INFORMATION EXCHANGE ON MANAGEMENT OF ENVIRONMENTAL HEALTH EMERGENCIES IN AFRICA

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"It is becoming dramatically evident that environmental hazards are the major threats to health our generation is faced with.

It is partly because of the concern about environmental disasters that the United Nations have set the International Decade for Natural Disaster Reduction, to start with the new year.

By the end of the same decade, the crucial year 2000, another ambitious project, that of health for all, will come to an end and conclusions will be drawn by the world community upon the results achieved.

It would be enough to consider the three statements above to have an idea of the importance that issues of environmental health management in emergencies are going to have in the years to come. Being in charge of the WHO Pan-African Centre for Emergency Preparedness and Response, I will focus today on the management of environmental disasters in Africa; Figure 1 gives some indication of the extent of worldwide natural disasters in the 1960s and 1970s.

I am fully aware that in most people's minds the term "environmental disaster" recalls memories of chemical or nuclear pollution, such as Bophal, Chernobyl or, more recently, Alaska. And that it is becoming increasingly fashionable to blame the hole in the ozone layer for any slight change of the usual seasonal temperature.

Although we don't blame millions of European and American refrigerators for the deaths of millions of African people who died of the consequences of drought over the last decade, we can certainly say that the recurrent Sahelian drought is an appropriate example of an environmental disaster in Africa.

Most natural disasters occurring in Africa are environmental in nature. And most of them affect the decline of the environmental situation in Africa, in that they accelerate it. It is a vicious circle, "disaster - environmental damage - disaster", which hinders the success of all sorts of development initiatives in Africa. Several African countries already live "the day after" of the worse environmental disaster ever suffered in their whole history. I have long tried to name and define the disasters affecting most African countries: soil erosion, deforestation, rain failure, overpopulation, misuse of the land, political mismanagement, war. I have eventually found one single word which can indicate at the same time cause and effect of all the natural and made-man disasters listed before: <u>POVERTY</u>.

Figure 2 shows the relationship between the socio-economic status of a country and its proneness to severe consequences from any natural disasters. The worse the socio-economic situation, the more serious the effects of all kinds of natural disasters on the community.

The simple fact of being poor therefore puts most African countries at high risk of severe loss of human life and property following natural disasters.

