

***Environmental Emergencies
Training and Contingency
Planning Workshop:
Outcomes, recommendations and
proposed next steps***



Sana'a, Yemen January 22-25 2006

Joint UNEP/OCHA Environment Unit



United Nations Office for the
Coordination of Humanitarian Affairs



United Nations
Environment Programme



الجمهورية اليمنية - وزارة المياه والبيئة
Republic of Yemen - Ministry of Water and Environment

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Cover photo: View of Sana'a, Yemen

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I. Introduction

Overview

In response to a request from the Ministry of Water and Environment (MWE) in the Republic of Yemen, the Joint UNEP/OCHA Environment Unit (Joint Environment Unit) organized a four-day, multi-disciplinary workshop in Yemen to work in close partnership with national government and other stakeholders to improve preparedness and prevention for environmental emergencies. The workshop took place in Sana'a, Yemen, from 22-25 January 2006. This report describes the workshop discussions (p.7), its outcomes (p.11), provides guidance for next steps and follow-up activities (p.13), and lists possible follow-up projects donors could consider (p.16). Intended audiences for this report include Government of Yemen authorities, donors, relevant international agencies and NGOs.

Country context

The Republic of Yemen is located in the Arabian Peninsula and borders Saudi Arabia on the north, Oman on the east as well as the Red and Arabian Seas.

Yemen is vulnerable to a range of emergency and disaster risks. These include flash floods, earthquakes, industrial accidents, extreme climate events, desertification, soil erosion, landslides, mudflows, locust invasions, depletion of groundwater aquifers and disease epidemics. Additional pressures include civil conflict, population growth, and urban migrationⁱ.

Despite a range of changes in its human development situation, including increased life expectancy and decreased infant mortality, Yemen remains one of the least developed countries in the world. While the Human Development Index (HDI) value increased from 0.242 to 0.448 in the last decade, the Global Human Development Report for the year 2000 ranks Yemen 148 among 174 countries in terms of the HDI.ⁱⁱ

High vulnerability of its population due to its low level of human development can increase the severity of emergency situationsⁱⁱⁱ.

Disaster management structures in Yemen

In response to these disasters risks, a number of efforts have been undertaken to strengthen disaster management in Yemen.

Government steps include:

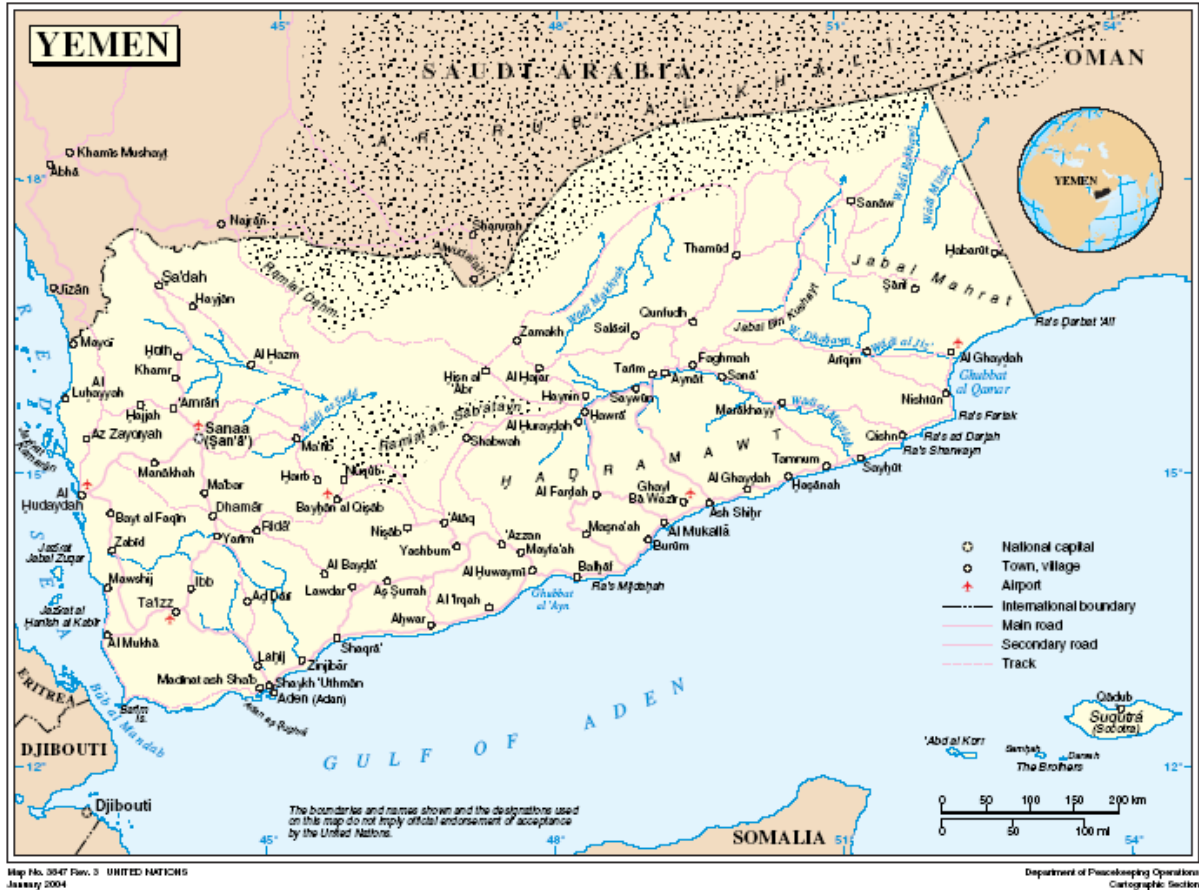
- Enactment of the Decree No. 24 on Civil Defense (CD) on April 1997, which supports effective disaster management. Articles under this decree outline Civil Defense procedures and the composition of the 'Supreme Council of Civil Defense,' established under the chairmanship of the

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is the United Nations mechanism to mobilize and coordinate the international response to environmental emergencies, including natural disasters with major environmental impacts.

Minister of Interior. The temporary powers of the Civil Defense are also outlined in the Decree.

- In 1997 the Council of Ministers issued decree No. 52 on forming a committee to prepare an approach for Disaster Management.



Overall, disaster management in Yemen is the responsibility of the Minister of Interior, which is responsible for the Supreme Council for Civil Defence and a National Disaster Management Unit that coordinates disaster management activities^{iv}. Annex 1 illustrates the overall disaster coordination structure in Yemen.

Based on these decrees, the United Nations Development Programme in Yemen is developing a first National Disaster Management Plan (NDMP). This is intended to be an overarching initiative that brings together all Yemeni and international stakeholders to develop a coordinated disaster prevention, preparedness and response structure. At the time of writing a draft was being circulated within government agencies. The NDMP document provides more details on government disaster management structures.

At the level of United Nations agencies, a draft contingency plan has been developed to consolidate agency and sector specific plans in a coherent framework. This plan identifies scenarios for tribal conflict, localized flash floods, sudden outbreak of disease, earthquakes, civil unrest and drought^v.

In 2003, an Environmental Emergencies Unit (EEU) was created by MWE as the main departmental structure to initiate and coordinate activities to reduce risks from environmental emergencies. The Unit consists of a Director General and four staff members (environmental and chemical engineers). EEU is one of three General Directorates under a Deputy Minister of Environment. Its principal function is to be a source of technical information, advice and resources that can be provided to front-line responders through the country's disaster management structure, to reduce risks from environmental emergencies. The EEU is a member of, and operates within the context of, the Supreme Council for Civil Defence. The main authority for the EEU and its environmental emergency and risk reduction mandate is Presidential Decree No. 218 (2005). Since 2003, EEU has undertaken a number of important initiatives including starting an emergency and contacts database, carrying out rapid environmental assessments following disasters, adding environmental emergencies to the National Environmental Statement, proposing updates to national environmental legislation and developing a network of focal points in Yemen. Additional details on the structure and tasks of the EEU are available in Yemen's National Report on Disaster Risk Reduction^{vi}.

Workshop context, objectives and limitations

Following the Indian Ocean tsunami of December 2004, the MWE of Yemen requested the assistance of the Joint Environment Unit to assess the capacity of the EEU and develop a proposal to enhance its capacity. This resulted in a mission that included one person from the Joint Environment Unit and an international disaster expert. Together with staff from MWE, a number of needs were identified and documented^{vii}. The 22-25 January workshop was developed in consultation with MWE and the United Nations Development Programme as a response to these needs (see Annex 7 for annotated agenda). Three main objectives were identified for the workshop:

- Provide Rapid Environmental Assessment training to ensure that, in the event of a disaster, acute or life-threatening environmental impacts can be identified;
- Support national awareness and preparedness activities and contingency planning (CP) efforts by presenting the Awareness and Preparedness for Emergencies at a Local Level (APELL) programme; and,
- Develop a framework for a national environmental CP that is fully integrated with existing plans and efforts.

A five-member multi-disciplinary team consisting of an expert in rapid environmental assessment; a UNEP-APELL expert; a contingency planning expert; an environmental emergencies expert and a Joint Environment Unit staff member was selected to work with Yemeni authorities to meet these objectives.

Four days were sufficient to achieve the above-noted objectives. However, this did not include the development of a full or final contingency plan, but rather a draft framework. Time constraints also restricted the group to a single site visit. In most respects, the workshop should be viewed as an initial step, rather than the conclusion of a process that will reduce environmental emergency risks.

II. Workshop Summary

Strategy

The overall strategy for the workshop was to a) establish a common baseline of information for all participants through a variety of presentations, and b) undertake group work to meet workshop objectives.

Accordingly, the first day of the workshop consisted of an opening statement by the Minister of Environment His Excellency Dr. Al-Eryani, presentations by Yemen authorities to describe the country's environmental context (please see Annex 8 for background material); by UNDP to describe the National Disaster Management Plan; and by the mission team to introduce APELL and disaster preparedness concepts, share lessons learned from other environmental emergency preparedness efforts in the region, describe international response mechanisms, and introduce contingency planning.

Following presentations, participants were divided into two groups, one of which participated in REA training, and the rest of whom were engaged in the development of the contingency plan through interactive group work using established tools and methodologies, as described in more detail below. A list of participants is contained in Annex 3.

Rapid Environmental Assessment training

The REA training was based on a methodology developed by CARE International and the Benfield Hazard Research Center with support from USAID and the Joint Environment Unit. It used as a basis the *Guidelines for Rapid Environmental Assessment in Disasters*, and involved training in organizational level assessment and community level assessment to train participants to identify acute or life-threatening environmental risks arising from a disaster. The materials used for the REA short course were adapted from REA training modules and other material available on the Benfield Hazard Research Centre website^{viii}. The Joint Environment Unit translated relevant rapid environmental assessment guidelines into Arabic and distributed these to participants.

APELL training

APELL is an awareness and preparedness methodology that consists of two main elements:

- Creating and/or increasing community awareness of the possible hazards involved in the manufacture, handling and use of hazardous materials, and the steps taken by authorities and industry to protect the community from them; and,
- Developing, on the basis of this information, and in cooperation with local communities, emergency response plan involving the entire community.

