

Piero Calvi-Parisetti - Alain Pasche

**Learning and using lessons:
environmental impacts
during the Indian Ocean
tsunami disaster**

1. Introduction

A broad range of national and international actors were involved in environmental issues in the aftermath of the tsunami disaster that hit several countries in south-east Asia at the end of 2004.

In particular, the Joint UNEP/OCHA Environment Unit (hereafter “Joint Unit”) conducted, in collaboration with UNDAC Teams, Rapid Environmental Assessments in Sri Lanka, Indonesia and the Maldives to identify any acute environmental impacts with immediate relevance to human life and response efforts. During the response phase, various agencies and mechanisms (UNDAC, Joint Unit, UNDP, UNEP) contributed to the development of specific pilot projects to manage emergency waste. UNEP engaged in assessments and follow-up activities related to the medium-longer term environmental impacts through their internal *ad hoc* Tsunami Task Force. The national authorities in all affected countries, for their part, also conducted a range of environmental activities, for some of which they requested international assistance.

Such a significant – to some extent unprecedented – involvement of different actors in addressing urgent environmental concerns was considered to be an ideal ground to investigate some key issues, draw lessons and make recommendations to improve future response and risk reduction efforts.

This study was commissioned by OCHA in collaboration with the International Strategy for Disaster Reduction (ISDR), within the framework of the global Environmental Emergencies Partnership launched by OCHA and UNEP. The scope of the study is immediate response phase issues - that is: emergency assessments, projects commenced during the response phase, and the link and transition between response and subsequent recovery and rehabilitation. Its findings and recommendations are to be presented at the upcoming Advisory Group on Environmental Emergencies (AGEE) in June 2005

The study was carried out during the month of May 2005 — by Dr. Piero Calvi-Pariseti of GIGNOS Institute (a Geneva-based private research institution specializing in disaster policy) and by Mr. Alain Pasche, an environmental expert and UNDAC Team member who was actively involved in the response to the tsunami disaster.

The bulk of the information was gathered through structured interviews (following a questionnaire) with some 20 key respondents, including UN staff at headquarters and in the field, environmental experts and government officials. A limited number of unstructured interviews were also carried out in order to gather additional information and clarify specific points. A complete list of the interviewees is available in the annex to this report.

This report aims at providing a synthesis of the study’s findings, focusing on some key policy and operational issues. It is important to stress the preliminary nature of the study, based on the information provided by a relatively limited

number of respondents, and therefore of its findings and recommendations. The AGEE may wish to consider further, in-depth studies on specific aspects at a later stage.

2. Environmental issues in emergencies

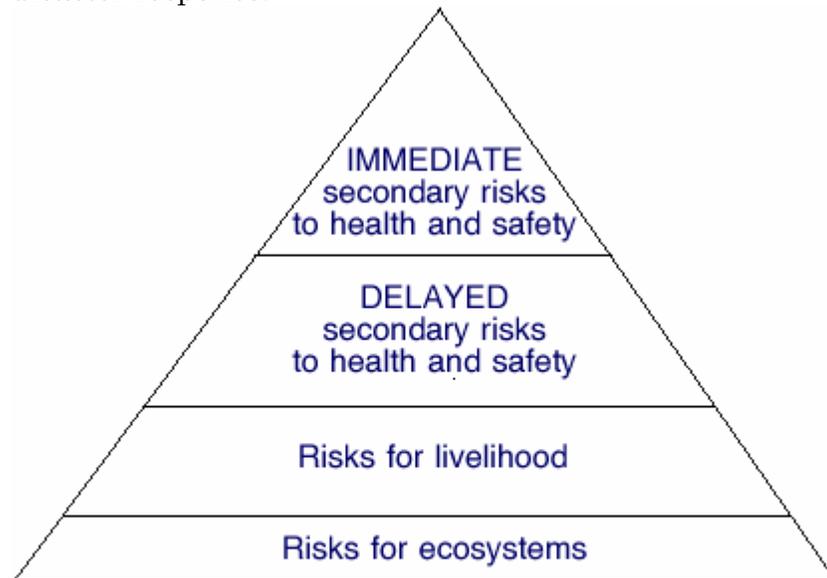
There appear to be a generally sound perception of the environmental dimension of emergencies

The first area the study investigated was whether the key actors involved in disaster management view environment primarily in its “green” dimension (that is, in their view, the management and protection of ecosystems) or whether they also perceived an importance to urgent environmental risks affecting health and safety.

