way to design and realize a product. Moreover, the Italian industrial districts were presented as a successful way to improve a firm's competitiveness, based on different elements strictly linked to the local environment, such as resources, relations and shared knowledge.
Participants also had the chance to get to know the history of the Porto Marghera industrial area, its present condition and the future projects, particularly the green ones, as it is such a wide and contaminated area very close to the historical center.

战略环境评价, SEPB

上海，2010年9月16日至18日

116名参与者

今年，上海因举办2010年世博会而成为世界关注的焦点。本次国际博览会以“城市，让生活更美好”为主题，反映了国际社会在可持续发展中必须解决的最重要的问题。在过去两个世纪中，城市人口从2%增至近50%，而中国是增长最明显的国家之一，尤其是在过去几十年里。因此，协调城市发展并提高城市生活质量是一项严峻的挑战。鉴于世博会对协调城市发展具有重大意义，SEPB决定在世博会期间对其所开展的环境培训项目进行总结，重点对意大利馆进行战略环境影响评价（SEA），同时对威尼斯城市发展和上海世博会低碳战略进行案例分析。

研讨会开始的前两天在上海环境科学研究院总部举行，与会者听取了欧盟推行的主要战略环境影响评价方法，以及公共机构和政府如何实施SEA方法。Turvani教授以威尼斯Porto Marghera为例，重点阐述了污染土壤修复的风险评估和健康影响评价。

鲍存宽(Bao Cunkuan,音译) 教授同时指出了在国内推行SEA方法面临的问题以及可行性。马伟春（Ma Weichun，音译）教授对湖北省22万平方公里干线公路网规划进行了案例分析。

创新与环境技术, TSTC

意大利，2010年9月11日至25日

24名参与者

和

意大利，2010年10月2日至16日

21名参与者

天津市科学技术委员会（TSTC）自2007年起成为VIU合作伙伴，并希望在2010年针对环境技术创新与管理开展两次培训。

VIU针对不同课题提供了丰富多样的培训安排。为期两周的培训包括了意大利低碳经济政策、空气污染监控、工业风险管理、水资源综合管理、海滨环境管理、能源效率与再生能源、可持续性交通与绿色工业等相关讲座。

考虑到天津是中国最重要和发展最快的工业城市之一，部分讲座和现场考察围绕绿色工业问题展开。受训人员认为不应该将环境与工业活动相对立；工业行业应努力减少资源消耗、减少废物产生，并以生态友好的理念来设计和生产产品，从而推动绿色工业进一步发展。此外，意大利工业区以与当地环境紧密相关的各要素（例如资源、联系与知识共享）为基础，成功地提升了公司的竞争力。

此外，培训人员还了解了马格腊港工业区（Porto Marghera）的历史、现状和未来项目，尤其是绿色项目。马格腊港工业区曾是一个临近历史中心的大面积污染区。

Eco-management: Strategies and Policies, CASS
Beijing, 160 participants
and
Capacity Building on Sustainable Development, MOST
Beijing, 31 participants
and
Sustainable Development:
Innovation of Environmental Technology and Management, TSTC
Tianjin, 45 participants

From October 18-22, a delegation from Venice International University was in China to participate in three training sessions organized by VIU, in collaboration with the Chinese Academy of Social Sciences, the Ministry of Science and Technology and the Tianjin Science and Technology Committee.
Although all the training sessions were focused on sustainable development, they each had different purposes with regard to the project's annual development.
The Beijing session of the CASS training, which represented the opening session of the 2010-2011 academic year of cooperation, aimed to give an overview of the main issues within the sustainable development debate, such as sustainable urban development, climate change management, green economy, soil pollution and desertification.
These topics will be illustrated in depth in the four courses to be held in Italy during this academic year. The introduction of each topic was presented by both Italian and Chinese professors, offering the 160 participants a wider perspective and different ways of approaching each theme.
Lectures organized in collaboration with MOST represented the first part of the course on Capacity Building on Sustainable Development, which continued in the Italian session held from October 23 to November 6.
VIU set up a program covering several topics such as water and waste management, air pollution, sustainable mobility and sustainable agriculture; giving an overview of the different management tools.
Finally, the workshop organized in Tianjin represented the closing event of the 2010 training activities with the Tianjin Science and Technology Committee and involved the participants who had taken part in the two courses held in Italy summarizing the main characteristics of the Italian approach to sustainable development.
This visit to China was also the occasion to plan and discuss with the Chinese partners the courses and topics for the 2011 Advanced Training Program.