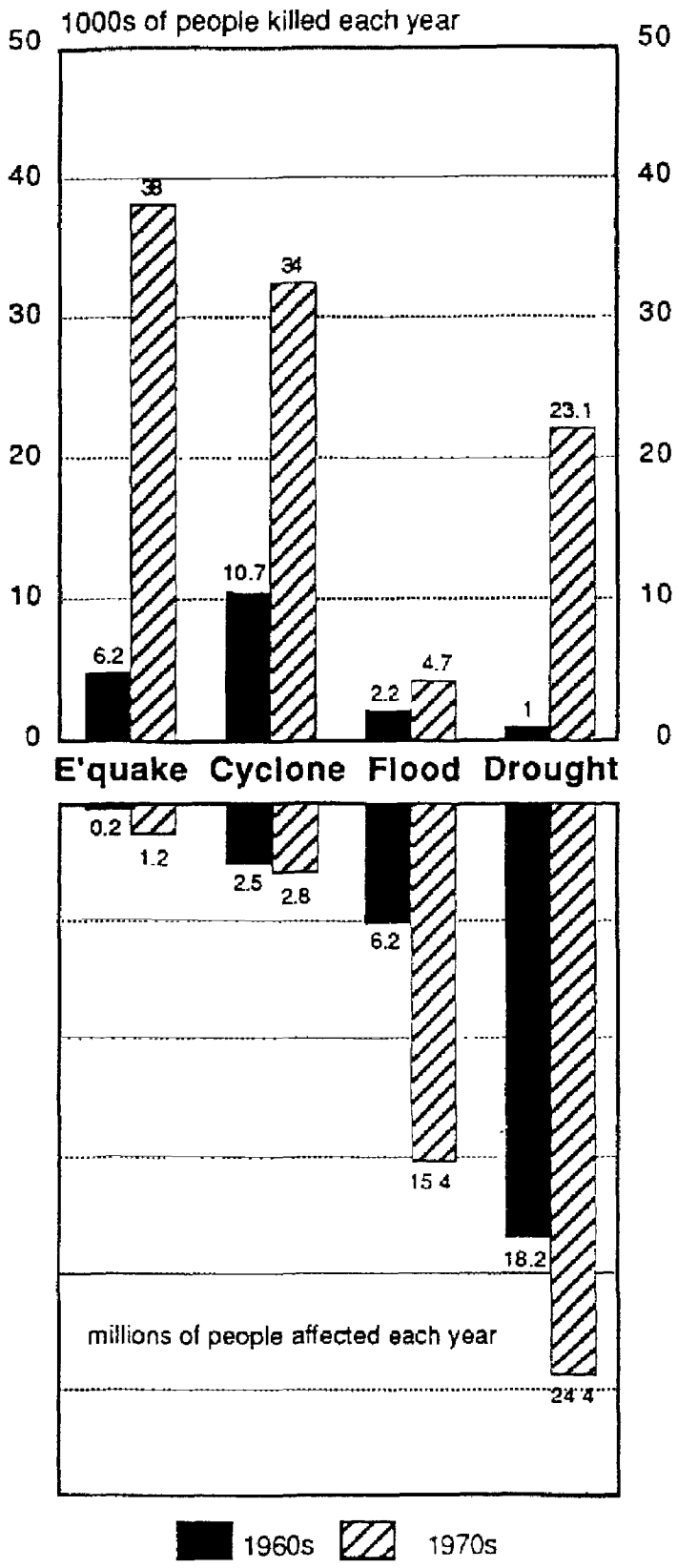


Fig. 1. Natural disasters in the 1960s and 1970s

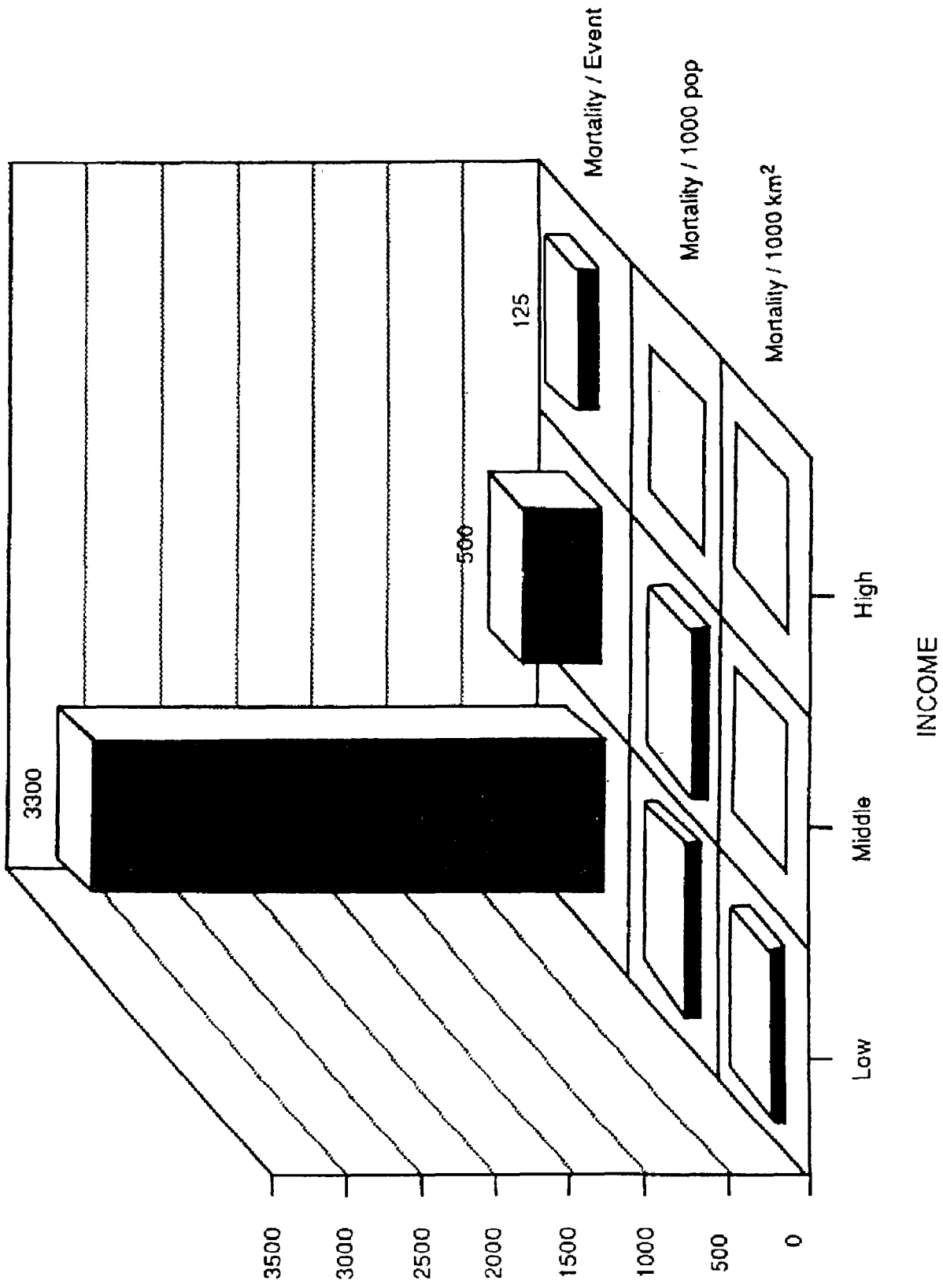


Fig. 2. Disaster mortality in relation to development status

Many of the effects that poverty has on a community are in fact exerted on the environment where the community live. On the other hand, people living in the extremely hostile and harsh environment of many parts of Africa have no resources, time or energy to substantially modify the environment in a way favourable to them. Instead, their main concern and everyday's fight is for bare survival.

It has been calculated that a level of haemoglobin around 12.5 grams per 100 millilitres of blood (instead of the usual 15 g/100 ml) lowers the working capacity of a farmer by about 14.3%. Those who are familiar with anaemia in tropical Africa know very well how commonly even lower levels of haemoglobin can be found in children and adults.

The cause of this anaemia depends very often on environmental hazards. Malnutrition, emo- and geoparasites, frequent gastro-intestinal diseases play an essential role in depriving children especially of the nutrients (vitamins, iron, protein) necessary to build up components of haemoglobin. Malnutrition, emo- and geo-parasites and diarrhoeal diseases all are major effects on health of a poor and unfavourable environment. Malnutrition is often related to undernutrition, when little food is available in the family because of a bad, dry season.