This preliminary study suggested that the latter is the case.

Practically all respondents associated the idea of “urgent environmental issues” with health- and safety-related risks: secondary risks that may affect life, health and safety of both the victims of natural disasters and the relief workers. Such risks were invariably associated with the impact that the disaster may have on industrial installations, possibly leading to toxic chemical or radioactive spills.

Such urgent issues were placed at the top of an ideal pyramid of environmental concerns to be addressed (i.e. carefully assessed and managed as relevant) during the very earliest stages of disaster response.



Right below such top-level concerns, respondents identified a

number of issues which are not immediately life-threatening but have to be addressed in the early stages of the response, as they may lead to serious consequences on health and safety after a few weeks from the disaster. Such issues included the contamination or sudden depletion of water resources, sewage and waste management (including dead bodies) and, to a lesser extent, debris removal.

At the third level of the ideal pyramid of environmental concerns, some respondents mentioned the consequences that the disaster may have on the livelihoods of the affected populations. In this sense, for instance, the destruction of a coral reef is considered more for its implications on fishery than for the damage to the ecosystem. None of the respondents, however, said that this level of concerns should be addressed in the acute phase of disaster response.

At the base of the pyramid lie the “green” concerns – damage to habitats and ecosystems. Such concerns were mentioned by just a few respondents and nobody indicated them as a priority during the response phase.

Very interestingly, a few respondents indicated that an urgent concern to be addressed are the environmental consequences of humanitarian assistance itself (e.g. bottled water, diesel fuel, etc.) – something that is very seldom – if at all – taken into consideration.

Awareness of environmental issues in emergencies, however, is generally low

The level of awareness/understanding about environmental issues in disasters among various actors involved in disaster management was also investigated.

Respondents agreed that national authorities (at central government level) have a generally low level of awareness. When awareness exists, such as, for example, in the environment ministries or national agencies, the focus tends to be on the two lower levels of the pyramid of concerns mentioned above.

National authorities at ed. – the local level (province/town) were seen as having a generally higher level of awareness, owing to the fact that they know their territory better, particularly including the presence of hazardous installations.

National NGOs and civil society organizations were also seen as having a low level of awareness/understanding. A few respondents mentioned national environmental NGOs saying that they have much better awareness (often better than the government) but they too tend to focus on the longer-term issues.

UN Country Team were viewed differently by different respondents: low, moderate and high awareness were cited in roughly equal proportions. It must be said, however, that some key respondents (ed. those closer to the UN system) expressed grave preoccupation for the very low level of attention given by UN agencies to the environmental dimension of disasters.

The awareness of international responders was seen as a Bell curve, with most actors having a moderate awareness/understanding. A few major international NGOs were cited as having a very good level of awareness. Environmental NGOs were also – obviously – seen as having a high level of awareness, but as it was the case with their national counterparts, they tend to focus on the bottom levels of the pyramid of concerns.

As a consequence, the level to which environmental concerns are reflected in relief operations worldwide is considered low

Finally, responders were asked how they would rate the level to which environmental concerns are reflected in major disaster response operations worldwide. On a scale from 0 to 5 (where 0 represents lowest and 5 represents highest levels of reflection), no answers higher than 3 were recorded.

It was also noted that great variations exist depending upon the type/scale of the disaster, the environmental awareness of the people involved in the response, whether there actually were urgent environmental issues to be addressed and the overall level of environmental awareness of the affected country. One respondent also saw a trend of improvement between less recent and more recent response operations.

3. The international system

UNEP and the Joint UNEP/OCHA Environment Unit are clearly seen as the main players, but they are also seen as not working well together

When asked what specific tools, mechanisms and organizations national and international responders can count upon in handling environmental issues during emergencies, the interviewees of this study almost invariably (that is, with three exceptions) cited UNEP and the Joint Unit.

If, on one hand, it is clear that these two entities are seen as the main players in this sector, on the other the interviewees were generally of the opinion that the two do not work well together.