The APELL process is implemented through a 10-step approach to identify stakeholders, risks, resources and procedures relevant to sound emergency preparedness^{ix}.

The key concepts, elements and tools of the APELL process were presented to participants, and a number of the tools integrated into the development of the group work, as described below.

Development of a Contingency Planning framework

Contingency planning is a management tool to ensure that adequate preparedness, coordination and response arrangements are in place in the event of an emergency. This is achieved through participation in the process of planning itself, and through follow-up actions and revisions of the plan^x.

The contingency planning segment of the workshop was based primarily on group activities, on the premise that all elements of an effective plan already reside within the country and simply need to be assembled through a facilitated, participatory process. It was guided by existing methodologies for developing contingency plans including the *Guidelines for the Development of a National Environmental Contingency Plan*^{xi}, developed by the Joint Environment Unit and translated for the workshop, and the *Inter-Agency Contingency Planning Guidelines for Humanitarian Assistance*, prepared by the Inter-Agency Standing Committee^{xii} (IASC). These documents provide a basis for developing plans that describe the sort of emergencies and scenarios that must be prepared for, and plans that must be put in place to prevent emergencies and respond effectively to them when they occur.

Key elements of these activities were:

- A visit to the site of a potential environmental emergency, around which an emergency scenario was devised, and group work to analyze the risks at the site,
- A simulation to respond to a potential emergency scenario in the water treatment plant,
- Group work to analyze the risks at the site and to discuss immediate response options,
- Group work to describe other likely disaster scenarios in Yemen, and the measures required to address them; and,
- Group work to extract from the above, key elements of a contingency plan.

Site visit and emergency scenario

In Sana'a, water is pumped from underground reservoirs, and treated with chlorine before it is distributed within the city. The group was presented with an imaginary scenario of an emergency at the Sana'a water treatment plant involving an explosion of stored chlorine (see Annex 2). During the visit, the group visited a small warehouse where approximately 300 65kg containers of

pressurized chlorine are stored. During the visit and subsequent simulation exercise it was observed that the facility could present a number of risks:

- The volume of chlorine at the plant is large, with an estimated 19,500 kg of chlorine stored in a single location. If released, this amount of chlorine could produce an estimated 10000m³ of chlorine gas, with potentially catastrophic effects on the surrounding population,
- The treatment plant is in a densely populated area,
- Exposed electrical wires and garbage were located near the chlorine storage area, creating a risk of fires that could lead to the rupture of the chlorine cylinders; and,
- The storage area was difficult to access and obstructed by debris, which would make any response efforts difficult.



Picture 1. Chlorine tanks at the Sana'a water treatment plan. A simulation exercise was conducted at this facility as an input into the draft contingency plan.

Following the site visit, the group assessed risks using standard APELL tools (please see Annex 5), and collectively determined that the site did indeed present serious risks for a humanitarian catastrophe in Sana'a.

The group identified a range of practical risk reduction options, many of which are available at a low cost. These include moving the majority of the chlorine

tanks to an unpopulated area, and removing the wires and garbage that present a risk of fire. The group was then led through an exercise to develop and prioritize possible response options.

Subsequent group activities identified a range of other likely environmental emergency scenarios in Yemen including:

- Accidents such as fires, leaks or explosions at pipelines and oil terminals,
- Accidents resulting from the transportation of chemicals,
- Land-based effects of tanker or shipping spills and accidents,
- Risks of leaks or fires at pesticide storage facilities (there is reportedly a major pesticide storage facility in Sana'a, although the group did not have time to visit) and other facilities containing hazardous materials,
- Industrial accidents at refineries and factories, for example water bottling facilities and brick factories,
- Various other risks including from waste water treatment plants, and retail gas facilities.

As with the water treatment plant scenario, the group analyzed the risks from these scenarios using APELL tools, described possible risk reduction options, and, finally, extracted from these various scenarios the elements that should be included in a contingency plan.



Picture 2. Workshop participants identified debris blocking the entrance to the chlorine storage facility as a factor that could increase the risk of an industrial catastrophe in Sana'a.

III. Workshop conclusions and recommendations

Workshop conclusions

REA training

The two day (14 classroom hour) short course led to a general understanding of the process involved in conducting an REA, and focused on key points needed to define what needs to be done in a rapid environmental impact assessment. The 28 participants were drawn primarily from the Ministry of Water and Environment. Greater participation from organizations directly involved in disaster management operations, including the Ministries of Interior and Health and NGOs present in Yemen, would be beneficial in any follow-up activities. The participants ideally need additional training in conducting a community level assessment and integrating this assessment into a full REA outcome, and indeed requested this. A full report on the REA training will be available on the Benfield Hazard Research Center website^{xiii}. The REA guidelines, translated into Arabic by the Joint Environment Unit, will also be posted on the Joint Environment Unit and Benfield Hazard Research Center websites to ensure that they can be used in Yemen and elsewhere in the region.

Site visit

The site visit to the water treatment plant provided a practical example of one type of potential environmental emergency that Yemen faces. It was, for many participants, their first opportunity to see such a facility and estimate the risks posed. The inspection of the site could and should lead to practical activities that reduce the risk to Sana'a residents.

Possible areas of focus for the Environmental Emergencies Unit

The content of the contingency plan depends on the capacity of the EEU, and the roles envisaged for it. The workshop provided an opportunity to consider a range of options. In his opening comments at the workshop, the Minister of Environment His Excellency Dr. Al-Eryani described a 'technical support role' for the EEU, one in which it does not duplicate existing response functions of other organizations, but rather, supports these entities.

This theme was elaborated during the workshop, with a general conclusion that the EEU should be support operation stakeholders, primarily as a provider of information and technical advice to other agencies engaged in disaster management, and supporting their operation roles, as illustrated in Diagram 1. This requires a) the development of an appropriate environmental knowledge base and b) establishing the channels through which this information can be effectively disseminated at preparedness, prevention and response phases of the disaster management cycle within the overall NDMP context.

Such a structure and functions would respect the capacity limitations of the EEU, and integrate well into the broader disaster management structure of the government. They would also help EEU overcome a number of current limitations including a lack of awareness about its existence within Yemen, and a lack of internal facilities and resources. Discussions between the mission team and MWE staff led to the development of initial recommendations for priority areas of action for the EEU in support of these objectives. These are contained in Annex 4.

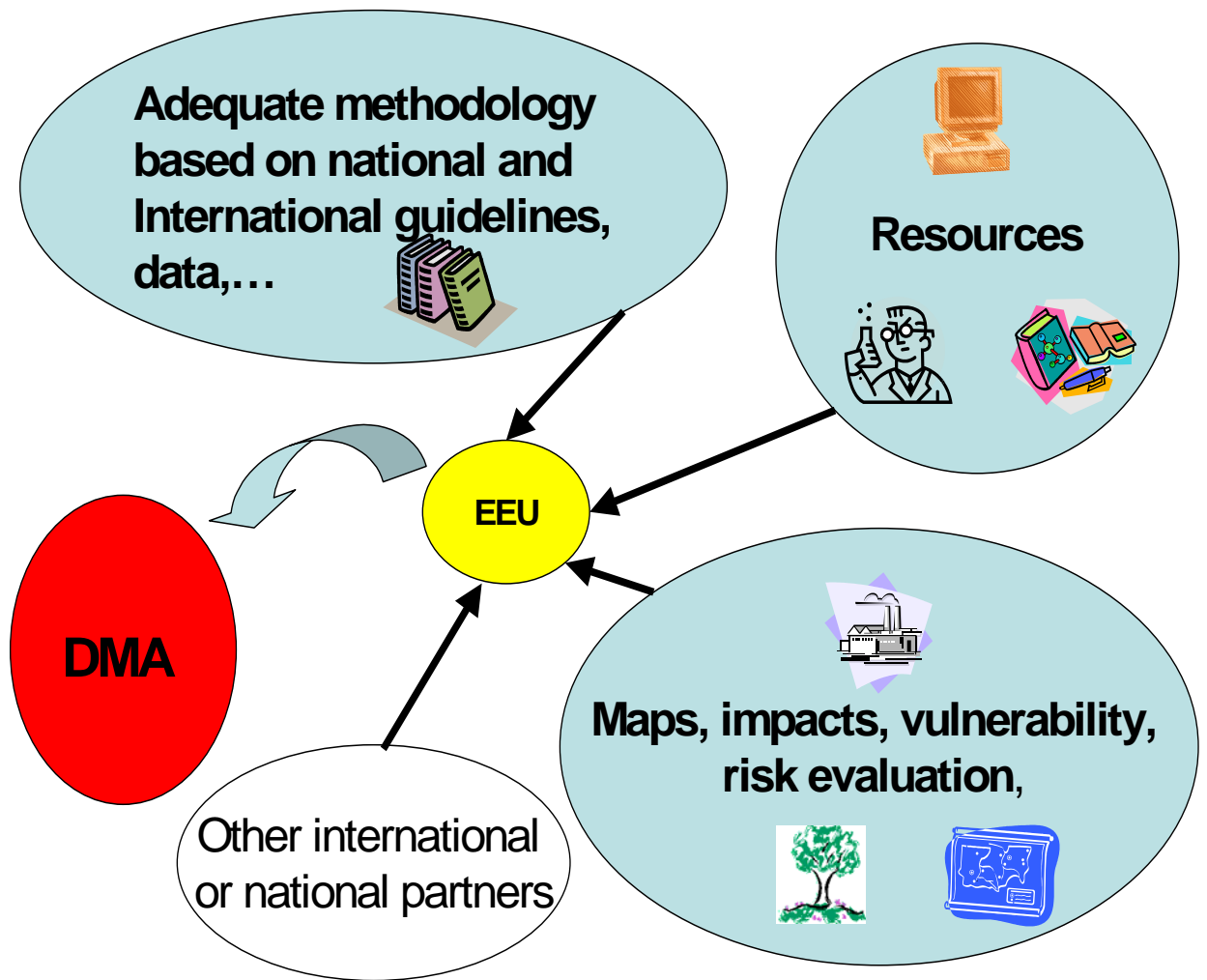


Diagram 1. The Yemen Environmental Emergencies Unit (EEU) could support operational disaster management authorities (DMA) in Yemen by ensuring they have appropriate information and technical support in preparedness, prevention and response phases of the disaster management cycle.

Contingency planning

The results from the contingency planning activities include:

- Through three days of interactive activity, the group enhanced their appreciation of the range of environmental emergency risks present in Yemen, and of the often inexpensive and practical solutions that can reduce the threat that they pose,
- Initiation of a participatory process to develop an environmental emergencies contingency plan. (According to IASC contingency planning guidelines it is this process, as well as the final product, that is important in the development of an effective contingency plan),
- Group interaction raised awareness of the need for collaborative, integrated activity to tackle these risks, and to finalize the contingency plan; and,
- A draft contingency plan framework was developed based on the input and feedback of workshop participants (please see Annex 6). The draft contingency plan includes examples of the types of environmental emergency scenarios for which Yemen must be prepared. It needs to be finalized by MWE in collaboration with relevant organizations, bearing in mind the structure, role and limitations of the EEU, and using a broader and more realistic emergency scenarios, as recommended below.

