

Economic Commission for Europe

Protecting our environment

How environmental impact assessment can help



UNITED NATIONS

**Economic Commission for Europe
Geneva**

Protecting our environment

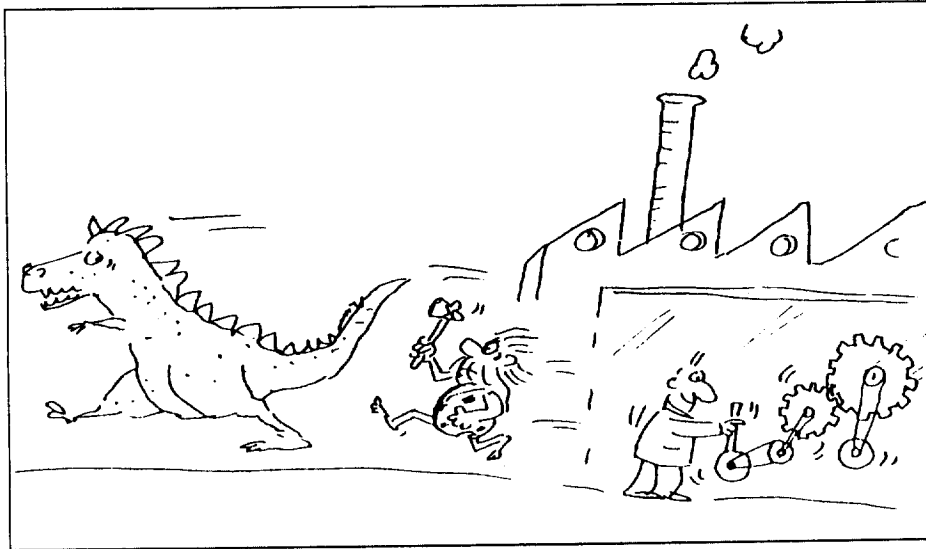
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**UNITED NATIONS
New York and Geneva, 1998**

PROTECTING OUR ENVIRONMENT

HOW ENVIRONMENTAL IMPACT ASSESSMENT CAN HELP



Environmental Impact Assessment: A Common Sense Approach

A conference speaker once gave a memorable definition: "The environment? It's about what we do to where we live". We are an incurably meddling species, and since the dawn of time we have been doing things to the places in which we live, moulding them this way and that in an attempt to make them fit our purposes more closely. Some of the modifications made by our distant ancestors were almost as drastic in their way as the changes we are making today. The development of agriculture was itself one of the most profound changes to have been imposed on the natural environment, and there have been many later variations on the same theme, with the transformations brought about by the Industrial Revolution only the most recent and dramatic reminder of our capacity to alter our habitat beyond recognition, and sometimes beyond any possibility of restoration.

But if altering the environment is nothing new in itself, there has nevertheless emerged in the last few years something that is distinctly new in the equation, and that is our ability to recognize the significance of what we are doing—or, at

least, to recognize that what we do *may* perhaps have a significance at some point in the future. We know now, for example, that DDT and other pesticides formerly used in the northern hemisphere are going to show up not only in the flesh of polar bears in the Arctic, but in the blubber of whales and other marine species at the other end of the world. We know that apparently innocuous chemicals released into the atmosphere decades ago now mean that the Earth's protective layer of ozone will remain damaged until well into the twenty-first century. We know that every time we burn fossil fuels like coal and oil, or consign a tree to the flames, we are doing our inexorable bit to alter the climate. We know, in fact, that, in the words of the English poet John Donne, "no man is an island", and what each of us does affects all of us. There is no such thing as a national environment: national frontiers have no meaning for the rivers or the winds, and what we do to our own homes will, for better or worse, affect the one home we all share. That is an insight our ancestors were denied (or spared), and it is one which places a new responsibility upon us.

Probably one of the hardest parts of confronting the reality of what we are doing to our environment is simply to find new ways of thinking—about it, and about ourselves. To face up to the scale and the nature of the changes we are making, and the impossibility of reversing them, requires a profound cultural shift. Shifts of that sort do not happen overnight, and it is easy enough to be so daunted by the immense problems we are creating for ourselves that we become virtually immobilized by the belief that we shall not be able to change in time.