In general terms, the Joint Unit is considered as the entity that intervenes during the emergency response phase to address acute issues (those at the top of the pyramid), whilst UNEP as the entity that deals with long-term (ed.) term recovery and rehabilitation issues. There is a general understanding, however,

that either mandates, roles and responsibilities of the two entities are not well defined (position “A”) or they are defined but are not consistently implemented/applied/respected (position “B”). Positions A and B were held by a roughly equal number of respondents.

Among the specific reasons mentioned for the two entities not working well together, it was often said that at times UNEP “steps into emergencies” or “intervenes during the acute phase” and does so “against clear mandates”, without involving the Joint Unit.

Uncertainty emerged as to UNEP’s capacity. The organization was seen by two respondents as having “a huge mandate and little capacity” whilst another said it had “large capacity and strong relationship with governments”. One respondent commented that “UNEP came to [this country] very early and there are no projects yet in May”.

On the other hand, the Joint Unit was also often perceived as having not enough capacity to play a full role in emergencies. One respondent cited two specific cases of humanitarian emergencies where there were considerable environmental concerns and the Section was not at all present.

Two additional factors appeared to weigh on the complicated relationship between the two entities. The first is a discussion on what constitutes the “acute phase” of a disaster. Whilst there is agreement on the definition of what is “life threatening” and on the actions that are “life saving”, the recognized need to address some longer-term issues during the very early stages of disaster response adds an element of confusion even if mandates about emergency/long term were clear and fully respected.

The second is the fact that the two entities are actually not completely independent. The Joint Unit is not only “joint” in name – it is in fact owned at 50 percent by the very same UNEP which is seen as a sort of “competitor” in emergencies. At the same time, some respondents indicated that the Unit may take positions and express views that commit UNEP possibly without proper consultation and agreement.

UNDAC is a key tool

The United Nations Disaster Assessment and Coordination (UNDAC) mechanism was also mentioned by the majority of respondents as an important tool to address environmental concerns in emergencies.

As to the opportunity of systematically including environmental experts in UNDAC missions, opinions of the respondents diverged significantly. One group thought that UNDAC teams sent out just

a few hours after a disaster should not include an environmental expert. Rather, in their opinion, UNDAC teams should include one or more members with a good level of environmental awareness, capable of identifying major sources of acute environmental risks and ready to call upon more specialized expertise when that is needed.

Another group (which – significantly – included respondents with direct, hands-on experience in dealing with acute environmental problems) thought that at least one environmental expert should be sent with UNDAC missions as a matter of routine. In this group’s view, humanitarian generalists and disaster managers would not be able - even if provided with some training – to give sufficient attention to urgent environmental issues.

In any case, there was agreement that the Joint Unit should a) provide technical backstopping, including the management of a roster of experts ready to be deployed at very short notice in case more specific expertise is required by the UNDAC team, and b) ensure that a certain number of environmental experts take part in every UNDAC induction course.

It was also recommended that stronger ties should be established between UNEP and UNDAC.

**Other entities
intervene as
well**

A number of other entities were also mentioned as having a role in the management of environmental issues during emergencies:

- International Atomic Energy Agency
- World Health Organization
- International Maritime Organization
- UN High Commissioner for the Refugees
- Environmental sections of the Regional UN Economic Commissions
- International Federation of Red Cross and Red Crescent Societies
- Basel Convention
- FAO
- Specialized bodies for specific emergencies such as forest fires
- Specific capacities within bilateral donors (requested to intervene directly by the affected governments)
- Specialized technical and scientific bodies

Some issues

Respondents identified certain issues of specific environmental

are perceived as being in a limbo between environment and humanitarian assistance

concern that are generally addressed as part of overall humanitarian response operations.

For instance, the contamination of water resources (an environmental concern) is typically addressed by humanitarian agencies (especially WHO and UNICEF) through programs for the provision of clean drinking water and the health risks connected with sewage are typically addressed through sanitation programmes.