生态管理：战略与政策, CASS

北京，160名参加者

和

可持续发展能力建设, MOST

北京，31名参加者

和

可持续发展：环境技术创新与管理, TSTC

天津，45名参加者

10月18日至22日，威尼斯国际大学（VIU）代表团来到中国，参加了与中国社会科学院、科学技术部和天津市科学技术委员会联合组织的三场培训会议。

虽然所有培训会议均以可持续发展为核心，但是对于项目的年度发展都有不同的目标。与中国社会科学院（CASS）联合举办的培训拉开了2010–2011学术合作年的序幕。该培训旨在扼要介绍可持续发展领域的主要问题，如城市可持续发展、气候变化管理、绿色经济、土地污染和沙漠化。 这些课题将由本学年在意大利举行的四项培训进行深入阐释。 每一课题的介绍都由意大利和中国专家讲解，为160名参加者提供更广阔的视角和对于不同主题的不同解决方法。

与科技部（MOST）共同组织的讲座是培训的第一部分，该培训涉及可持续发展能力建设，它在10月23日至11月6日的意大利会议中将继续加以阐释。

VIU制定了一项涵盖多个主题的计划，如水资源与水管理、空气污染、可持续机动性和可持续性农业；它还扼要介绍了不同的管理工具。

与天津科学技术委员会在天津组织的研讨会结束了2010年的培训活动。参加者曾参加过两次在意大利举行的课程，该课程总结了意大利可持续发展方式的主要特点。

此次中国之行还与中国合作伙伴计划并探讨了2011年高级培训计划的课程与主题。

around us

"Greening the Future" IMELS **Promotes a Week of International Workshops at the Shanghai Expo 2010.**
Last September in the Italian Pavilion at the Shanghai World Expo, the Italian Ministry for the Environment Land and Sea (IMELS) organized "Greening the Future", a series of international workshops and seminars with the collaboration of Chinese government bodies and academic associations, such as the National Development and Reform Commission (NDRC), the Ministry of Finance (MOF), the Ministry of Science and Technology (MOST), the Ministry of Environmental Protection (MEP) and the Chinese Academy of Social Sciences (CASS). The main aim was to discuss cutting-edge technologies for eco-efficient building and best practices on climate change adaption, in addition to seeking new opportunities for Sino-Italian cooperation on sustainable development.
The international workshop "Innovation & Eco-efficiency in the Construction" jointly held by IMELS and MOST, focused on technologies for sustainable buildings and sustainable architecture within the Sino-Italian Cooperation and at Expo 2010. Scholars from the Polytechnic University of Milan, Tsinghua University, Shanghai Jiao Tong University, Tongji University, together with experts from prominent Italian and Chinese architectural studios, shared their insights into the sustainable buildings at the expo. Special guests included Giampaolo Imbrighi, designer of the Italian Pavilion, and Benedetta Tagliabue, designer of the Spanish Pavilion.

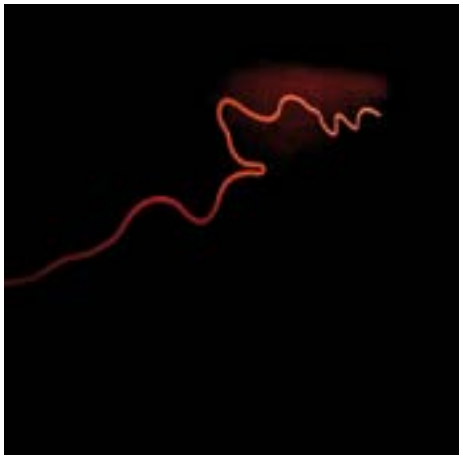
"Adaption to Climate Change in Coastal Zones of the Mediterranean and China" was the theme of the second International Workshop organized in cooperation with NDRC, MEP, the CASS, Tsinghua University, Massachusetts Institute of Technology and the Euro Mediterranean Center for Climate Change. The discussion focused on the vulnerability and adaptation to climate change, as well as adaptation measures in the coastal zones.
Mr Su Wei, Director General of Climate Change, NDRC and Dr Corrado Clini, Director General of IMELS, opened a multi-dimensional dialogue developed through keynote speeches, a panel discussion and a case study.
The last workshop titled "Working Together toward the Sustainable Development of China and Italy; Seven Years of the Joint Program in Education and Training"