The Environmental Emergencies Contingency Plan and Yemen's National Disaster Management Plan: *how do they relate?*

UNDP is developing a National Disaster Management Plan in collaboration with Government of Yemen Authorities (see p. 5). A first draft is currently being circulated amongst relevant organizations.

The workshop and its results take place within this overarching disaster management framework.

Once finalized by Yemeni authorities, the environmental emergencies contingency plan should be an integrated part of this larger national disaster management planning plan and framework.

Recommended next steps

The group activities and discussions helped to establish a number of suggested priorities for the Environmental Emergencies Unit, which have been presented by the mission team to the EEU Director and to the Minister of Water and Environment. The mission team has agreed to provide ongoing technical support and advice to the EEU, as required, to ensure success in these areas.

Immediate next steps (0-3 months)

1. Finalization of contingency plan, including:

- Dissemination of the draft CP to all participants at the 22-25 January workshop for further discussion and consultation,
- Meeting of all workshop participants to discuss the draft CP and amend it as appropriate,

- Translating the draft document in accordance with the outcomes of the consultation,
- Broadening the consultation base and, in collaboration with a group that should include relevant government ministries, responders, NGOs such as OXFAM, CARE, World Vision, and MSF:
 - Present the draft plan and seek endorsement,
 - Agree on the establishment of sector working groups, and agree on lead ministries and participants,
 - Establish sector response working groups and develop their Terms of Reference including objectives, activities, expected outcomes, and timelines,
 - Develop a schedule of meetings in sector working groups to present and discuss draft outcomes (sector response plans for specific scenarios) and finalization of those outputs,
 - Develop additional contingencies and scenarios, as needed; and,
 - Ensure that preparedness questionnaires are filled in by new stakeholders, using examples of profiles included in the draft CP.

2. Entrenching the EEU within the existing national disaster management framework, including:

- Developing a schedule for inclusive meetings with technical level staff from all relevant ministries, NGOs, and UN to share information on contingency plan and EEU development,
- Establishing a telephone/email list of relevant stakeholders who should be contacted in the event of an emergency,
- Including an improved definition of the elements of the additional contingencies (health, space, water, air, vegetation, economic impact),
- Finalizing the definition of the overall management and coordination mechanism; and,
- Defining an information management strategy.

Short-term priorities (3-6 months)

- Continue clarifying and firmly establishing EEU's role as a provider of knowledge and advice within Yemen's overall disaster management structure,
- Mapping key risks and organizing data to support risk reduction. This relatively low-cost and straightforward task would involve identifying on a map the main sites of potential environmental risks, and describing the nature of those risks. As a starting point the main potentially hazardous facilities in the Sana'a governate such as pesticide storage facilities, the water treatment plant, factories and refineries, could be noted in a database along with basic information on the nature of the risks at each site and supporting risk reduction information. In the case of the water treatment plant example, this would include gathering readily available

information on chlorine, for example, which could be available through the response structure for both preparedness and response,

- Undertaking risk assessments for identified emergencies using available public domain tools and the APELL risk assessment matrix as appropriate; and,
- Addressing risks at potentially hazardous facilities such as the water treatment plant. This should be done in collaboration with relevant partners in the national response structure and drawing on resources at, for example, the University and in the private sector. As noted in the water treatment plant example, many of these activities can be carried out at limited cost, using available resources.

Short-medium term priorities (6-12 months)

- EEU must ensure that the contingency plan works in practice and is kept up to date. It is therefore recommended that simulation exercises be conducted based on the finalized plan,
- The contingency plan should be revised or updated regularly, as new developments occur or latest after each six month period; and,
- EEU and the MWE should work with NGOs in Yemen to expand rapid environmental impact assessment capacity through collaborative training and field exercises.

Medium-term priorities (12+ months)

- Following completion of the above-noted activities, EEU could consider risk mapping and assessment activities in governorates beyond Sana'a.

Possible roles for donors

Some next steps can be conducted using resources available in Yemen, with some technical advice provided by the mission team.

Other activities may benefit from modest additional resources, for example, the engagement of national consultants to assist in the completion of risk mapping. To assist donors in their decision-making, a list of indicative possible projects that could be developed further, are described below in Table 1.

The Joint Environment Unit and mission team members would be pleased to provide more specific views, in collaboration with Yemeni

General recommendations

An effective national disaster management system will benefit the MWE and the EEU. Accordingly, it is recommended that senior MWE staff support the continued development of the overarching national response structure.

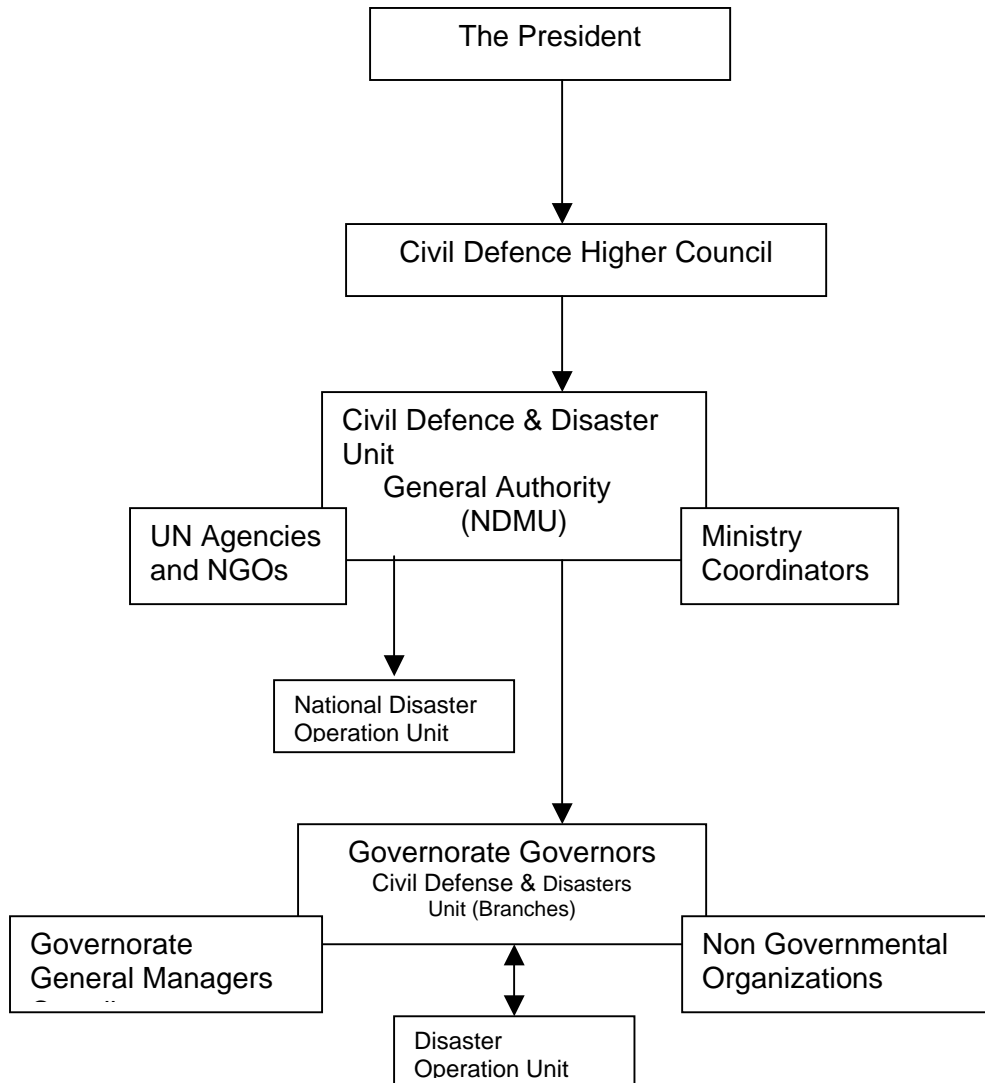
Table 1. Information to assist donors: indicative capacity building projects to build on the 22-25 January 2006 environmental emergencies workshop

Potential Project	Activities	Outputs and timelines
<i>Assist Yemeni authorities in completion of contingency plan</i>	Provide writing and technical assistance to Yemen MWE to ensure CP is completed in timely fashion.	Completed CP by mid 2006.
<i>Undertake risk mapping in Yemen</i>	Map key risks beginning on a pilot basis in Sana'a governate and then expanding to other priority governates	Map of key risks and preliminary description of required mitigation measures, to be shared within intergovernmental structure. For Sana'a: 3 months For other priority areas: 9 months To occur: immediately
<i>Risk evaluation: introduction of measures for risk reduction</i>	Training and initiation in e.g. CAMEO; train the trainers program. EEU and relevant Ministries to be involved.	Trained local staff.
<i>Emergency response planning</i>	APELL workshop in Sana'a or Aden, followed by activities in 1-2 priority cities	Risk reduction measures in place.
<i>Environmental emergency simulation exercise</i>	At site of identified hazard, conduct full simulation exercise	Government and other stakeholders, trained through simulation exercise. Identification of needs and gaps based on simulation exercise. Update emergency response plan To occur: following completing of contingency plan and identification of hazardous facilities.

<i>REA training</i>	Build on initial REA training with more in-depth sessions	Staff (men and women) trained in effective identification of risks following disasters. 5 day training. To occur: following CP completion
<i>Environmental Emergencies Unit and CP sustainability</i>	Undertake strategy and operational activities to ensure that EEU and CP are firmly entrenched within the larger National Disaster Management Plan, and therefore sustainable (e.g. strengthening information management).	Long-term sustainability of efforts

Annex 1

Note: The disaster management structure in Yemen, as described in the draft National Disaster Management Plan. As a participant in the NDMU, the Environmental Emergencies Unit is a component of this overall structure.



Annex 2

Note: The following information was provided in Arabic to workshop participants as the basis for an emergency simulation as the Sana'a water treatment plant.

Simulation Exercise Water Treatment Plant, Sanaa, Yemen

Exercise Description:

This brief exercise is to simulate the response to a major incident in the capital city of Yemen, Sanaa. The objective is to focus on elements of a coordinated response by members of the Government of Yemen, the UN agencies, NGOs, IFRC, and others.

The exercise runs for 2 hours at the Sana'a water treatment plant.

Scenario:

At the water treatment plant, a lot of chlorine cylinders (about 600 kg) are stored both outside and inside a locked storage room. There is rubbish around the cylinders that could easily catch fire.. There is a possibility that the water treatment plant will be out of order for up to 5 days. In this hypothetical scenario, 200 people are killed, and about 1000 people are injured, among them children, pregnant women, and elderly people.