But radical shifts, in perception and even in behaviour, can follow from much more modest changes. And there *are* some signs of change. One of them is the growing awareness that, instead of acting first and then trying afterwards to tackle the consequences of what we have done, it is usually better to try to think through the consequences *before* we act. If that sounds like nothing more than the application of common sense, that is roughly what it is. It goes by the name of **environmental impact assessment** or **EIA**, and it is an idea whose time has come.

Environmental Impact Assessment So Far

EI A has a respectable history, and has been in use in some countries for fifteen years or more. In most countries that have EIA legislation, activities subject to the procedure include infrastructure projects (transport arteries, ports, airfields, pipelines and transmission cables); water management (groundwater extraction, land reclamation and dykes); recreational facilities, including golf courses, stadiums and theme parks; rural area projects such as industrial and residential building and military training grounds; waste treatment and processing plants and landfill sites; and power plants, oil and gas extraction sites, refineries and chemical plants.

Usually the basis of the EIA procedure is a public document, the environmental impact statement, in which the person or enterprise proposing the development—known as “the proponent”—has to describe all its potential environmental effects. The other actors are the administrative body which will decide on the project (“the competent authority”); perhaps a body of independent experts; legal advisers to the competent authority; and the public, defined as including not only environmental organizations and other interest groups but every individual who may be affected by the project if it does go ahead.

A project will be subject to EIA if it may have serious and harmful environmental consequences. One way of judging whether this is likely is by reference to the threshold values which have been set for most types of the activities outlined above. Threshold values are especially important in what they say about the size or location of a project. Most countries in the ECE region have set such thresholds in their national EIA legislation.

The emphasis of the environmental impact statement the proponent has to produce is on possible alternatives to the project and their environmental impacts (with perhaps an indication of the most environmentally sound among them). The competent authority may also demand a list of possible compensatory measures—the creation, perhaps, of a new area for wildlife if the project will inevitably destroy an existing one. If there is uncertainty about any of the topics covered in the environmental impact statement—the project’s long-term effects, for example, or the way one effect may interact with another—this must be clearly stated.

The process does not end once the competent authority has given a project the go-ahead. It has also to design an evaluation programme to ensure that the predicted outcomes are what really happens.

On a national level, EIA has already proved itself a useful way of uncovering all available environmental information before any decisions are taken, and of keeping the implementation of potentially damaging projects under continuing review.

EIA has not remained confined to a small band of individual countries. In fact, a body of experience in the use of EIA to promote good relations across European frontiers has been steadily building up in the last few years. With relatively minor differences of detail but exactly the same overriding principle, EIA is now applied on a still wider scale, throughout the countries of the United Nations Economic Commission for Europe (ECE), following the entry into force of the Convention on Environmental Impact Assessment in a Transboundary Context. Countries should find this Convention particularly useful, as it provides an opportunity for them to develop their economies in a sustainable way.

The EIA Convention

The ECE Convention on Environmental Impact Assessment in a Transboundary Context was adopted on 25 February 1991 at Espoo in Finland and entered into force on 10 September 1997.