recalled the remarkable results achieved by the SICP Advanced Training Program implemented by Venice International University and the University of Turin.
The program is aimed at providing training to Chinese civil servants, scholars, experts and the media in Italy and China, as well as sharing work experience between the two countries to exchange talent.
In 2010, the training program celebrated its seven-year history with a closing training lecture at the Italian Pavilion.
H.E. Umberto Vattani, President of Venice International University, Wang Weizhong, Vice Minister of MOST, and Corrado Clini, Director General of IMELS, addressed the audience. Experts and professors from the University of Turin and the Shanghai Environmental Protection Bureau delivered public lectures, followed by a roundtable discussion attended by experts

在我们周围

意大利环境、领土与海洋部（IMELS）在2010年上海世博会上进行为期一周的“绿色未来”宣传活动。

九月，意大利环境、领土与海洋部（IMELS）携手中国国家发展改革委员会（NDRC）、财政部（MOF）、科技部（MOST）、环保部（MEP）及（CASS）部等政府机构和学术团体在上海世博会意大利馆联合举办了以“绿色未来”为主题的系列国际研讨会。除了寻求中意两国在可持续发展方面的新一轮合作契机外，研讨会还讨论了有关生态效益型建筑和适应气候变化最佳实践方面的尖端技术。在2010年世博会上，IMELS和科技部围绕中意两国在可持续建筑领域的



合作，联合举办了“建筑创新与生态效益”国际研讨会。来自米兰理工大学、清华大学、上海交通大学、同济大学的学者及中国和意大利建筑设计事务所的专家们发表了他们对可持续建筑的见解。研讨会特别嘉宾包括意大利馆的设计师Giampaolo Imbrighi和西班牙馆的设计师Benedetta Tagliabue。

由国家发改委、环保部、中国社会科学院、清华大学、麻省理工学院和欧洲-地中海地区气候变化中心联合举办的第二个国际研讨会以“适应地中海及中国沿海地区气候变化”为主题，重点讨论了气候变化的脆弱性及应对措施，以及沿海地区的应对措施。

国家发改委应对气候变化司司长兼国家气候变化领导委员会协调联络处秘书长苏伟和IMELS总司长克里尼出席了大会并致开幕词。与会者通过主题演讲、小组讨论和案例分析等形式进行了多角度对话。

最后一个研讨会的主题是“中意携手合作致力于可持续发展合作——第七届教育和培训合作项目”，回顾了威尼斯国际大学与都灵大学开展SICP高级培训项目所取得的显著成就。该

项目旨在为中意两国的公务员、学者、专家和媒体进行教育培训，分享各自的工作实践经验和加强两国间的人才交流。这一合作项目至今已成功举办了七届，本次在世博会期间举行具有非同寻常的意义。威尼斯国际大学校长瓦达尼、科技部副部长王伟忠，IMELS司长克里尼分别做了致词。都灵大学和上海环保局的专家学者进行了现场培训，随后，来自清华大学、同济大学、都灵理工大学和威尼斯国际大学等著名大学的专家举行了圆桌讨论会。

会上还播放了一段美国哈佛大学肯尼迪政府学院的教授 William Clark先生的视频发言。

from prestigious universities, including Tsinghua University, Tongji University, the Polytechnic University of Turin and Venice International University. It also featured a video message by Professor William Clark from Harvard University's John F. Kennedy School of Government.