The general agreement was that such issues should be in any case included in the environmental assessment carried out at the early stages of a disaster and raised as concerns even if they will not necessarily be addressed by environmental actors - humanitarian agencies (or, in many cases, the government of the affected state) will often address such during the relief phase. (ed. There is a structural problem in this sentence)

A few more technical issues were also mentioned. Despite the fact that specific agreements and operating procedures exist between the IAEA, the Joint Unit and other partners, nuclear and radiological aspects were perceived by some respondents as being in a grey area as to who has the responsibility to address them. (I think only by some) The same is true for industrial accidents in the UN ECE area of competence. (also by some) Marine pollution was also mentioned as a trouble area as the IMO has so far not responded to calls for practical interface procedures with the Joint Unit.

Environment not a customary sub-group of emergency coordination.

In the opinion of the respondents, environment should become one of the thematic groups into which the coordination of emergency operations is divided only in those situations when urgent environmental issues are a major concern.

4. The Tsunami response

Generally good international support

Two thirds of the respondents agreed with the statement that “The level of support [in dealing with urgent environmental issues] made available through the international tools, mechanisms and organizations was generally adequate”.

One respondent commented that support to governments was sufficient during the early phase but insufficient for the mid-long term. Another one thought that certain areas were better covered than others. A third one disagreed with the statement, saying that issues were properly identified and raised but there was very limited follow-up.

Generally insufficient role of experts but generally good representation in UNDAC teams

Two thirds of the respondents disagreed with the statement that “Environmental experts were available in a timely manner and sufficient number”.

This is somewhat at odds with the reality of the deployment in the immediate aftermath of the tsunami: two experts were sent to Sri Lanka on the very day the disaster struck, one was sent to the Maldives the following day and (although he was accepted much later) an expert was made available for Indonesia on December 27th. Experts were readily offered to India, Thailand and Yemen as well.

Nevertheless, one respondent said that the number was sufficient but the deployment was too late and two others said exactly the opposite: “the deployment was timely but not sufficient” and “one expert was available immediately, but one expert was not sufficient”.

On the other hand, although concerns were raised by a few on the procedural aspects of the UNDAC deployments, the majority of the respondents agreed that “Environmental experts were adequately represented in UNDAC Teams”.

One respondent felt that there was, in certain cases, a conflict of interest between UNDAC members who belong to the UN system and independent experts sent by governments, who are not always sufficiently considered by the other team members and by the UN agencies on the ground.

Requests for assistance handled in a timely manner, but...

Six respondents agreed that “Requests for assistance in the environmental sectors were handled in a timely manner”, while three disagreed. The other respondents were uncertain, and this may expose the fact that there is no unanimity as to what constitutes a request for assistance.

One respondent said “there weren’t any [requests]”, another one confirmed “strictly speaking, there was no specific request – only generic requests for international assistance”. A third one was “not sure there was any specific request”.

In one unstructured interview, the issue came up that in some cases, rather than governments actually requesting assistance,

some international organizations in fact offered specific kind assistance to governments at a very early stage, and, where the offer was been accepted, characterized it as a 'request for assistance.'

Another point that emerged during the interviews adds to the unclarity and possible conflict of competencies among different environmental entities that was described above. In some cases, UNEP reportedly received requests for assistance in dealing with urgent environmental issues and acted on them, with little consideration for the fact that others (in particular the Joint Unit) were officially mandated and better equipped to do that.

Many problems connected with the environmental assessments

With a couple of exceptions, all respondents said that they were either somewhat or fully familiar with the environmental assessments carried out by various agencies in the aftermath of the tsunami. This, in fact, was a subject that triggered quite a number of spontaneous comments – some of them rather negative.

The most serious set of problems concerned the methodology used in the rapid assessments. First, there appear to have been a serious problem of consistency in the methodology used across different countries. Not only different methodologies – or different “declinations” of the same methodology - were used in different countries and different parts of the same country, but in at least one case – by admission of the very same person who carried out the assessment –, no set methodology was used (“I didn’t use any methodology – just common sense”).

Second, there is a strong sense that the existing Rapid Environmental Assessment Methodology most experts referred to (and, in particular its community participation part) is in fact not suited for “rapid” assessments in the immediate aftermath of a disaster.

As there is no established and universally recognized/utilized methodology for assessments, it comes as no surprise that some respondents said that the reports issued following the assessments were inconsistent with each other. One respondent viewed the reports as “a series of snapshots put together, not chronologically ordered and easy to understand only for somebody who was on the ground”.