Reaction of chlorine: the vapor pressure will surpass the mechanical resistance of the cylinders, if 70 degrees is surpassed. Cylinders will then explode and release the toxic gas. 600 kg of chlorine could potentially be released, if an accident occurs with the following impacts:

Extent of impact:

- a) **health implications:** people that live within the 1 km radius will be affected as follows: 1) blindness 2) acute respiratory problems 3) skin reactions. The elderly and small infants are particularly vulnerable and affected.
- b) **space:** outside the 1 km radius, there is little negative impact from the explosion. Inside the 1 km radius, the chlorine affects people, animals, the environment and has a potential negative impact on the economy as so far as people will not go to work due to injuries or care giving necessities. There is a primary school 100 m from the point of emission. Only the first 3 floors of buildings in the vicinity are going to be affected, as chlorine is heavier than air. Closed windows and doors will increase protection of the population.
- c) **Impact on water:** a surplus of chlorine in water will kill all organisms, but water can be used for drinking after a while. The effect is not pollution. Fish can be killed but can be eaten.
- d) **Impact on air:** can only be controlled through a waterspraying.
- e) **Impact on vegetation:** in thirty seconds, all vegetation in the 1 km radius will be burnt.
- f) **economic :** as people will stay away from work, an economic impact will be felt.

On scene weather conditions are: clear skies, air temperature 28 degrees, winds from the south east at 15 knots.

At 09.15 h the the police will receive information from the general public and the national Civil Protection Authority will be informed.

Tasks:

- a) Describe who does what where in the first response.
- b) Think about operations, security, planning, logistics, finance and define the following:

Operations:

- How is the field site personnel informed and guided?
- How is the response monitored and corrected, if need be?
- Who is in overall charge and how are the command and control structures organized. Please draft rough organigram.

Security:

- What security measures have to be put in place?
- How can the general public be protected?
- Draft a rough security plan.

Logistics:

Procurement and transportation of necessary equipment and supplies, personnel is imperative.

- How is procurement of equipment, transportation and recruitment, deployment of personnel arranged? Please describe.
- What equipment is needed?
- How to react to the huge number of people affected : injured and dead.

Finance:

- Keep donors informed for possible future fundraising.

Media:

- Who will be dealing with the media?
- What will be your main messages?

Training:

- Are all volunteers appropriately trained to be on site?

Participants in Simulation :

- 1. Head of the GoY Civil Protection Unit
- 3. – 11. GoY responsible authorities : Min. of Agriculture, Min. of Health, Ministry of Defense, Police, Ministry of Water and Environment, Ministry of the Interior, Ministry of Information, Meteorological Service, Ministry of Fishery
- 11. – 12. Media : national and international
- 13. Red Crescent
- 14. - 18 National and international NGOs
- 19. – 23. NGOs : international and national
- 24. Chemical experts
- 25. Volunteers
- 26. Donor

Annex 3

Workshop Participants
**WORKSHOP ENVIRONMENTAL EMERGENCIES REA TRAINING
 AND CONTINGENCY PLANNING**
 22-25 January 2006, Sana'a, Yemen

N°.	Name	Organization	Position
1.	Dr. Hussein Al-Gunied	MWE	Deputy Minister of MWE
2.	A.Allah A. Wali Noman	Ministry of Trade & Industry (MTD)	D Minister Assistance
3.	Msc. Faisal Ahm. Naser	Env. Protection Authority	Deputy Chairman
4.	LCol. Pilot. A. Allah Rizq Al-Babely	Ministry of Defense (MD)	Operation Administrator
5.	Eng. Abbas Ali A. Moghni	Ministry of Agriculture & Irrigation (MAI)	DG of Pesticides Dep.
6.	Dr. Derhem M. Abo Hatem	Min. of Oil & Minerals (MOL)	DG of Envi. Dep.
7.	Eng. Ahmed Al-Daolah	Ministry of Electric (ME)	DG of Safety & Obs. Dep
8.	Moh. Said G Kabir	The Ministers Council	Senior Expert
9.	Col. Esmail A Mohammed	Ministry of Interior (MI)	DG of Civil Defense
10.	Ghaleb Salman	Ministry of Local Administration (MLA)	DG of LA Unites
11.	Mr. Khaled A. Al-Wajih	Ministry of Transport (MT)	DG of Transport
12.	Mr. Moh. Moh. Salah	Ministry of Social Affairs & Labour (MSL)	DG of Occupational Health & Safety
13.	To be identified	Ministry of Health (MH)	
14.	En. Nabil Al-Monify	Ministry of Public Work (MPW)	
15.	To be identified	Ministry of Fish Wealth (MFW)	
16.	To be identified	Ministry of Communication & Information Technology (MCIT)	
17.	Eng. Saleh M AlShobaie	Yemen Economic Corporation	Technical Manager
18.	Mr. Waeil Al-Eryani	Presidential Office	DG of Env. Dep.
19.	Hadi Ahmed	Yemen Society of Env. Science	General Secretariat
20.	Abdulkhaleq Al-Ghaberi	MWE	DG of Env. Emergencies
21.	Mr. Moh. Shamsan	MWE	DG of Env.

			Programs & Policies
22.	Mr. Moh. Hodiesh	MWE	DG of Env. Conventions
23.	Mr. Yahia Al-Eryani	MWE	DG of Water Resources
24.	Eng. Ahmed Al-Shami	MWE	Director of Mon, Control, Prep.
25.	Eshraq Al-Behloly	MWE	Env. Convention
26.	Dhe Yazan Mesaar	MWE	Env. Programs & Policies Dep

EIA on Disaster Participants

No.	NAME	ORGANIZATION	DEPARTMENT
1.	ADNAN AL BABLI	Ministry of Defense (MD)	Operation Department
2.	ABDALLA ALHAMILI	Ministry of Interior	Civil Defense
3.	SENAN AL SHARAFI	EPA	EIA Dep.
4.	MOJEE AHMED	EPA	Awareness
5.	MOHAMMED JOMAAAN	EPA	Natural Resources Dep.
6.	SAMEER JAZEM	MOM, AGSME	
7.	MOHAMED ALJABARI	MAA	Env. Dep.
8.	ABDALLA ALNEHMI	OEA	
9.	AABDALKAREEM ALKOHALI	MD	Chemical Eng. Dep.
10.	SHAWKI YOSOF	ME	Check Safety Dep.
11.	ALI SOBHI	MI	Coastal Guards A
12.	ABDLKAREEM AL SABRI	MSL	Env. Safety Dept.
13.	ANWAR AL THIFANI	MT	Transport Safety Dep.
14.	MOHAMED AL SAEEDI	MWE	Minister Office
15.	Eng. MAJED ALREFAI	MWE	EEU
16.	ALI ALFALAH	MWE	Policy Dep.
17.	MAWAHIB OMAR MHFOD	MWE	EEU
18.	TAGHREED ABDULKARIM	MWE	Policy & Prog. Dep
19.	FATHALDIN ALDARMOSH	MWE	Deputy Minister Officer
20.	ADEL ALWAELI	MWE	Financial Dep.
21.	SOLTAN JOPRAN	MWE	Deputy Sec.
22.	BASHEER ALMAKWALI	MWE	
23.	FOAD AL MASHRKI	MWE	Policy Dep.
24.	WADDAH AL-MAKRAMANI	MWE	Planning Dep.

Annex 4

Note: this annex contains an overview of proposed areas that the MWE Environmental Emergencies Unit could prioritize over the next 12 months. It results from discussions between the mission team and MWE staff. Mission team members have agreed to provide ongoing advice, as required, to help ensure implementation.

Proposed activity list for the Environmental Emergency Unit: overview

Induction phase:

- Establish the EEU within the National Disasters Management Strategy
- Complete the EEU contingency plan, response scheme and mechanisms
- Establish the line of information and communication with the other responders in disaster situations-
- Develop proper links, information channels and working relations with all relevant agencies

Operational phase:

Prevention and Preparedness

- Develop the knowledge base for environment disaster prevention, preparedness, response and rabilitation
- Risk mapping Community level (Sana'a, Aden, ...)
- Risk identification
- Define measures for risk reduction and implementation
- Risk and impact assessment EEU focus: Environment
- Data Bank: with details of all Chemicals used in Yemen

EEU jointly with
EEU jointly with
EEU jointly with
EEU jointly with

Relevant agencies
as described in the
National Disaster
Management Plan

Disaster situation

- Tasks to be performed in disaster situations
 1. First alert, gather information, provide support to the first responders
 2. Monitoring, 3. Cleaning up and rehabilitation

EEU jointly with

and other relevant
stakeholders (i.e. industries)

Technical Resources

- Fax, email,wireless (national standard to be able to interact with relevant agencies in case of a disaster (i.e. first responders)
- 2 dedicated PCs for data collection,CAMEO, mapping, etc.
- Analytical capacity (Identify suitable partners - central and countrywide-, like universities, industry,.....)
- Sampling

Training

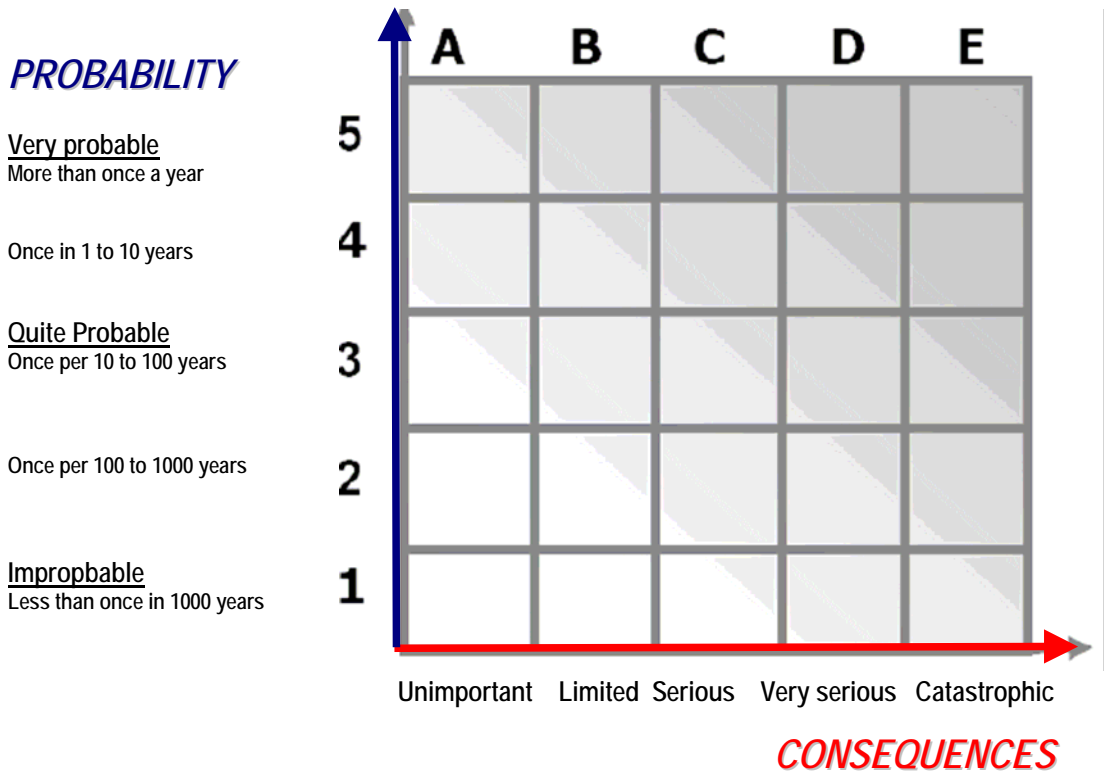
- Atmospheric Dispersion Modelling (CAMEO; includes a chemical Databank
- Risk assessment 1.Fundamentals of Risk assessment and 2. Practical and easy to use methodology
- Rapid environment assessment

Special Tasks (ongoing, in particular after disasters)

- Performance review, gaps (communication, availability and usefulness of information, interaction with other agencies, etc. to learn from lessons and to improve the EEU response efficiency

Annex 5

Note: the following are some of the UNEP-APELL tools used to conduct rapid risk evaluations for the scenarios on which the draft contingency plan are based.