Chinese Environmental Protection Exhibition Opened in Rome

The Chinese Environmental Protection Exhibition, organized by the Ministry of Environmental Protection of the People's Republic of China (MEP), celebrated its opening ceremony in Rome at the beginning of October. Delegates from both the Chinese and Italian Environmental Ministry and people working for the Sino-Italian Environmental Protection Cooperation Program attended the opening ceremony. The exhibition is located at San Michele in Ripa, a monumental complex housing the Ministry of Culture and Heritage, and will run for two months. It displays the brilliant achievements in environmental protection that China has made in past decades by illustrating both the ongoing and completed programs, with particular reference to the Sino-Italian cooperation. An eight-minute video and picture panels vividly display the economic development, ecological and energy-efficient vehicles, environmentally-friendly buildings, and many other ongoing environmental protection projects in China.

The exhibition is an essential part of the 2011 Chinese cultural year in Italy and was visited by Chinese Premier Wen Jiabao and Italian Prime Minister Silvio Berlusconi. Premier Wen Jiabao gave high praise to Sino-Italian cooperation in environmental protection over the last 10 years.

Sino-Italian Project for Demo Scale Application of Carbon Capture and Storage in China Officially Starts

The dialogue and exchange of experiences on clean coal technologies among the Italian Ministry for the Environment, Land and Sea, the Chinese Ministry of Science and Technology and the Italian energy company Enel, which began in 2008, has moved to an operational phase of cooperation. Last October in Beijing, the project for demo scale application of carbon capture and storage officially kicked off. Under the framework of the Sino-Italian Cooperation Program for Environmental Protection, the project aimed at developing a preliminary feasibility study for a demo post-combustion capture application to a coal-fired power plant and subsequent underground carbon injection for enhanced oil recovery. A technical working group, comprising experts from Enel, Huaneng (the largest Chinese energy company), Tsinghua University, the Chinese Academy of Science, IET and MOST's ACCA 21, held two days of meetings in Beijing, with field visits to the pilot carbon capture plant (part of Huaneng's Gaobedian power plant) and Tsinghua and IET's labs. The working group then moved to Shanxi for the project site visit and then to the Thermal Power Research Institute (TPRI) headquarters in Xian for technical meetings. This is the first concrete step in the cooperation that in the medium run should lead to the building of the first facility of its kind in China.

中国环保展在罗马开幕

由中国环保部（MEP）主办的中国环保展于十月初在罗马揭开帷幕。中意两国环保部的代表及参与中意环保合作项目的工作人员出席了开幕式。

展览设在San Michele意大利文化与遗产部办公大楼内，预期展出两个月，通过当前和已完成项目展示了中国环保成就，着重回顾了中意环保合作10年历程中的重要合作项目及取得的丰硕成果。一段时长八分钟的视频图片生动地展示了中国的经济发展、生态和节能车辆、环保建筑，以及许多正在进行的环保项目。

该展览是2011年意大利中国文化年的重要组成部分，中国国务院总理温家宝和意大利总理贝卢斯科尼先生参观了展览。温家宝总理对过去十年里中意两国在环保领域的合作给予了高度赞扬。

中意碳捕获及封存规模示范项目正式启动

意大利环境、领土与海洋部，中国科技部和意大利能源公司Enel于2008年开展的清洁煤炭技术经验交流对话进入了合作实施阶段。去年十月，碳捕获和封存规模示范项目在北京正式启动。在中意环保合作项目的框架下，该项目旨在通过对燃煤发电厂进行燃烧后碳捕获，随后进行地下碳注入，以提高原油采收率的示范应用进行初步可行性研究。来自Enel公司、华能公司（中国最大的能源公司）、清华大学、中科院、IET和科技部21世纪议程管理中心的专家组成的技术工作组在北京举行了为期两天的会议，并对碳捕获示范工厂（华能高碑店电厂的一部分）、清华大学和IET实验室进行了实地考察。随后，工作组辗转山西考察了项目现场，然后又来到总部位于西安的热工研究院（TPRI）举行了技术会议。这是实质性合作迈出的第一步，合作中期有望建成中国首批类似设施。