Diseases due to emo- and geo-parasites (more commonly malaria, ankylostomiasis and ascaridiasis) are the outcome of non-existent or insufficient basic sanitation and aborted disease control programmes. Gastro-enteritis and other diarrhoeal diseases represent the primary cause of death among children who have no or limited access to safe water. These are a few examples of how the "vicious circle" works in maintaining an unfavourable environment for human beings' development in Africa.

Populations affected by sudden-onset natural disasters (eg. earthquakes, floods, eruptions, etc.) experience sometimes for a few weeks or months a degree of disruption of basic health services similar to that usually found in most villages of rural Africa.

Should one assume that those are conditions featuring an environmental health emergency, the logical conclusion would be that most of the African continent is in a perennial state of environmental health emergency. We can't reject this conclusion.

The WHO definition of disaster is as follows:

"A disaster is any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area".

This definition of disaster endorses the view that Africa is living its own, long-lasting emergency. What generates more damage than the endless African conflicts? And what is a better example of ecological disruption than soil erosion and deforestation going on in large parts of Africa?

Doesn't a child mortality rate around 250 per 1000, not uncommonly recorded in Africa in "normal" times, represent an enormous, unnecessary loss of human life? And finally, isn't very limited accessibility to health care, safe water and basic immunizations for the majority of the population, a sign of extreme deterioration of health and health services?