Asked whether they thought information about environmental issues was handled appropriately, the vast majority of the interviewees agreed. Strong reservations, however, were expressed by the UNEP respondents, who thought that reports being published with a UNEP logo (as the ones issued by the Joint Unit) should be cleared with UNEP even if they relate only

to urgent environmental issues. This issue is indeed tricky, and suggests again coordination/collaboration problems between the two entities, as well as the already mentioned lack of clarity as to what constitutes an “urgent environmental issue”. As stated by the UNEP respondents, the problem is that a report stating that “there are no urgent environmental issues of concern” can be read – and in fact generally does – as UNEP saying that there are no environmental concerns as such.

Lack of conceptual clarity, duplication of efforts and problems of coordination were referred to also concerning the relationship between assessments for acute short-term issues and for the long-term recovery and rehabilitation issues

Finally, there was a general sense that the information coming from the rapid environmental assessments was adequately reflected in the relief and early rehabilitation programmes.

Differing but mostly negative views on the Flash Appeal

The question on the way/extent in which environmental concerns were reflected in the Flash Appeal triggered a broad range of answers, mostly of which negative.

Some respondents thought that there was no or insufficient integration of environmental concerns into the projects of the Flash Appeal, or that environmental concerns were there but not really visible. One other thought that there was even too much in the Flash Appeal, including some long-term issues that went clearly beyond the duration of the appeal itself. Somebody else also noted the confusion between long-term and short-term concerns. The presence of longer-term concerns, however, (reportedly owing to pressure from local governments) was commented upon positively by one other respondent. Two said that the Appeal was just about right and a few could not answer.

On the process of the Flash Appeal itself, it was noted that the extent to which environmental concerns are reflected in an appeal depends on the level of environmental awareness of those who actually write the appeal.

Another process-related weakness was that there appeared not to be a systematic way for governments to inject their environmental concerns into the Flash Appeal.

National authorities with generally low awareness of urgent environmental issues, low capacity to

Similarly to what emerged in previous questions concerning the environmental awareness of national authorities in general, governments in the tsunami-affected area have – according to the respondents – little knowledge about and concerned for urgent environmental issues in the aftermath of the disaster. The Government of the Maldives was mentioned by a few interviewees as having a comparatively greater awareness, but mostly

address them and little knowledge of what the international community has to offer

concerning possible damage to the coral reef. Other respondents insisted that national authorities at the local level (province, town) had greater awareness owing to their proximity to and knowledge of the potential threats. A group of answers also pointed to a marked difference in the appreciation of urgent environmental issues between experts in the governmental agencies/ministries and their political masters.

The capacity of national authorities to handle urgent environmental issues was also deemed as rather limited. This was considered by some of the respondents as a consequence of the general lack of awareness, and by others as a consequence of lack of resources available from the national budget. Again, a few answers pointed to differences between “those who know” and “those who decide”. Furthermore, whatever little capacities might have been available at local level, they were severely affected by the disaster itself. A group of respondents also proposed a ranking of the capacities of the different governments of the region.

Finally, interviewees were generally of the opinion that national authorities know very little about what the international community can offer to address urgent environmental issues. The situation might have improved a little after the tsunami, but this remains a serious issue that – it was suggested – should be addressed through ad-hoc information campaigns.