what's ON at VIU

The Italian Ministry for the Environment, Land and Sea once again has fully recognized the importance and impact of the Advanced Training Program on Sustainable Development and Environmental Management, confirming its support and even increasing the number of training sessions for the year 2011. 30 training courses (including the distance-learning program) have been scheduled, of which six will be organized in China and the rest in Italy.
A total of 512 Chinese civil servants, policy makers and entrepreneurs are expected to visit Italy in 2011, whilst the beneficiaries of all capacity-building activities (including distance learning) are expected to be around 1,050.
The topics that will be covered in the 2011 joint training programs, as indicated by the Chinese partners for this year's program, reflect China's priorities for sustainable development.
The requests by the Shanghai Environmental Protection Bureau and the Tianjin Science and Technology Committee for the 2011 training program confirm that the Chinese municipalities are interested in developing low carbon economies at an urban level. The same theme, with a special focus on available technologies, will also be developed in one training course with the Ministry of Science and Technology.
Two subsequent training courses will then explore in depth energy efficiency and the role of renewables in emission reduction.
The Ministry of Environmental Protection, in line with its role, will focus on environmental policy and legislation, in particular, implementation and control. The issue of environmental regulation will also be explored by the Beijing Environmental Protection Bureau, with a special focus on economic policies. As in 2010, the BMEPB will also broaden the issues of environmental monitoring, incorporating the management of environmental information and communication.
The National Development and Reform Commission, continuing down the same path as previous years, will widen the issue of climate change management, focusing on the compilation of the greenhouse gas inventories as tools to support decisions and sound actions.
Finally, the Chinese Academy of Social Sciences will continue working on different topics inherent to sustainable development and environmental management, *i.e.* energy efficiency and renewable energy, ecobuilding and sustainable urban development, waste management and water pollution.
In addition to these training courses (jointly organized by VIU and the respective Chinese partners) the academic cooperation between VIU, Tsinghua and Tongji universities will also continue in 2011 through the exchange of students and scholars and the organization of joint workshops. In particular, 18 students from China are expected to visit VIU in 2011 and a similar number of Italian students will develop their master thesis at the two universities and other institutions located in China within the Globalization Program. Moreover, a joint VIU-Tongji workshop on Low Carbon Economy is planned, involving representatives from other countries and international institutions such as UNEP.

威尼斯国际大学快讯

意大利环境、领土与海洋部再次充分认识到了可持续发展与环境管理高级培训课班的重要性和影响，决定2011年将继续支持该培训并增加培训次数。30培训课程（包括远程学习课程）已安排妥当，其中有六门课程将在中国进行培训，其余部分在意大利进行。

512名中国公务员、决策者和企业家预计将于2011年访问意大利，而所有能力建设活动（包括远程学习）的受益者预计将达约1050人。

今年培训课程的中方合作伙伴希望2011年联合培训课程将以中国可持续发展的优先领域为主题。上海环保局和天津市科委则对在城市层面发展低碳经济很感兴趣。科技部也将围绕现有技术，在培训课程中拓展这一主题。随后的两门培训课程将深入探讨能源效率和可再生能源减排作用。

环保部将根据其职责，将重点集中于环境政策和环境立法，特别是实施和控制。北京市环保局将以经济政策为中心，探讨环境监管问题。与2010年一样，北京市环保局还将结合环境信息和协调管理，加大对环境的监测力度。

国家发改委将继续去年的做法，加大气候变化管理，重点是编制温室气体存量清单，作为支持制定决策和采取合理行动的工具。

中国社会科学院将继续围绕可持续发展和环境管理开展其他主题项目，如能源效率和可再生能源、生态建筑与城市可持续发展、废物管理以及水污染问题。

除了这些由威尼斯国际大学和中国合作伙伴联合举办的培训课程外，2011年，威尼斯国际大学、清华大学和同济大学仍将通过学生和学者交流、联合研讨会等形式继续开展学术合作。而且，在全球化课程框架下，18名中国学生将于2011年访问威尼斯国际大学，而同样数量的意大利学生将在上述两所中国大学和其他院校完成其硕士论文。此外，威尼斯国际大学还计划与同济大学联合举办一次低碳经济研讨会，届时，来自其他国家和联合国环境署（UNEP）等国际机构的代表将出席研讨会。

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