RISK EVALUATION							Reference: APELL, "Hazard Identification and Evaluation in a Local Community", UNEP DTIE					
COMMUNITY: OBJECT / AREA: DATE Document Register:							L	=	Life and health			
							E	=	Environment			
							P	=	Property			
							S	=	Speed of development			
							Pb = Probability Pr = Priority					
Object	Operation	Hazard (quantity)	Risk - type	Threatened Object	Consequences	Seriousness				Rating		Comments
						L	E	P	S	Pb	Pr	

Annex 6

Note: The following Annex contains the draft contingency planning framework developed based on the discussion and input of workshop participants.

This is not a final document. It can only be completed with input from a range of relevant stakeholders. The workshop report (page 15) recommends that finalizing this document as a first priority for the MWE Environmental Emergencies Unit.

draft

Environmental Emergency Contingency Plan¹

Yemen

Date prepared	January 2006
Date updated	
Version	1
Issues covered	Environmental Emergencies

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Annex 1: Telephone list of relevant stakeholders

Annex 2: Map of Yemen with locations of possible contingencies

Annex 3: Response capacities of various ministries

Annex 4: Risk Assessment Matrix

Annex 5: Preparedness level questionnaire

EXECUTIVE SUMMARY

This draft contingency plan has been prepared based on the inputs and discussions of participants at the environmental emergency contingency planning workshop that took place from 22 – 25 January 2006 in Sana'a. The workshop and this plan are focused on possible environmental emergencies in Yemen and aim to complement the already existing efforts such as the National Disaster Management Plan. Facilitation of the workshop was provided by the Office for the Coordination of Humanitarian Affairs (OCHA), Geneva. Plenary discussions on possible environmental emergencies and probable scenarios, a simulation exercise that led to the development of the first contingency - a chemical accident in the middle of the capital city Sana'a – and probable scenario, group work, presentations and relevant guidelines all provided the methodological background for the content of this draft plan.

The objective of this plan is to achieve a professional and structured response to environmental emergencies. Workshop participants aimed at defining initial preparedness, prevention and response planning options of the various Government of Yemen (GoY) actors to potential environmental emergencies. The group identified the following possible environmental emergencies for which a response could be needed:

- Accidents related to oil refineries or pipelines
- Accidents related to gas pipelines
- Accidents in storage facilities for pesticides
- Accidents in storage facilities for explosives
- Port related accidents (due to the handling of chemical substances, waste etc)
- Accidents in industry (paint factory, vegetable oil factory...etc)
- Accidents in storage facilities of chlorine (simulation exercise)

This plan will provide the GoY and other actors with an essential management tool that provides adequate information for possible environmental emergencies and describes preparedness and prevention options available. All relevant stakeholders are informed on initial response needs for each emergency and an immediate response checklist is made available. In addition, this plan ensures that appropriate provisions are made for consolidated sector specific response plans in a coherent framework of operational response.

Humanitarian interventions through this contingency plan, or in parallel, will be coordinated through the GoY utilizing and building on existing coordination mechanisms. Coordination meetings will initially be held on a frequent basis, and flow of information between the relevant stakeholders will be open and transparent.

Anticipated results of contingency plan completion and implementation include a) reducing vulnerability to disasters and protecting the interests and needs of individuals and the Yemeni society b) supporting the integration of emergency response capabilities across GoY ministries c) underscoring the need for clear definition of command lines and d) achieving a GoY-wide acceptance to focus on all risk types. Regular updates of the integrated disaster management plan and regular simulation exercises involving stakeholders are needed to ensure the functioning of the plan in the event of its activation.

I. INTRODUCTION to the DRAFT CONTINGENCY PLANNING FRAMEWORK

General

This draft contingency plan was developed based on the input and discussion of participants at the 22 – 25 January 2006 environmental emergencies contingency planning workshop in Sana'a, Yemen. Noteworthy points regarding this document include:

- The mission team recommends that this draft framework be completed by the Environmental Emergencies Unit, in close collaboration with relevant stakeholders. Specific steps to this effect can be found in the section, *Workshop conclusions and recommendations* of the workshop final report. This document also notes in a number of places, specific information that should be added.
- This draft framework is developed based on the assumption that it will be managed by an Environmental Emergencies Unit that fills primarily a technical support and information provision function, as described in *Workshop conclusions and recommendations* (p. 12 of Workshop report).
- Even as a final document, this contingency planning framework is only a part of environmental emergency response preparedness. Practical simulations and response exercises, as well ongoing dialogue between the Environmental Emergencies Unit and its partners, are other integral elements to ensuring effective response preparedness.
- The examples provided below in *Section III, Contingencies and Scenarios* are illustrative and do not describe situations that will necessarily happen. They should not, therefore, necessarily provoke alarm. Furthermore, the list of examples is not meant to be exhaustive in any way – no contingency plan can foresee all possible emergencies and emergency types. Rather, the list of examples was developed by workshop participants to be indicative of the type of environmental emergencies that could, quite realistically, be envisaged in Yemen. As such, they should provide guidance on the types of simulations and exercises that could be conducted.

Scope

This document describes the types of preparedness, prevention and response measures that the Ministry of Water and Environment and its Environmental Emergencies Unit should take, in collaboration with relevant stakeholders, to reduce the risk of environmental emergencies in Yemen. It also contains in Section II generic preparedness measures that the government as a whole should take to reduce disaster risks.

Once finalized by the Ministry of Water and Environment, this contingency plan should be an integrated component of the National Disaster Management Plan, and should therefore be read and understood within this larger context. In its final form, this would comprise a vital sector response plan to this overarching framework. This contingency plan should also support the Inter-Agency Contingency Plan for Yemen, which describes the roles of United Nations organizations in the event of a disaster that requires international assistance.

Mandate of the MWE and the Environmental Emergencies Unit

(this section should be completed by EEU and MWE.)

II GENERIC PREPAREDNESS MEASURES

There are a number of generic preparedness measures (i.e. not specific to environmental emergencies) that can be put in place to avoid loss of time and subsequently loss of life or higher number of injuries when a disaster strikes.

Measures that should be put in place as soon as possible by Government of Yemen include:

- a) An integrated Emergency Response Plan, reflecting all potential natural and technological disasters at the national and local level;
- b) Establishment of an operational Emergency Preparedness and Response organisational structure and an Emergency Centre;
- c) Establishment and maintenance of close links to international specialised institutions such as International rescue agencies to get the earliest possible support for search and rescue operations and to assess the consequences;
- d) Preparation of the regulatory basis for non bureaucratic procedures to receive foreign rescuers and equipment;
- e) Establishment of national / local command structures;
- f) Provide training for first responders (fire brigades, environment departments, civil defence, health services, hospitals, police, etc.) to be prepared for all possible scenarios (fires, explosions, earthquake, flooding, landslides, storms and tsunamis);
- g) Educate the people (i.e. schools, universities, TV) about the risks and measures of self protection;
- h) Establish close contacts to the media;
- i) Establish early warning systems within communities (i.e. through TV stations, radio);
- j) Practice emergency scenarios and improve the knowledge level of all participants (fire brigade, civil defence, environment department, industries, government, health services, communities, media....

III CONTINGENCIES AND SCENARIOS

This section illustrates the types of possible environmental emergency scenarios for which Yemen would need to be prepared. As noted above, it is not intended to be exhaustive but rather to provide context and direction to the environmental emergencies contingency plan.

Contingency 1 – Chemical emergency: explosion of chlorine cylinders in the capital city Sana’a

At the water treatment plant in the center of Sana’a, chlorine cylinders are stored, both outside in the open and inside a storage room, that is locked. There is garbage around the cylinders that could easily catch fire, if an emergency occurs. If the cylinders explode, the water treatment plant could be out of order for up to 5 days. 200 people could be killed, and about 1000 people could be injured, among them infant, children, pregnant women, and the elderly. The impact of the amount of chlorine would cover a radius of 1 km.

Reaction of chlorine: if the vapor pressure of the cylinder surpasses the mechanical resistance of the cylinders at 70 degrees they will explode and could release about 600kgs of toxic gas. As chlorine is heavier than air, the effects will only be felt to a height of40 m (tbc) – equivalent to the 3rd floor of a building.

Elements of the contingency are:

- **health implications:** people that live within the 1 km radius will be affected as follows: 1) blindness 2) acute respiratory problems 3) skin reactions . The elderly and small infants are particularly vulnerable and affected.
- **space:** outside the 1 km radius, there is little negative impact from the explosion. Inside the 1 km radius, the chlorine affects people, animals, the environment and has a potential negative impact on the economy as so far as people will not go to work due to injuries or care giving necessities. There is a primary school 100 m from the point of emission. Only the first 3 floors of buildings in the vicinity are going to be affected, as chlorine is heavier than air. Closed windows and doors will increase protection of the population.
- **Impact on water:** a surplus of chlorine in water will kill all organisms, but water can be used for drinking after a while. The effect is not pollution. Fish can be killed but can be eaten.
- **Impact on air:** can only be controlled through the creation of a water curtain.
- **Impact on vegetation:** in thirty seconds, all vegetation in the 1 km radius will be burnt.
- **Impact on the economy:** as people will stay away from work, an economic impact will be felt.

Scenario	If 600kgs of chlorine is released, it can be expected that 200 people will be killed and about 1000 injured. Main injuries consist of blindness, acute respiratory problems and skin reactions. Possible mass panic. Access to the victims could be problematic, as the air would be highly toxic for at least 4 hours. In addition, traffic and spectators could impede the response action.
Preparedness measures	
Prevention	Establish a safety and security management system that ensures appropriate handling of dangerous chemicals; store only a minimum amount of chlorine in the water treatment plant to reduce severity and eliminate all source of ignition and inflammable material around the storage place.
Early warning	No early warning indicators
Trigger	> 70 degrees heat

Contingency 2 – Emergency involving oil: Explosion of fuel containers in Al- Masila

50 tons of crude oil fuel containers are stored in Al- Masila, a small town (?) in the desert. The storage facility is close to a village that lies in the valley below. Some 3000 people live there and could potentially be affected, if an accident occurs. In addition drinking water and agriculture could be heavily affected by the emergency.