We can therefore probably agree on what I have already stated, that most of Africa is currently experiencing the worse disaster that has ever affected this continent and perhaps the world as a whole. What are the possible implications of this statement upon the topics of environmental health management in emergencies that we are discussing today?

Probably, only one: African people urgently need the help of the international community in order to cope with the many threats menacing their health and much of the help they need should be addressed to implement those environmental improvements which are at the same time meaningful, affordable and self-sustainable. The coming decade for reduction of natural disasters, as already the one just passed for drinking water supply and sanitation is certainly an opportunity for putting into practice these measures.

It is up to politicians, scientists and administrators to keep in mind that the African environment is either seriously ill or it will be soon, unless urgent initiatives are taken which stop its deterioration and lay the groundwork for genuine development. And no doubt can exist nowadays that genuine development is comprehensive, entailing equitable distribution of goods and resources available between the rich and the poor. We can't see how such a division between human beings could be removed while the present great differences remain between the environment where the two categories live. Let us now see together what the priorities are among the possible actions to be taken in order to prevent serious disasters in Africa.

First of all, one has to know the vulnerability profile of this part of the world before setting up any plan of action either for preparedness or relief intervention.

Our WHO-EPR Pan African Centre is currently engaged in collecting all information available, both at international and country level, to establish a referral documentation centre for researchers and decision-makers concerned with the planning of emergency preparedness activities in Africa.

Figures obtained from some of the documents at our Centre demonstrate that drought, floods and infestations, three major environmental disasters, accounted for more that 50% of all natural disasters which occurred in Africa during the last decade.

Environmental disasters of the sudden-onset type (earthquakes, cyclones, volcanic eruptions, etc.) which are far more common in other parts of the world, only represent 11% of the calamitous events which afflicted the African continent over the 1980s. Although we can't rule out the future occurrence of violent earthquakes, windstorms or hurricanes in densely populated areas of Africa, it is quite clear that priority has to be given to the prevention of disasters more likely to endanger people's lives.

We have just seen that a first step to work out preparedness and relief plans is to draw up a vulnerability profile of the area of intervention. To have a reliable vulnerability profile, meaning one that takes into account all possible risks in a given area, it is highly desirable and sometimes essential to get the community to participate in it. Community participation is required in managing emergency preparedness in general, but it is an absolute must when dealing with the environmental health aspects of emergencies.

Other emergency health measures can sometimes be taken without involving the community in the decision process: hospitals can be built according to standard schemes or, if pre-fabricated, they can be air transported to any disaster area and assembled; essential emergency drugs, urgently needed to face any kind of emergency, can confidently be ordered by mail from a WHO standard list.

On the other hand, it is very difficult to "impose" pit-latrines on a population of nomads and a high proportion of hand-pumps break down shortly after installation, if people have not been made aware of the importance of drinking safe water instead of water from a nearby pond.

One of the most pressing problems currently affecting Africa is the displacement of people, within or outside the national boundaries. These people often find asylum in camps or other kinds of shelters. When they do so, or even when they seek temporary lodging in slums and shanty towns, serious public health problems arise. Inevitably, an environmental health emergency occurs when a large number of people live together in a relatively limited space for a few weeks or months. Moreover, the newcomers to a camp or slum are usually in bad health, because of the exhausting march to the place and their already precarious health. Some may be carrying with them germs or parasites that will rapidly spread under overcrowded conditions, especially among persons whose health is at all weak. The most vulnerable and exposed (children, sick, elderly, pregnant women) will rapidly get sick and the most unfortunate die.

The leading causes of death in the first phase of life in a shelter have been repeatedly reported to be: measles, diarrhoeal diseases, acute respiratory infections and malaria, in selected situations.

It has been consistently reported that a definite improvement of the standard of hygiene in shelters was in most cases the decisive factor in stopping and eventually reversing the growing mortality rate among new arrivals. In most cases this improvement was achieved through the adoption of better and more appropriate measures of environmental health: provision of adequate drinking water (in quality and quantity); the digging of a sufficient number of latrines; a decrease in the number of persons sharing the same dwelling and some sort of vector control.