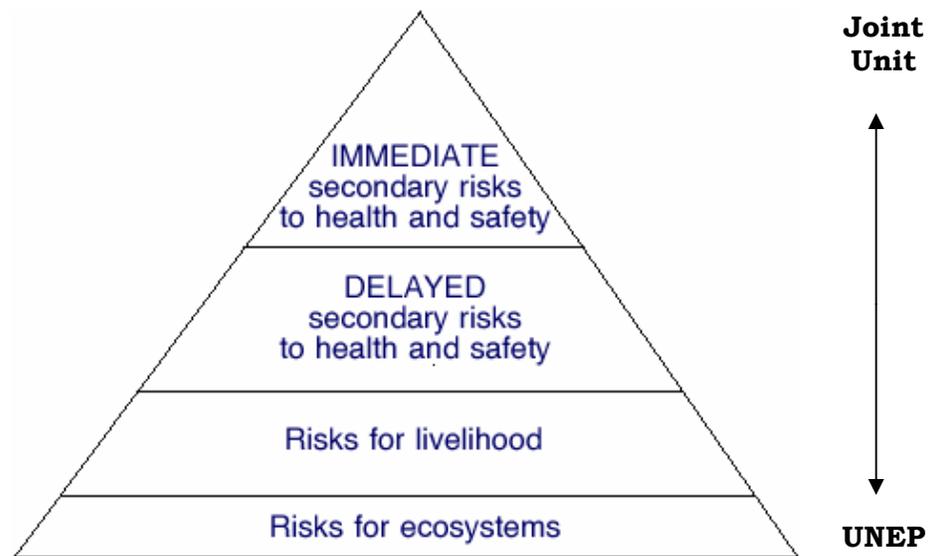
6. Lessons learnt

Many of the following recommendations were formulated by the respondents while answering the last question of the interview questionnaire, which was an open-ended question on the main lessons learnt from the Tsunami experience. Other recommendations and suggestions emerged from the answers to specific questions in the previous sections of the questionnaire.

A clear division of roles and responsibilities between UNEP and Joint Unit must be respected

The main, strong, strategic-level recommendation concerned a clearer division of labour between the two main partners: mandates, roles and responsibilities of UNEP and the Joint Unit should be clarified and – what is most important – respected. It has even been suggested that formal procedures should be developed on who should do what in addressing environmental concerns related to emergencies.

The way in which roles and responsibilities should be attributed was clear to all respondents: the two top levels of the pyramid “belong” to the Joint Unit, whilst the bottom two belong to UNEP and other developmental agencies.



Integration of short- and long-term concerns

A clarification of the respective roles of the two main players should also lead to a better integration of the response to short-term and long-term concerns.

Ideally, assessments carried out in the first 48-72 hours after a major disaster should aim at identifying major secondary risks through a relatively simple checklist that should become a standard feature of the overall emergency assessments. If such risks are identified, specialized expertise should be quickly mobilized for further assessments and quick response.

The initial environmental assessment should also look at those issues that are not immediately life-threatening but may become so at a later stage if not dealt with immediately. Even if such issues are normally the concern of humanitarian agencies and of governments of the affected states, it was suggested that they should be included in the environmental checklist.

It should also be a duty of the entities dealing with the urgent environmental concerns to make sure that the issues they have identified are actually addressed, and that the activities deployed in the course of the relief operation take into due account the recommendations made by the environmental experts.

As the most acute phase of the response is over, intermediate levels of the “pyramid” of concerns (the environmental consequences of the disaster on the livelihood of the affected population) should be assessed and programs should be designed to address them.

Finally, the environmental consequences of the disaster on ecosystems and habitats should be assessed in order to be addressed through programs in the reconstruction/rehabilitation phase.

It is not difficult to see that the expertise and capacities required at each stage are different. This should help in the attribution of roles and responsibilities among different actors. At the same time, it is not difficult to see that the three stages belong to a single continuum, and this should facilitate a more integrated approach to short-term and long-term issues.

**Strengthening
the Joint Unit**

For over a decade, the Joint Unit has responded in an overall satisfactory manner to a large number of mainly man-made emergencies (technological disasters). The recent tsunami experience is representative of the new challenges faced by the Unit: responding to the acute environmental consequences of increasingly severe natural disasters affecting an ever increasing number of people.

By admission of its own members, the Joint Unit could raise to the challenge of providing support to the tsunami response “out of good luck”, meaning that it could count on a limited number of experts, who happened to be available at the time they were needed.

It is evident that, in order to fulfil its role in a more systematic manner, the Joint Unit has to be able to count on strengthened capacities. In particular, it is essential that the Unit can access financial resources in a more predictable way, and that should involve broadening its donor base.

**Supporting
“traditional”
responders**

A point raised often by the respondents was that the specific environmental expertise available within UNEP and the Joint Unit should be put at the disposal of “traditional” emergency responders, both within and outside the United Nations. As already mentioned, a pivotal role in this sense is played by UNDAC. Stronger links between UNEP and UNDAC were recommended and a technical backstopping function (what does it mean?) for the Joint Unit was proposed in support of UNDAC missions.