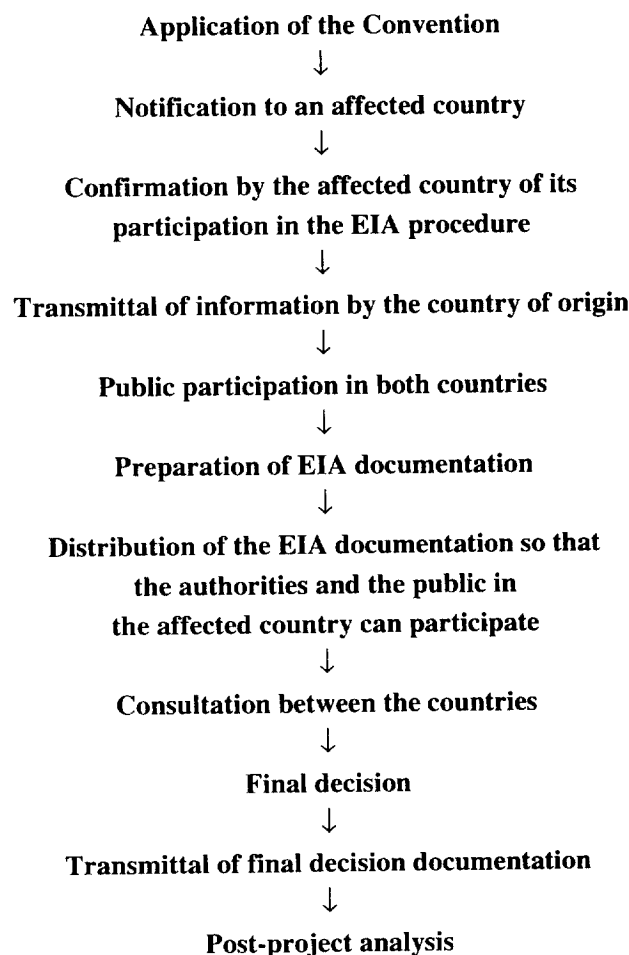
The Convention is the first multilateral treaty of its kind, spelling out the rights and duties of each side when the environmental impact of an activity spills across a frontier, and providing procedures for considering the impacts when decisions to allow a project are taken. It contains a preamble, twenty articles, and seven appendices. It defines (in Article 1) "proposed activities" as including not only new or planned activities but also, significantly, "any major change to an activity". It describes an "impact" as any effect caused by a proposed activity on the environment, including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures, or the interaction among these factors. It also includes possible effects on the cultural heritage or on socio-economic conditions. But the definition of "transboundary" impacts explicitly excludes *global* impacts.

Countries normally have to apply the provisions of the Convention (according to Article 2) when two requirements are met: the proposed activity must be listed in Appendix I, and it must be likely to cause a significant adverse cross-frontier impact. There is obvious scope here for debate over defining what is in fact significant. Uncertainties over how to establish agreed thresholds may be intensified by national differences in environmental, social and economic conditions.

Case studies show that in the early phase of action under the Convention it is often difficult to obtain even tentative data on the actual extent of the cross-frontier impact to be expected, and rather than try to be too specific at this stage it may be more helpful to consider the general characteristics of a proposed activity. But there is wide agreement that it is better to err on the side of caution, and wherever there is the possibility, no matter how uncertain, of a significant cross-frontier impact, then the country liable to cause it should not hesitate to notify any neighbour which may be affected.

The EIA procedure starts with the country where a potentially damaging activity is planned notifying any other country that it thinks may be affected. This notification, the Convention stipulates in Article 3, should be given as early as possible, and no later than when the first country ("the country of origin") informs its own public. This obviously depends on when the authorities in the country of origin themselves learn of the proposed activity, and because national procedures (on when developers need to begin seeking consent for their plans, for example) vary, this can affect the timing of the notification to another country.

Appendix II to the Convention sets out the minimum standards for the content of the EIA documentation which has to be submitted to the competent authority in the country of origin, covering subjects like the elaboration of alternatives (including the ‘no action alternative’), and a description of mitigation measures that could be taken, and of the predictive methods used. The documentation should also identify uncertainties and gaps in knowledge, and should outline monitoring and management programmes and any plans for post-project analysis. It will be based in part on information made available by the country liable to be affected by the cross-frontier impacts, which is expected to supply ‘reasonably obtainable information’ to the country of origin ‘promptly’, once it has said it wishes to participate in the EIA procedure.



The Convention includes provisions which aim at establishing mechanisms to prevent a dispute about the application or interpretation of the agreement. So, for instance, a country which believes it could be at risk from an activity on its neighbour's territory about which it has not been notified can ask for enough information to allow discussions to be held. If both countries then agree that a significant impact is likely, the provisions of the Convention will apply. If they do not agree, then, according to Appendix IV, the country which believes itself to be at risk can submit the question to a commission of inquiry, which will give its opinion on the probability of a significant impact.