The experience gained in the field then, has become a lesson learned by health planners working in emergency situations. It has been subsequently taught in Public Health Schools all over the world and largely put into practise by other health planners in their first experience in health emergency management.

The flow-chart in Figures 3, 4 and 5 show the decision-making processes involved in the reactivation of water supplies, food supplies and liquid waste disposal in a disaster-stricken area. They are used to teach health planners the kind of problems one has to deal with when engaged in trying to restore a damaged water-supply system. This picture, summarizes all the knowledge, skills and technology needed to accomplish this task.

Although fixing pumps, water-tanks and pipelines may seem a strictly technical problem, it requires managerial guidance and a broad, overall view of the situation. Difficult decisions have to be made and each of them must be soundly based. One has to strongly resist the temptation of applying

standard solutions, just because they have turned out to be successful "somewhere in the Third World.

On the other hand a post-emergency situation is certainly not the best time for experiments. Perhaps, the right attitude for an expert called upon to propose solutions to solve environmental health problems brought to light by any emergency is that of a good listener and acute observer.

Having already seen how community involvement is essential in environmental health management under ordinary circumstances, one could wonder if the same applies when the community is pressed by an emergency situation. The answer, in our opinion, can only be: YES.

A health manager's role is not to stand for "the best solution" and support it to death. What a community usually asks an expert for is practicable, acceptable alternatives.

No community likes somebody coming from a distant place, where people have different faces, religion and ways of thinking popping in, imposing solutions and then not staying to enjoy them.

On the other hand, the spontaneous way in which a population recently afflicted by a natural disaster responds to the disruption of basic environmental health facilities should be paid much attention when sorting out methods of rehabilitating the services. This is very likely to provide invaluable clues to the way local people perceive the problem and on alternative practicable solutions.

It was by asking the mothers and by observing the traditional way they held their babies on the toilet that the health personnel of an NGO acting in Northern Ethiopia worked out a new more suitable method of digging latrines for that population.

APPENDIX 1

USEFUL POINTS

1. Community involvement in emergency preparedness

(a) Mapping of environmental risks.
(b) Emergency preparedness committee.
(c) Mobilization of expertise available within the community.
(d) Training for local manpower specifically targeted to problem solving in health emergency.
(e) The role of the international organization in health emergency preparedness.

2. Opportunities for community-oriented prevention and preparedness

Working with the potential victims to make their environment less prone to disaster and themselves less vulnerable should be:

- directed to those on the margins;
- family based and village based;
- environmentally sustainable;
- concerned with protection and rehabilitation of soil, water and forests;

- aimed at reducing poverty among the vulnerable;
- concerned with nutrition;
- concerned with fostering self-reliance;
- focussed on subsistence agriculture.

3. The importance of training and information exchange at national and international level for preparedness and timely, adequate response.

(a) Data banks and documentation centres in Africa and in the world.

(b) The potential leading role of research centres and universities.

(c) From the field to academia: building up a career for those who have been involved in grass-root level activities.

(d) Follow-up of interventions: how emergency can help development.

(e) Bringing the training where emergencies occur: a new challenge and opportunity for developing countries.

(f) Creation of an African Environmental Early Warning System: a good idea but what comes after the warning is given? Would it be the right way to spread awareness among politicians?

4. Will the next Chernobyl be in Africa?

(a) Technical progress in Africa does not follow the same pattern as in the Western World. Under pressure to accelerate their economic growth, some African countries may import technology hard to keep under full control.

(b) National, regional and tribal conflicts jeopardize environmental protection initiatives in several ways. Unless peace is achieved, no action can be taken to prevent environmental disasters from occurring.

(c) The exodus from the countryside and wild, uncontrolled urbanization in Africa is laying the ground for a major, irreparable ecological and health disaster. This is a new danger, that requires swift recognition from all parties involved in health care in Africa and re-targeting of traditional priorities.