Elements of the contingency are:

- **health implications:** The physical effect of the explosion and the heat radiation will lead to significant injuries and possible loss of life.
- **Space:** The oil will be spread over approximately 8km², oil leakage will occur

<p>and the oil will permeate the soil.</p> <ul style="list-style-type: none"> - Impact on water: The ground water and piped water could be contaminated and undrinkable. - Impact on air: Fumes and soot and toxic combustion product will be released into the air. - Impact on vegetation: N/A - Impact on the economy: Loss of the storage, value of oil, interruption of oil delivery and damage to the installation will lead to significant economic losses for the community.
--

Scenario	Workers at the installation will be killed (XXX people), environmental impact significant and long term. Agricultural activities are halted, due to the pollution. Animal husbandry also impossible due to soil pollution and contamination.
Preparedness Measures	Establish disaster units for coordination and planning as well as standard policy procedures; implement safety monitoring system
Prevention	Ensure and maintain the safety, monitoring, evaluation and rapid response awareness of the general public
Early warning	No early warning indicators
Trigger	> ??? degrees

Contingency 3 – Emergency involving pesticides: Fire in a pesticide warehouse in Sana’a

A pesticide warehouse in a populated area in Sana’a catches fire and 50t of pesticides are released. Contamination of the environment can be significant IF wrong response options are applied, i.e. if the fire brigade tries to contain the fire by spraying water and thereby facilitating the underground water contamination and air contamination and therefore a longer term impact on the environment and human beings.

<u>Elements of the contingency are:</u>	
-	health implications:
-	Space:
-	Impact on water:
-	Impact on air:
-	Impact on vegetation:
-	Impact on the economy:

Scenario	The fire can cause the deaths or injury of inhabitants of the upper floors of the warehouse. About 40- 50 people could potentially be affected. If wrong response options are taken, agriculture, vegetation, animals will be affected. The provision of clean water to the inhabitants of Sana’a will not be assured and individuals could be poisoned and show reactions to limited low level poisoning.
Preparedness Measures	Ensure availability of antidotes to poisoned individuals and treatment of water after contamination.
Prevention	The pesticide warehouse has to be removed from the city center and storerooms have to be built in accordance with international standards. Information about exact amount and product stored.
Early warning	N/A
Trigger	N/A

Contingency 4 – Emergency involving a pipeline: Electrical plant explosion in Marib

The pipeline to the power plant in Marib has exploded and 48 t of gas are released. The gastanks have exploded and the pipeline has collapsed. The city of Marib is about 5 kms away and 60,000 people are threatened by this contingency.

<u>Elements of the contingency are:</u>
- health implications:
- Space:
- Impact on water:
- Impact on air:
- Impact on vegetation:
- Impact on the economy:

Scenario	
Preparedness measures	
Prevention	
Early warning	
Trigger	

IV. IMMEDIATE RESPONSE

As soon as possible the GoY must disseminate a message to the general public to inform them about what happened, how to behave to avoid injury and on all assistance and response the GoY is organizing to assist the affected population.

24 h

- Immediate meeting between all ministries under the auspices of the Civil defense council to discuss
 - A) Initial information received,
 - B) Priorities
 - C) Coordination structure
 - D) Information strategy
 - E) Distribution of labour,
 - F) Meetings scheduled during emergency
 - G) Inventory of equipment
- Activation of Contingency Plan
- Contact with the media to inform the general public about what has happened, how to behave and what is being done by all stakeholders
- Identify a contact person for the media
- Inform police and defense forces how to behave, when deployed
- Identify participants from all ministries for a rapid assessment mission to the affected area
- Agree on a information management system
- Establish a list of focal points for continuous follow up and coordination

48 h

- Establish Terms of reference for the rapid assessment
- Identification of expertise for assistance and reinforcement , if necessary (NGOs, donors, regional actors, bilateral actors...etc.)
- Re-evaluation of stocks, equipment and financial resources

- Arrange meetings with UN representatives, NGOs, Red Cross , donors etc. to discuss possible needs : food, water, transport, medical assistance, doctors, medicines, etc...)

First week

- Evaluation of the situation by the interministerial assessment team
- Results shared with possible partners
- Identify financial resources, if needed
- Definition of the immediate response beyond the first week
- Press briefing

V OVERALL MANAGEMENT AND COORDINATION

Policy/decision making, management and coordination systems

The following sector response groups have been established and are operational with lead ministries as indicated below. As a result of the disasters and emergencies that have beset Yemen over the last three decades, strengthening and establishing disaster management body received greater attention from the Government of Yemen. In this direction the Government took many significant steps such as:

- Enactment of the Decree No. (24) on Civil Defense (CD) on April 1997, which is supportive of effective disaster management. Articles under this decree outlines Civil Defense procedures and the composition of the ‘*Supreme Council of Civil Defense*’ (SCCD), which is established under the chairmanship of the Minister of Interior. The temporary powers of the Civil Defense are also outlined in the Decree.
- In 1997 the Council of Ministers issued decree No. (52) on forming a committee to prepare an approach for Disaster Management.

Following the above-mentioned decree the Minister of Planning and Development issued Decree No (123) of 7 October 1997 forming a committee to prepare a proposal to establish an ‘*institute for managing natural disasters*’.

To be finalized by MWE

	Lead ministry	Collaborating partners
Coordination	Ministry of Interior	
Information management	EEU	
Public Information	Ministry of Information	
Shelter and site planning	???	
Water and sanitation	Ministry of Water and Environment (tbc)	Municipality ???
Food	Ministry ???	
Health	Ministry of Health	
Security	Ministry of Defense	

Internal reporting routines and information management system (to be finalized by MWE)

Strategic and operational Coordination

Reporting and assessments will be undertaken in a standard format (to be defined).

Information management

Resource Mobilisation

The GoY will update the donor community and NGOs, regional and bilateral partners on the evolution of the crisis/emergency, of the prioritization of needs, and status of implementation/funding.

Media Strategy

In the event of a scenario which results in major media coverage, the GoY will designate an individual/agency to act as focal point for media relations, and to orient journalists to the sectoral lead ministries dependent on the interest.

VI STRATEGIES AND OBJECTIVES

OBJECTIVES: The overall objective of the harmonized contingency plan is that the survival and well-being of the affected population is assured.

STRATEGY: This plan reflects an integrated approach to emergency planning expected. Preparedness and response is seen as an integral part of GoY , operationalized through an integrated approach with clearly defined operational responses with lead ministry (tbc) responsibilities. Support will be complementary to, or mainstreamed into, ongoing developmental activities at the earliest opportunity.

Overall Objectives

The overall objective of the emergency response is to save lives and livelihoods, contain injuries and illness following an environmental disaster and mitigate the impact of the emergency on the environment. The needs of the affected population have to be addressed as rapidly as possible.

VII. SECTOR RESPONSE PLANS (to be developed)

- a) **Security**
- b) **Water and Sanitation**
- c) **Food**
- d) **Shelter**
- e) **Information**

VIII. MAINTENANCE ACTIONS

The Contingency plan will regularly be updated and reviewed with all stakeholders.

IX. Profiles of Stakeholders (to be developed as per WHO and UNICEF examples below) should be completed for organizations including:

Ministry of Defense
Ministry of Water and Environment
Ministry of Agriculture
Ministry of Oil
the Electricity Corporation
Ministry of Industry and Trade
Ministry of Transport
Yemeni Association of environmental sciences

Environmental protection authority
UNDP's Disaster management Unit
Ministry of Marine Affairs

WHO

Emergency contact person: Dr Hashim A. Elzein Elmousaad, WHO Representative

Alternate contact person: Dr Mohammed Ali Khalifa

Emergency contacts: Office: 252213/252204; Mobile: 73231348

Fax: 251612

E-mail: wr-yem@yem.emro.who.int

Agency overall objectives related to emergency concerns

To build Government's capacity to prevent, mitigate and respond to potential emergencies and ensure effective coordination of the UN's emergency response and to ensure presence and operational capacity in the field to strengthen coordinated public health management for optimal immediate impact, collective learning and health sector accountability

Specific objectives of WHO with regard to emergency concerns

- Ensure that local health systems are preserved.
- Identify priority health and nutrition-related issues and ensuring that these are properly addressed.
- Strengthening health and nutrition surveillance systems to enable monitoring of any changes, early warning of deterioration, and immediate life-saving action through outbreak response and technically sound nutrition interventions.
- Ensuring control of preventable ill health particularly communicable and vaccine-preventable diseases.
- Ensuring that risks related to the environment are recognized and properly managed.
- Ensuring access to basic, good quality, preventive and curative care including essential drugs and vaccines for all, with special focus on the especially vulnerable - the elderly, the very young, pregnant women, the disabled and the chronically ill.
- Ensuring that Humanitarian Health Assessment is in line with international standards and local priorities and does not compromise future health development.
- Ensuring that the lessons learnt in a crisis are used to improve health sector preparedness for future crises and disaster reduction.
- Link relief to capacity building and health sector reform
- Supporting alliances and co-ordination among all bodies working for the health of groups at risk.

Standing level of readiness

WHO maintains standing capacity for liaison with the Government on carrying out rapid assessment and coordination of international assistance as well as take lead within the international community in health coordination.

Capacity and resources

1. Rapid Assessment Team (International and national staff) at country level.
2. Provide guidance on implementing health programmes.

3. Local mobilization of funds (up to \$100,000) for local procurement and field operations.
4. Mobilize resources from Regional Funds and/or Regional emergency stockpiles (provision of WHO Emergency Kits within 2 weeks).
5. Mobilize WHO technical staff for support from the Regional Office, HQ or other countries.
6. Coordinate with neighboring countries WHO offices for cross-border activities.
7. An inventory of locally identified suppliers for local procurement of drugs and other emergency items.

Planning assumptions

1. Official information on emergency situations is not readily available;
2. Information from alternative sources may not be accurate.
3. Non-availability of locally technical experts.

In the event of an emergency situation, the following activities will be taken by WHO

1. Lead within international community on:

- Health Coordination
- Rapid Health Assessment
- Epidemiological and Nutritional Surveillance
- Epidemic Preparedness
- Essential Drug Management
- TB, Malaria, Polio, Measles control
- Physical and Psychosocial Rehabilitation

2. Provide guidance on:

- Health Education
- Nutritional Requirement
- Immunization
- Medical Relief items
- Reproductive health
- Water and Sanitation
- Mental Health

3. Provide information on:

- Country's Epidemiological Profile
- National Health Priorities
- National Health Resources and Focal Points
- WHO's Public Health Guidelines

Preparedness and capacity-building activities

1. Building capacity of national staff on emergency management e.g. on emergency preparedness and response.
2. Support Ministry of Public Health and Population (MoPHP) on development of contingency plans
3. Support MoPHP on establishment of a permanent emergency operation room for health sector.
4. Support MoPHP on establishment of buffer stocks for emergency e.g. essential drugs and other emergency items.
5. Coordination with other relevant sectors

Strategies to achieve the above

1. Training

2. Risks assessment and mapping of Hazards
3. Partnership with national and international NGOs and private sector.

UNICEF

Emergency contact person: Mr. Ramesh Shrestha, Representative

Alternate contact person: Mr. Solofo Ramarason, Senior Programme Officer

Emergency contacts: Office: 1-214477; mobile: 71106127

Fax: 1-206092

E-mail: rshrestha@unicef.org

UNICEF overall objectives related to emergency concerns

The overall objective of UNICEF's emergency planning is that children and women's survival and well-being (fulfilment of their basic rights) are assured in whatever emergency situations develop. UNICEF maintains a preparedness and response capacity to support national efforts to help protect basic rights and to ensure that essential needs of children and women are met, effectively, dependably and in a timely manner, according to the UN/UNICEF mandate.