The Convention refers several times to the right to public participation in the EIA procedure. Article 3 requires both countries to make sure that the public of the affected country, in the areas likely to feel the impact, has the chance to comment on and object to the proposed activity, with its observations being passed on to the competent authority in the country of origin. Article 4 requires both countries to arrange the distribution of the EIA documentation not only to the authorities in the affected country, but also to those of its people who live in the relevant area. It can be confusing to know which country should be responsible for each part of this process, though international law may well provide a guide: the country of origin, for instance, will be able to conduct public hearings on its neighbour's territory only with its neighbour's consent.

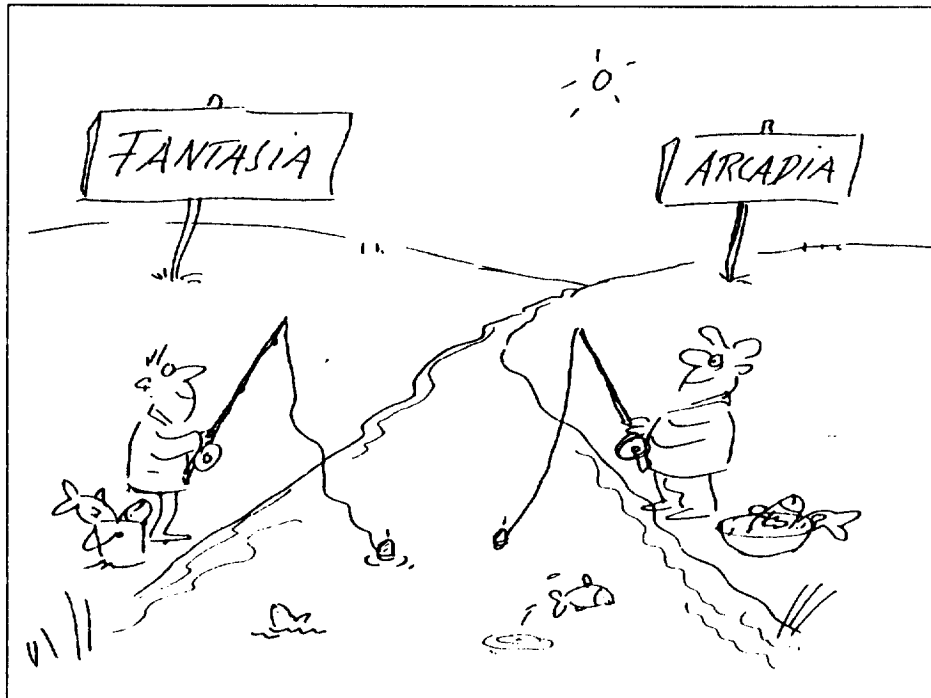
The Scoping Procedure—Concentrating on the Essentials

A central part of an environmental impact assessment is what has become known as “the scoping procedure”, an approach which is designed really to concentrate efforts on identifying the main issues of concern early in the process, when alternatives are still being considered, and then ensuring that they are assessed at the right level. This attempt to pick out the essentials in the opening stages of an EIA makes it easier for mitigation measures to be incorporated into project designs. Conversely, scoping can also be an opportunity to point out the benefits a project will offer, and it will sometimes give the opportunity to identify ways of actually *improving* the environment. Scoping and the early consultations it makes possible can produce savings of both cost and time.

Some developers produce a scoping report as a basis for discussion before going on to produce a full environmental statement. This makes it easier for consultations to begin before a preferred option has been chosen, between the developer, outside experts, the administrative body which will take the final decision, and members of the public.

How the EIA Convention Works

To see what the implementation of the Convention entails, it may be helpful to rehearse the case of that little-known but often-imagined European country, Fantasia. A perennial problem for the Fantasian Government is energy, so it decided recently to build a barrage across the river Styx, incorporating enough turbines to produce a reliable supply of electricity. The Fantasian Environment Minister thought a hydroelectric plant would give his country a dependable source of energy without adding to its greenhouse gas emissions. It would be sustainable development in action. But, just in case the reference in Appendix I to the Convention to "large dams and reservoirs" might apply to the barrage, he sent a notification and an outline of the plan, on the day it was published in Fantasia, to his counterpart in Arcadia (although he did not believe that it was likely to cause a significant adverse impact across the border).