The Joint Unit, in particular, should on one hand be able to immediately access highly specialized expertise to answer

technical questions that may arise in the course of an UNDAC mission and, on the other, manage a roster of experts available to leave at very short notice in case an UNDAC mission identified an urgent environmental threat that needs to be addressed.

Besides UNDAC, it was recommended that both UNEP and the Joint Unit establish stronger links with the humanitarian community at large in order to be able to provide policy guidance and technical advice.

It was also suggested that a knowledge base and technical guidelines should be developed and put at the disposal of “humanitarian generalists”.

Educating national authorities and building capacities

A common finding of practically all lessons learnt exercises carried out in the aftermath of major natural disasters concerns the weakness of the national disaster management institutions. This particular exercise was no exception, and many respondents insisted on the need of building and reinforcing the capacities of national authorities in dealing with the acute environmental consequences of natural disasters. (by the Joint Unit I suppose)

The peculiarity of this exercise, however, was that it has suggested that not only the national institutions in the tsunami-affected countries were weak, but they also had limited awareness of the importance of secondary environmental risks, and very little knowledge of what the international community can do in assisting in this particular sector.

On top of mid- and long-term capacity building programmes, therefore, it was suggested that regular, in-depth information sessions should be held by the Joint Unit with national authorities both at the capital and at local level in order to raise the profile of the environmental dimension of disasters and of the capacities that exist at international level.

In keeping with what suggested in a previous section, it is clear that such capacity building and information sharing activities should be carried out respecting the division of mandates between urgent issues and ecosystem concerns.

Raising awareness with UN agencies

Another point that emerged rather strongly from this preliminary study is the fact that many operational agencies of the United Nations system have very little awareness of the potential environmental threats in the aftermath of disasters and – what is even more worrying – of the potentially adverse environmental consequences of humanitarian aid.

Information and advocacy initiatives should therefore be undertaken by the Joint Unit.

**A new
assessment
methodology**

On a more technical level, this study indicated a perceived weakness of the existing methodologies for rapid environmental assessment.

First of all, it was strongly recommended that all environmental assessments should be carried out following agreed-upon methodologies in order to ensure comparability of the results and consistency in the reporting formats.

Secondly, it was recommended that an “immediate” (as opposed to the existing “rapid”) environmental assessment methodology should be developed. This could amount to the checklist described above, to be used not only by environmental experts but also by the first humanitarian workers deployed to a disaster area.

**Strengthening
the appeal
process**

A serious weakness emerged, particularly during the unstructured interviews, concerning the system for assembling inter-agency appeals following natural disasters. This was seen by interviewees as a “general” weakness, exacerbated by – but not unique to – the unprecedented scale of the tsunami disaster.

On top of a numerous generic recommendations for a much more systematic process for drafting inter-agency appeals, which are not reported here as they go beyond the scope of this study, respondents to this study recommended that urgent environmental concerns (those who should be addressed during the period covered by the flash appeal) should become a standard feature. Mechanisms should also be identified to ensure that the environmental component of any flash appeal adequately reflects the priorities of the Government of the affected state.

List of interviewees

Name	Organization
Abdullahi, Majeed	Maldives Government
Andre Louhanapessy	Indonesia Country Team
Brooke, Roy	OCHA/UNEP Joint Unit
Carstensen, John	UNEP
Christensen, Kenn	European Commission
Fernando, M J J	Sri Lanka Government
Godson, Jon	UNEP
Harding, John	ISDR
Ibu Nanny Hudawati	Indonesia Government
Jensen, David	UNEP
Kelly, Charles	Expert
Lacey-Hall, Oliver	OCHA Indonesia
McGoldrick, Jamie	OCHA
Negrelle, Raquelle	Expert, UNDAC member
Nijenhuis, Rene	OCHA/UNEP Joint Unit, UNDAC member
Peter, Thomas	OCHA, UNDAC member
Rinne, Pasi	UNEP
Sakharov, Vladimir	OCHA/UNEP Joint Unit, UNDAC member
Van Dijk, Sander	Expert, UNDAC member