Guiding principles

1. Children in the midst of armed conflict and natural disasters such as war, drought, floods, and earthquakes have the same **needs and rights** as children in stable countries.
2. UNICEF response will recognize the **priority of humanitarian action** while assuring safe access to affected populations, and **safety and security** of staff and assets.
3. The emergency response will **build on existing activities and partnerships** developed through the country programme of cooperation.
4. The response will be based on **nationally defined priorities**.

Standing level of readiness

To fulfill UNICEF core commitments, the key activities to be undertaken from the onset of an emergency or in preparation for such event have been clearly defined and roles distributed among UNICEF staff in the Emergency Preparedness and Response Plan (EPRP).

In consideration of the situation and emergency profile (updated every year), to ensure capacity for a rapid emergency response when needed, UNICEF Yemen maintains standing readiness to provide initial survival assistance:

- For 25,000 affected/displaced persons
- Within 72 hours
- For a period of two weeks, after which emergency assistance operations may be scaled up to meet the needs of the affected populations.

Capacity and resources

- Most of the 27 professional staff, including 13 International staff, who are actually implementing the UNICEF country programme (Health, Nutrition, Education, Water & sanitation, child protection, area-based programme) are prepared to a shift into an emergency programme as soon as that is required.
- Emergency preparedness activities will be fully part of 2005 annual workplan.
- Two emergency advisers are available for immediate support from MENA Regional office in Amman.

- The Yemen country office can at any time re-allocate up to \$200,000 from the regular programme budget if required by an emergency situation.
- Lists of suppliers and contractors have been established for potential local procurement and civil work (water and sanitation).
- Basic emergency items are constantly available for immediate shipment from UNICEF warehouse in Copenhagen.

Planning assumptions

- Most emergency needs will be met by families themselves, supported by local/national authorities and NGOs. However, international support will also be helpful.
- UNICEF Yemen monitors emergency situations and potential threats in an attempt to ensure early warning and response. When emergency situations occur, UNICEF staff aim to participate in rapid field assessments within 72 hours of reported incidents.
- As a general principle, on the basis of rapid assessments, UNICEF will respond whenever the scale or severity is such that UNICEF assistance is needed to help local and national efforts meet survival and basic needs/rights of victim children and women, typically larger, more severe emergencies.
- UNICEF acts as part of a coordinated inter-agency UN response, works through Government and civil society, and recognizes the Government as being responsible for prevention, mitigation, preparedness, response and recovery.
- Programmes to support humanitarian action in on-going emergencies and for post-incident rehabilitation and recovery efforts will be developed on when and as needed, based and tailored to the local context.

In the event of an emergency situation, the following activities will be implemented by UNICEF

In the first six to eight weeks following the outbreak of a crisis, UNICEF will work with partners to meet the following commitments:

1. **Within established mechanisms, assess, monitor, advocate for, report and communicate on the situation of children and women:** conduct a rapid assessment of the situation of children and women, establish initial monitoring systems, including on severe or systematic abuse, violence or exploitation, and report through the appropriate mechanisms.
2. Provide **measles vaccination, vitamin A, essential drugs and nutritional supplements:**
3. Provide **child and maternal feeding and nutritional monitoring:** support infant and young child feeding, therapeutic and supplementary feeding programmes with WFP and NGO partners. Introduce nutritional monitoring and surveillance.
4. Provide **safe drinking water, sanitation and hygiene:**
5. Assist in the **prevention of separation** and facilitate the **identification, registration and medical screening of children separated** from their families, and **prevent sexual abuse and exploitation** of children and women.
6. Initiate the **resumption of schooling** and other child learning opportunities

To fulfil these initial emergency response commitments, UNICEF will cooperate with national governmental and non-governmental bodies and other UN and international partners, with an emphasis on community capacity building from the onset.

Beyond the initial response, other elements of the core commitments to children in emergency situations may be addressed.

- Monitoring and Advocating on the Situation of Children:
- Survival
- Organizing Child Protection:
- Resuming primary education services:
- Preventing HIV/AIDS

Reference documents

The main reference documents for Emergency interventions are UNICEF Yemen Emergency Preparedness and Response Plan (May 2004) and UNICEF Core Corporate Commitments (Updated in January 2004).

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Annex 7

Proposed Annotated Agenda
Environmental Emergencies Training and Contingency Planning Workshop
Sanaa/Yemen
22-25 January 2006
(Revised – 22 January 2006)

Objectives of the Workshop:

1. Provide Rapid Environmental Assessment training.
2. Support national awareness and preparedness activities and contingency planning (CP) efforts by presenting the UNEP-APELL program.
3. Develop a framework for a national environmental CP that is fully integrated with existing plans and efforts. This will include:
 - Providing appropriate information on CP and lessons learned in environmental emergencies capacity building;
 - Reviewing current UNCT CP and Government of Yemen measures and processes for contingency planning in general, and for environmental emergencies in particular;
 - Undertaking a visit and simulation exercise at the site of a previous or potential environmental emergency; and,
 - Discussing likely environmental emergency scenarios and the benefits, challenges, risks and constraints to CP

January 22, 2006 (Day 1)

Context, overview of challenges, resources and mechanisms. Introduction to APELL (Chaired by Dr. Husein Al-Gunied (Deputy Minister, MWE))

08.30 – 09.00 h	Registration of participants
09.00 – 09.05 h	Holy Quraan
09.00 – 09.10 h	Welcome Speech and Opening of Workshop (H.E Dr Mohammed Al-Eryani the Minister Of Water & Environment.)
09.10 - 09.30 h	Introduction of participants
09.30 – 09.45 h	Review of workshop objectives and outcomes (Roy Brooke, OCHA)

**Why ?
process**

**To achieve a common understanding of the expected
and outcome.**

- Review of workshop agenda
- Introduction of background documents
- Introduction of key issues

Questions from the floor

09.45 – 10.45 h	Environmental Emergencies and risk reduction in Yemen: current situation and challenges (Mr. Al-Ghaberi, DG of EEU)
Why?	<p>To provide a common understanding of the context and history of emergencies in Yemen</p> <ul style="list-style-type: none"> - Provide historical overview of emergencies with focus on 1-2 case examples - Describe disaster context in Yemen, including overview of measures taken and mechanisms in place, key challenges and lessons learned <p>Questions and comments from the floor</p>
10.45 – 11.45 h	Introduction on the need of disaster preparedness, prevention and response planning (Dr. Ernst Goldschmitt, UNEP-APELL)
Why?	<p>Provide guidance for developing an environmental national contingency plan by introducing key aspects of UNEP-APELL</p> <ul style="list-style-type: none"> - Brief introduction of APELL - Introduction and case studies - Discussion of Yemen disaster context - Principles of risk identification and reduction. <p>Questions and comments from the floor</p>
11.45 – 12.00 h	Coffee Break
12:00 – 12.45 h	Case Studies from the region and lessons learned in environmental emergencies (Alain Pasche, International Consultant)
Why?	<p>To share lessons learned and good practice on environmental emergencies management</p> <ul style="list-style-type: none"> - Introduction of regional case studies on environmental emergencies centres - Lessons to be drawn - Applicability of lessons to the Yemeni situation <p>Questions and Comments from the floor</p>
12.45 – 13.45 h	Introduction of the Yemen Disaster Management Plan (Fabrizio Poretti, UNDP)
Why?	<p>To understand status of disaster preparedness in Yemen from UNDP perspective</p> <ul style="list-style-type: none"> - Summary and overview of recent DMTP workshop process and results - Sharing of the draft DM Plan in place

- Sharing of experiences and building up on those experiences for the CP exercise
- Describe interagency mechanisms
- Opportunities to link environmental CP to national efforts

Questions and comments

13.45 – 15.15 h

LUNCH

15.15 – 15.30 h

International environmental context (Roy Brooke, OCHA)

Why?

To define the international environmental context and role of the Joint UNEP/OCHA Environment Unit

- Role of Joint UNEP/OCHA Environment Unit
- Possible relationship between Yemen and Joint Environment Unit
- 15.30-16.15 h

16.15-16.30 h

Conclusion and discussion of details for Day 2

(Note: Rapid Environmental Assessment training participants depart during the course of this day for training with Mr. Charles Kelly, CARE)

January 23, 2006 (Day 2)

Field Simulation exercise

08.30-09.15 h

Contingency Planning and Field Simulation: Introduction (Ute Kollies, OCHA)

Why?

Introduce Contingency Planning tools and objectives to prepare for field simulation exercise

- Describe context and objectives for field simulation
- Describe link between field simulation and subsequent contingency planning

09.30 – 11.30 h

Visit to an area of former or potential environmental emergency

Why?

To provide insight into previous or potential environmental emergency and develop lessons that can be applied to the CP

- Transect of site
- Use questionnaire/matrix for review
- Document response to emergency or potential risks of future emergency

12.00-14.00 h

Discuss results from site visit

Why?

- Share impressions and lessons learned from visit
- Document issues and gaps

January 24, 2006 (Day 3)

Developing a Contingency Planning Framework using inputs from Day 1 & 2 and group work (Chaired by Mr. Mahmoud Shidawah, Chairman, EPA)

08.30 - 0.845 h	Recap of Day 2
08.45– 10.00 h	Detailed presentation on contingency planning and introduction to group work (Ute Kollies)
Why?	<p>Link Day 1 overviews and Day 2 field visit to practical contingency plan development</p> <ul style="list-style-type: none">-Present tools, options and benefits of contingency planning- Provide overview of IASC and Joint Environment Unit <p>Contingency Planning tools</p> <ul style="list-style-type: none">- Group discussion on probable risks and threats in Yemen (using flipcharts)-Describe tasks and objectives of work group activities- Divide participants into groups <p>Questions and comments</p>
10.00 – 10.15 h	Coffee Break
10.15-11.30 h	Group work activities – Part 1 (three groups supported by mission team experts)
Why?	<p>Develop probable environmental emergency contingencies and scenarios, including likelihood of various scenarios and related needs and gaps.</p> <ul style="list-style-type: none">- Analyze risks and threats, using information from Days 1 & 2 (30 minutes)- Report findings back to group (45 minutes)
11.30-12.45 h	Group work activities - Part 2
Why?	<p>Link probable environmental emergency scenarios in Yemen to possible response options</p> <ul style="list-style-type: none">- Identify how probable scenarios can be addressed with current resources, mechanisms and structures; identify needs and gaps (30 minutes)- Report findings to group (45 minutes)
12.45-13.00 h	Coffee break
13.00-14.00 h	Developing key elements of a contingency plan: group activity
WHY?	<p>Using information on tools and plans in place, combined with analysis of likely scenarios, 3 groups each develop part of a contingency plan framework, including:</p>