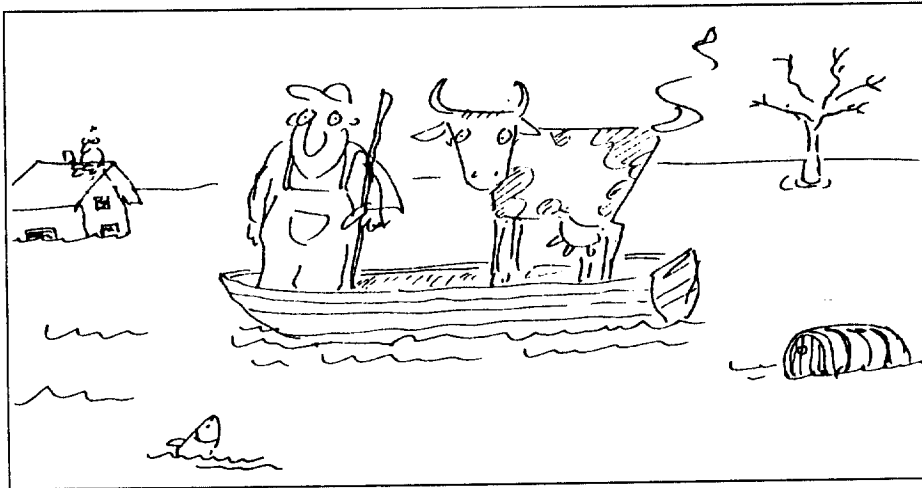
Arcadia, immediately upstream of Fantasia, shares a long common border with its neighbour. The Arcadian Minister, far from congratulating Fantasia, was outraged. He did not know—in fact he could not know—the precise implications of the project. But he believed there would be an inevitable adverse impact on his country's territory. It was obvious, he said: the Styx flowed for hundreds of miles through Arcadia before entering Fantasia. And the barrage and power plant would be only a few kilometres from the border: although they would be physically on Fantasian territory, their impact would be felt over a wide stretch of Arcadia. That impact would be devastating, because the barrage would mean the level of the Styx would rise by several metres as it flowed through Arcadia. Farmers along the river banks faced the loss of many productive hectares, and some of the country's renowned antiquities would be fatally weakened. The Minister invoked the Convention, and said his Government would fully participate in the drawing-up of an environmental impact assessment.

The Fantasian Government, anxious to press ahead with construction, began the formal procedure specified under Article 3 of the Convention to identify and list the possible impacts, as a starting point for talks with the Arcadians. It was able to send them the detailed plans of the barrage and power plant, and an indication of the range of possible impacts, within a few weeks. What it could not do was say just how much the level of the Styx would rise, or whether there were any realistic mitigation measures it could offer to incorporate at this stage. It explained to the Arcadians that the information was the fullest it could provide, but was inevitably incomplete. It said the alternative—a coal-fired power station—would be worse for both countries. And it said the alternative of no action was no alternative at all, because the Fantasians would no longer tolerate being left in the dark and the cold when the power failed. Bringing Arcadia up to date with its plans was expensive and laborious for Fantasia, as it involved not only translating all the documents into Arcadian (with its distinctive script), but paying for them to be distributed to the communities along the Styx, and then hiring interpreters fluent in the notoriously difficult dialect of Arcadian (itself not widely spoken outside the country) commonly used along the river banks.

By this stage a public inquiry was under way in Fantasia itself, designed to satisfy every Fantasian that the benefits of the scheme would outweigh its drawbacks. Most of them, tired of the frequent power cuts, were fairly soon satisfied, and although several groups of fishermen remained implacable, the rest of the Fantasian public quickly acquiesced.

It was very different in Arcadia, however. The farmers there have influence, and their votes can make and break governments.

So the public consultations in the towns along the Styx were protracted and bitter. At the end of the consultation period the Arcadian Government sent all the information it had gleaned to the Fantasians. The underlying message was clear:



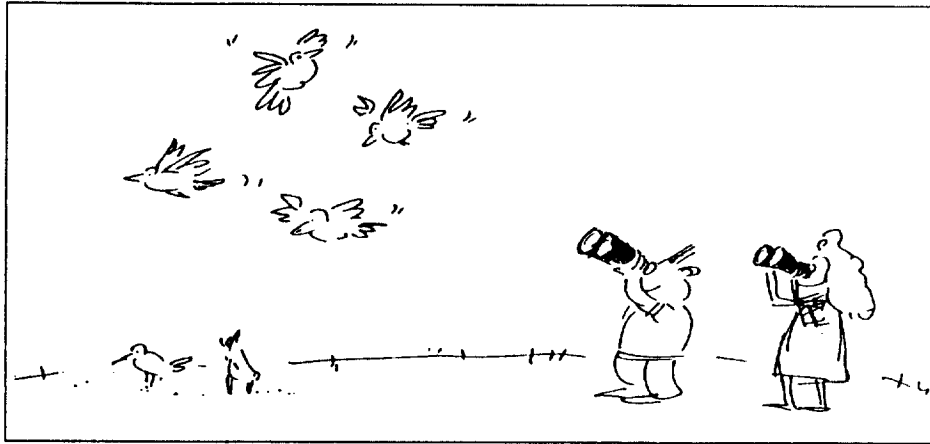
the scheme, as it stood (and with all the uncertainties which both sides acknowledged), involved unacceptable damage to Arcadia, and must be either withdrawn or significantly modified.

The Arcadian Government had allowed much longer for the consultation than had been needed in Fantasia. So months had passed before its information could reach the Fantasians, who were by now more anxious than ever to press ahead. But at least the delay had given them time to do most of the work they needed to produce a full EIA, intended to fill in many of the gaps in their knowledge about the probable impact of the scheme. They combined their own findings with the information from Arcadia, and then sent the full set of documents to the Arcadian Ministers, asking them to make it immediately available to all their people, and particularly to their farmers.

The experts who had carried out the Fantasian part of the EIA had identified one step which they thought might meet many of the Arcadians' concerns. They suggested a bypass channel round the barrage, which would allow much of the Styx's water to flow round the barrage rather than through it. The river level would still rise, especially in winter, but much less than under the original plan. And they were able to point to one definite advantage: the higher level of the Styx and its tributaries would mean that tourists could reach some of the Arcadian antiquities, till now accessible only over a very poor road, in the comfort of river cruisers. This additional information was shared by the Arcadian Government with its people, again at Fantasian expense.

The Arcadians were grudgingly won over, and the Fantasian Minister was about to give the final go-ahead, when there was a snag. There had been a foreign visitor at one of the public inquiries in Arcadia, an ornithologist from Spartaca,

Fantasia's *downstream* neighbour, through which the Styx meandered gently towards the sea after leaving Fantasian soil. And he had told his Government that the barrage plan would mean less water flowing through Spartaca, which lies on one of the main migration routes for birds on their way from Siberia to Africa.



The Spartacist Ministers were aghast, both at the prospect of harm befalling their seasonal bird populations (which attract tens of thousands of high-spending foreign tourists) and at the fact that the Fantasian Government had not even bothered to notify them of the barrage plan under the Convention. They protested, and asked the Fantasians for sufficient information to allow discussions. But their protest cut little ice in Fantasia, which argued that the Convention did not apply in this case, for several reasons. Keeping the lights on and the fires burning for humans in Fantasia, it said, was more important than making sure there was the usual amount of water for ducks and geese to swim in when they halted briefly in Spartaca. And anyway, the flocks which went through Spartaca were recognized as being globally important. And the Convention explicitly excludes global impacts from its definition of what constitutes a transboundary impact. Apart from that, the swamps and fens in Spartaca where the migrating birds came down were simply too far from the barrage to argue that there would be any significant cross-frontier impact. Sorry, said the Fantasians, but this is a case where the Convention does not apply.