- List existing resources and response mechanisms, needs and gaps
- Preparation of coordination organigram
- Develop key elements of environmental emergency contingency plan (use flipcharts)
- Identification of gaps and issues

14.00-14.30 Reporting back and final discussions on framework

January 25 (Day 4)

Conclusion of Contingency Plan Framework development, reporting and workshop wrap-up (Chaired by UNDP)

08.45-09.00 h Recap of Day 3 activities

09.00-10.30 h Presentation of draft Contingency Planning framework

- Discussion on framework
- Discussion on next steps

10.30-11.15 h Report back from Rapid Environmental Assessment team (Charles Kelly, CARE)

- Discussion on next steps

11.15-11.45 h Evaluation of workshop

11.45-12.00 h Closure of Workshop

12.00-14.00 h Availability of workshop team for informal discussions

1400 h Lunch

Annex 8

*Note: this is the background information for the presentation by
EEU Director General Abdulkhaleq Al-Ghaberi*



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Republic of Yemen
Ministry of Water & Environment
General Directorate of Environmental Emergency

***Environmental Emergencies and Disaster Risk Reduction in Yemen,
the Current Situation and the Challenges***
for
**The National Workshop on Environmental Contingency Planning
and Rapid Environmental Assessment on Disaster Training .**
***During, 22-25 January , Sana'a
Contingency Planning***

By
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****The MWE and its leaders and EEU with its Staff would like to express the
full gratitude to the Joint UNEP/OCHA and its staff and the mission
Member for there faithful support and kindness to EE efforts in Yemen.**

Environmental Emergencies and Disaster Risk Reduction in Yemen, the Current Situation and the Challenges

Contents:

- 1. Introduction on Environmental characteristics of Yemen.**
- 2. Overview on the Main existing Risks and EE sources .**
- 3. The legal and Institutional situation.**
- 4. Some accomplishments of EEU/ Ministry of Water & Environment .**
- 5. The Main challenges.**

1. Introduction

The Republic of Yemen is a country that has undergone significant changes from unification in 1990 until today, and these changes are expected to continue and pose a challenge to improving the human development conditions in the country.

The Global Human Development Report (2003) ranked Yemen 148 out of 175 countries, with a human development index (HDI) value of 0.470, placing it among the least developed countries in the world.

In addition, the concentration of more than 70% of the country's population in rural areas, who are financially poor and lack of access to basic services such as, safe drinking water, education facilities and, sanitation .

Government resources are very limited to elicit the needs of geographically distant, vulnerable, and isolated communities programs including the effects of natural hazards and risks, which include flash floods, earthquakes, technological hazards, civil conflict, population growth, urban migration, extreme climate events, desertification, soil erosion, landslide, mudflow, locust invasions, depletion of groundwater aquifers and disease epidemics.

Challenges facing the Government are mentioned above only with the purpose to emphasize the diversity and complexity the nation is currently facing in its continuing efforts to develop and modernize.

In the past two decades, Yemen has experienced different types of disasters that include earthquakes, flash floods, as well as influx of Refugees, civil war and epidemics of communicable diseases. According to the World Disasters Report 2000, within the period 1990-1998, the annual average people affected by disaster were 52,516 while the annual average killed individuals were above 100 units. The report estimated that in 1999 alone, about 19,782 persons were affected by disasters in Yemen. Most of those affected have been the vulnerable segments of the society including women and children.

In addition to that, many unaccountable risks can be observed continuously take place in Yemen. A good example is the elevated number of car accidents every week. The number of casualties rarely goes below 50 deaths a week.

Yemen also face a variety of difficulties: desertification, pollution, drought and a scarcity of water, because Yemen offers a unique example of environmental diversity. The preservation of a healthy and diversified model environment requires a coherent institutional and legal base, and that is what we are endeavoring to establish. However, the considerable material resources necessary for the attainment of this objective still fall short of the essential needs, whether at the level of technology, training or the dissemination of information and awareness among the various population strata regarding this issue of significance for all generations.

2. Overview on the Main existing Risks and EE sources Natural Hazards

We should note that there are many of human factor play main role to influence the expected risks from the Natural hazards.

1. Earthquakes ;

Yemen is one of the highest vulnerable areas for earthquake activities .

2. Land and Terraces degradation

Due to the physiographic characteristics of the country, most of the arable lands are located within watersheds entities. The accelerating degradation of watershed basins of Yemen has serious economic, ecological, environmental and social implications²

Insufficient information, however, is currently available on the magnitude of resources degradation, on the extent of soil erosion and sand encroachment. Most arable and watershed areas are subject to extensive soil erosion and desertification. Sand encroachment on agricultural land areas in the south (around Aden), west (specially Wadi Mawr and southern Tihama) and east (specially around Marib and wadi Al Jawf) probably represents the most immediate and serious environmental threat in Yemen at present.

Erosion from the steep basins has resulted in talus fans with coarse gravel and silt along the foothills and gently sloping areas of fine silt along the alluvial plains below the outfalls of wadis in the coastal and interior plains.

3. Flooding

Flooding occurs during monsoon season leading to loss of productive agricultural lands along the wadis, increasing sedimentation and significant widening of down stream wadi bed.

4. Firewood

The natural vegetation of acacia scrub in the foothills has been degraded by the search for firewood. Natural forests have almost diapered due overcutting for construction, fuel wood, and fodder.

5. Land and rock slides:

Most of Yemeni high populated areas located in the highlands. So this hazard most be considered be addressed as major risk. Many areas in Yemen expose to land slide events every year. Most of these events haven't been assessed environmentally.

6. Man-made factors influencing the risk impact and may cause an environmental emergencies:

² FAO report 2005

- Industrial plants specially those which located in the main cities among the urban areas with lacking to governmental effective control and environmental monitoring systems.
- Transport activities of hazardous materials in lacking to applicable safety measures.
- Mining activities.
- Power Energy plants where several of these plants are located near environmental sensitive area such as coast of the Rd Sea and Gulf of Aden.
- Waste water treatments in the main cities. many of these plants are overloaded .
- Food industry plants and activities. It is noted that most of these plant discharge there wastes to environment without any treatments.
- Public service plants such as vehicle services.
- Infrastructure projects such as roads, building in mountains areas without referring to Environmental impact assessments. Good example for this case the landslide disaster happened last year near Taiz city. The report of this disaster indicated the road project in the affected area was the main reasons for this disaster.
- The extensive use of natural resources.

year	dis_group	type	event name	location	no killed	no injured	no affected	no homeless	total affected	year	origin
2000	Natural	Epidemic	Rift Valley fever	Wadi Mawr (Al-Hudaydah Governorate)	32	0	289	0	289	2000	
2005	Natural	Epidemic	Poliomyelitis	Sanaa governorates Omrane, Hadramout, Saada, Hudayda	0	0	179	0	179	2005	
2001	Natural	Flood		Shahar district (Hadramout province)	31	0	0	0	0	2001	Brief torrential rain
2002	Natural	Flood		Salafiyah region	2	0	260	440	700	2002	
2002	Natural	Flood		Raima region	10	0	0	0	0	2002	Heavy rain
2002	Natural	Flood		Taëz, Houdaida, Hadramout	13	0	0	0	0	2002	Heavy rain
2002	Natural	Flood			28	0	0	0	0	2002	Heavy rain
2003	Natural	Flood		Hijja, Taaz province	15	0	0	0	0	2003	Torrential rains
2005	Natural	Flood		Sanaa, Hodeaida regions	10	0	215	500	715	2005	Torrential rains
2001	Technological	Misc Accident	Arms market	Al-Baidaa province	15	16	0	0	16	2001	
2004	Technological	Misc Accident	Building	Hababah (Omrane province)	20	0	0	0	0	2004	
2000	Technological	Transport Accident		Between Lahj and Aden provinces	14	4	0	0	4	2000	
2001	Technological	Transport Accident		West	20	1	0	0	1	2001	
2003	Technological	Transport Accident		Gulf of Aden	80	0	25	0	25	2003	
2003	Technological	Transport Accident		Between Hodeida and Jizane (Saudi Arabia)	13	18	0	0	18	2003	
2003	Technological	Transport Accident		Gulf of Aden	45	0	0	0	0	2003	
2004	Technological	Transport Accident		Ibb province	21	65	0	0	65	2004	
2001	Natural	Wind Storm		Sadaa province	13	0	0	0	0	2001	
2001	Natural	Wind Storm		Aden province	17	0	0	0	0	2001	

3. Legal Situation

The Government. In this direction, the Government took many significant steps such as follows:

- Presidential Decree No, 218 , year 2005 about the by law of MWE which identify the EE general directorates mandates which allow EEU to direct the EE and RR procedures
- Decree No. (24) on Civil Defense law (CD) on April 1997, supportive of effective disaster management. Articles under this decree outline Civil Defense procedures and the Composition of the Supreme Council of Civil Defense (SCCD), the temporary powers of the Civil Defense are also outlined in the Decree.
- In 1998 the Republican Decree No. (7) 1998 was issued regarding the function of Civil Defense Councils in the governorates and districts
- In 1997 the Council of Ministers issued decree No. (52) to form a committee to prepare an approach for Disaster Management.
- The Minister of Planning and Development issued Decree No (123) on 7 October 1997 to form a committee to prepare a proposal to establish an institute for managing natural disasters.
Decree No (201) in 1997 issued the Civil Defense By law
- The Minister of Water and Environment No (28) issued a decree in the year 2003 to establish an Environmental Emergency Unit to initiate and coordinate the implementation of institutional capacities to face all aspects of Environmental Emergencies and Disasters (see Annex n.1) .
- In addition to the above mentioned decrees, there are a few other laws such as the Environmental Protection law, Water law, Civil Defense law but to implement these laws the Government needs to pay attention in establishing a national policy addressed only to disaster risk reduction.
- The water law no. (33) For Year 2002 allocate Chapters 6 and 7 for water pollution prevention and floods risk reduction.
- The National Water strategy does not give priority to the subject of disaster risk reduction while giving more attention to Drinking Water Shortage and Depletion problems.

4. Some accomplishments of EEU/ Ministry of Water & Environment

- add environmental emergencies in the National Environmental Statement as main chapter,
- add more than 10 articles in the proposed modifications of Environmental Law No 26 ,year 1995;
- Strengthened its focal points and initiate the National Team for EE management and RR and proposed its mandates.;
- carried out many case studies of rapid environmental assessment on disasters;
- started registration system and databases for the main events, contacts , and experts.
- Proposed the MWE mandates and roles under the Civil Defense Council and act efficiently as member of overall DMU.
- Distribute the EE and RR knowledge and awareness..

5. The main Challenges

1. Lacking or absence of EE awareness at official, academic and public levels.
2. Lacking or absence of the basic facilities to deal with EE such as technical equipments , communication and transport tools and Early warning system.
3. Absence of risk maps , and basic information on EE.
4. Lacking to the clear safety legislations , standards, guidelines and principles.
5. Lacking to the appropriate expertise.
6. Lacking to the financial sources to strengthening the coordination and operation mechanisms .
7. Absence of response equipments.

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