But the Spartacists were determined. So they exercised their right under Appendix IV to the Convention to ask an independent commission of inquiry to rule on its applicability. The commission came down in Spartaca's favour, and the Fantasians had to repeat the entire process of information and consultation. They had already agreed to take steps to ensure that they would stop the *upstream* level

of the Styx rising too high in Arcadia. They now had to promise to stop its *downstream* flow dwindling too much to satisfy the Spartacists. Some Fantasian Ministers were prepared to do this, but others argued that they should just go ahead with their plans without trying to meet Spartaca's demands. After all, they pointed out, there is no provision under the Convention for any penalty to be imposed on us, so we have nothing to lose. Their opponents argued that Fantasia could not afford international condemnation for flouting the spirit of the Convention, and they narrowly won the day. So the barrage was built, with the safeguards agreed beforehand, and both of Fantasia's neighbours learnt to live with it. They—and the Fantasians themselves—also learnt that the ingrained habits of mistrust acquired in the past do not have to determine the future. And all three countries cooperate to this day in monitoring the barrage's actual effects.

Problems—and Solutions

Environmental impact assessment is still a young discipline, and problems will inevitably sometimes arise over particular applications of its neat and precise principles to the complex realities of life.

What about definitions? Some of them seem fairly vague, and capable of various interpretations.

The Convention makes frequent use of words such as “major”, “significant” and “prompt”. These, inevitably, mean different things to different people. There is similar scope for uncertainty over whether or not a particular activity qualifies for mandatory EIA under Appendix I to the Convention. Many of the activities it lists are fairly well defined, but others—“integrated chemical installations” is a classic example, because the word “integrated” is capable of several interpretations—are not.

One solution is simply to rely on the goodwill that must in any case underpin the operation of the Convention. Without that goodwill it is unlikely that two neighbouring countries will in any case agree to discuss ways of reducing or preventing damage to each other's territory. And if there is enough goodwill to start the process, there will often be enough to resolve what may prove no more than differences of semantics or of comprehension.

Another approach is to work for narrower definitions, which will leave progressively less room for uncertainty. So far as the Appendix I listings are concerned, one promising way forward lies in developing the concept of specific thresholds, levels of activity above which the Convention would have to be

invoked but below which there would be no need to refer to it. Another useful criterion when assessing the potential significance of an impact might be to rely on the distance of an activity from the countries' frontier. So an arrangement could state that "each activity mentioned in Appendix I and located in an area within X kilometres from the common border is likely to cause a significant adverse transboundary impact".

The ECE member States are at different stages of development, and have different understandings of the priority to be given to environmental concerns. Isn't there just too great a disparity between their approaches to environmental impact assessment for the Convention to work?

There is certainly ample scope for misunderstanding in the wide variations that exist in present national applications of EIA. The differences between countries are perhaps less striking when it comes to the activities that should be listed as requiring EIA (in parallel with Appendix I to the Convention), or the criteria for determining the significance of impacts. But on the time frames for various phases of the EIA process there are appreciable differences. When it comes to procedures for the participation of the public there is even more variation.

So there is a very wide and varied range of practice among ECE member States on some of the fundamental applications of EIA. But the very existence of the Convention, and its entry into force, will go a long way towards resolving those differences by converging national approaches and blending them into a new understanding appropriate to the entire ECE region.

EIA is about projects. But those are often just individual instances of much more important underlying policies. Does EIA have nothing to offer at that level?

EIA is, virtually by definition, a procedure that in most countries is applied to discrete projects. Yet it is generally recognized in ECE countries that governmental policies, plans and programmes may themselves have significant direct or indirect environmental impacts, and should logically therefore also be subject to EIA.

More and more countries are extending the application of EIA from the project level so that it is beginning to have an effect on policies and planning.

EIA is expensive. When the responsibility is shared between two Governments, who should pay?

Apart from the cost of obtaining the raw data which form the basis of the EIA itself, there are several associated costs: paying for translations of documents into other languages, for example, publishing them in local media, holding public hearings, hiring interpreters. Sometimes countries may wish to draw up explicit agreements detailing which side will pay for which element of the process. It has been suggested that, as a general rule, the country of origin should be responsible for the procedural costs, because it would find it easier than the affected country to recover these costs from the proponent. Additional costs, for instance external expert opinion, would probably best be paid for by the country which has asked for it. There seems no reason why a sensible arrangement over how to apportion costs should be hard to achieve. In any case, the cost of an EIA is likely in most cases to be less than one per cent of the research costs of the project itself—and the EIA offers the hope of saving many times its own expense in mistakes avoided and improved decision-taking.

So EIA is not yet complete, let alone perfect. But it has already proved its worth, both within and between States, and the work that is continuing to refine and develop its application offers the prospect that solutions will before long be found for these problems, and for the others which growing experience is certain to uncover.

With EIA There Are No Losers

So what benefits can the new discipline of environmental impact assessment offer? It involves thinking through the consequences for land, air and water, and for the natural and the built environment, for all that makes up the existing habitat, of any proposed significant development. For the would-be developer, making such an assessment before acting allows consideration of several possible approaches, followed by the identification of the most environmentally favourable option at an early stage, and the selection of the best practicable environmental option (these will sometimes coincide, but not always). In this sense, EIA is a means of streamlining decision-taking, and of improving the quality of the information available to those who take the decisions. For a developer or an entrepreneur (the proponent, in the language of the Convention), EIA is an opportunity to minimize risks by maximizing the information available at the time when it is most useful—*before* resources have been committed by decisions which may prove expensive or impossible to reverse. It is equally a chance to build in environmental improvements, and to point out the positive benefits which may follow from selecting the option indicated by the EIA. And the development may well be

seen to have gained a legitimacy in the eyes of critics which it might not otherwise have had, because it will have emerged from a democratic process.

But EIA is valuable for other reasons as well, and to other players. Because it is based on the precautionary principle (that is to say, lack of scientific certainty is no reason to postpone action to avoid potentially serious or irreversible harm to the environment), it is an important tool for policy makers who are working towards sustainable development, the sort which satisfies the needs of this generation without compromising the prospects for our descendants. It is a preventative measure: once it is completed, it gives you an idea of the mitigation measures that will be needed, and allows you to implement them *before* they are needed. And because EIA treats the environment holistically, recognizing the interdependence of different sectors, it avoids the partial approach which sometimes fails to spot important connections. Moreover, we have witnessed many bitter disputes, sometimes international in scope, when EIA procedures have not been followed. Extremely costly projects, such as dams, have run into serious trouble or even been abandoned because of their developers' failure to hold public discussions and provide sufficient information in advance. Such a waste of time and money can be avoided with EIA.

Beyond this, EIA is of fundamental importance in spelling out the link between economic activities and their environmental consequences. In an age which places tremendous weight on the economic implications of all that is decided, this is an advantage which is likely to be far-reaching.

EIA pays a democratic dividend too. Because more people are involved in reaching the development decisions that are taken, because it involves informing and seeking the opinions of disinterested experts, and of citizens, EIA is a way of giving people an opportunity to help to shape some of the developments that affect their daily lives. To that degree, it can be an antidote to the pervasive feelings of powerlessness to which so many people are tempted to succumb.

The environment certainly stands to gain from the introduction of EIA. Given that virtually every human activity has some impact on the natural world, anything which considers that impact and tries to reduce it to the minimum must be a step forward. The emphasis in the EIA process on the search for alternative ways of achieving the same goal means there is a much better prospect than under other approaches of finding the best way of reconciling social, economic and environmental imperatives.

There is even a political dividend to be expected from EIA. The growth in its use across national frontiers has coincided with a redrawing of the map of Europe. There are more independent countries in Europe today than there were half a century ago, and that means there are more national frontiers. EIA is a legal instrument which allows the promotion of active, direct and action-linked international cooperation, and the ECE Convention is a vehicle for achieving that at

regional level. It can slow or even halt the growing potential for cross-frontier environmental problems. Moreover, the experience gained, and the trust generated, by the successful application of EIA in resolving these problems offer the prospect of an improving climate of international relations in other spheres as well.

Further Information on Environmental Impact Assessment

If you have any questions about EIA or the ECE Convention, please contact:

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