(d) Environment and diseases: how to match developmental changes in the environment (irrigation schemes, dams, large plantations, sewage systems, new settlements, etc.) and control of old and new diseases (malaria, schistosomiasis, leishmaniasis, yellow fever, meningitis, AIDS). Hand-in-hand work for health and human settlements planners.

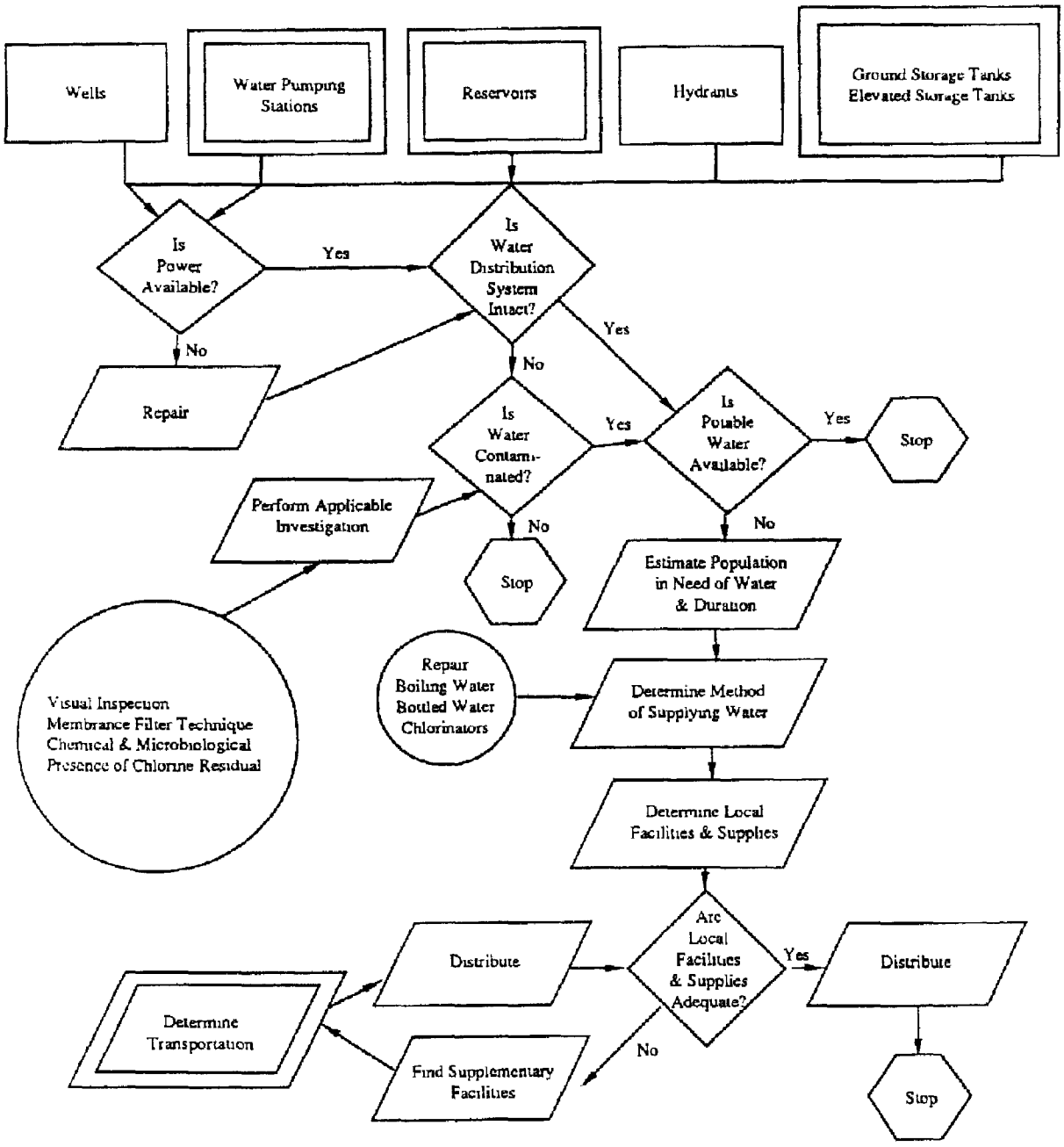


Fig. 3. Decision making flows for water supply after a disaster

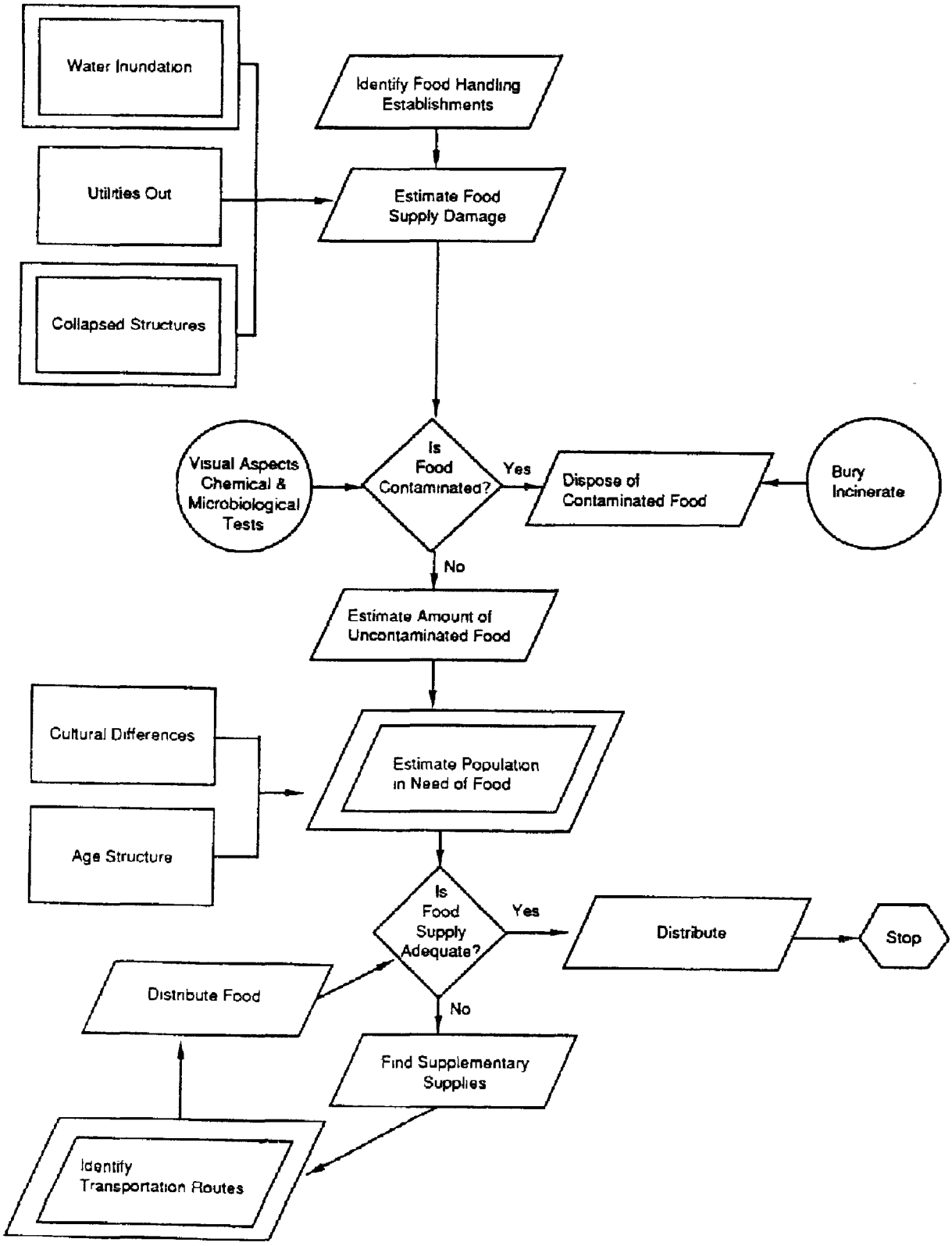


Fig. 4. Decision making flows for food supply after a disaster

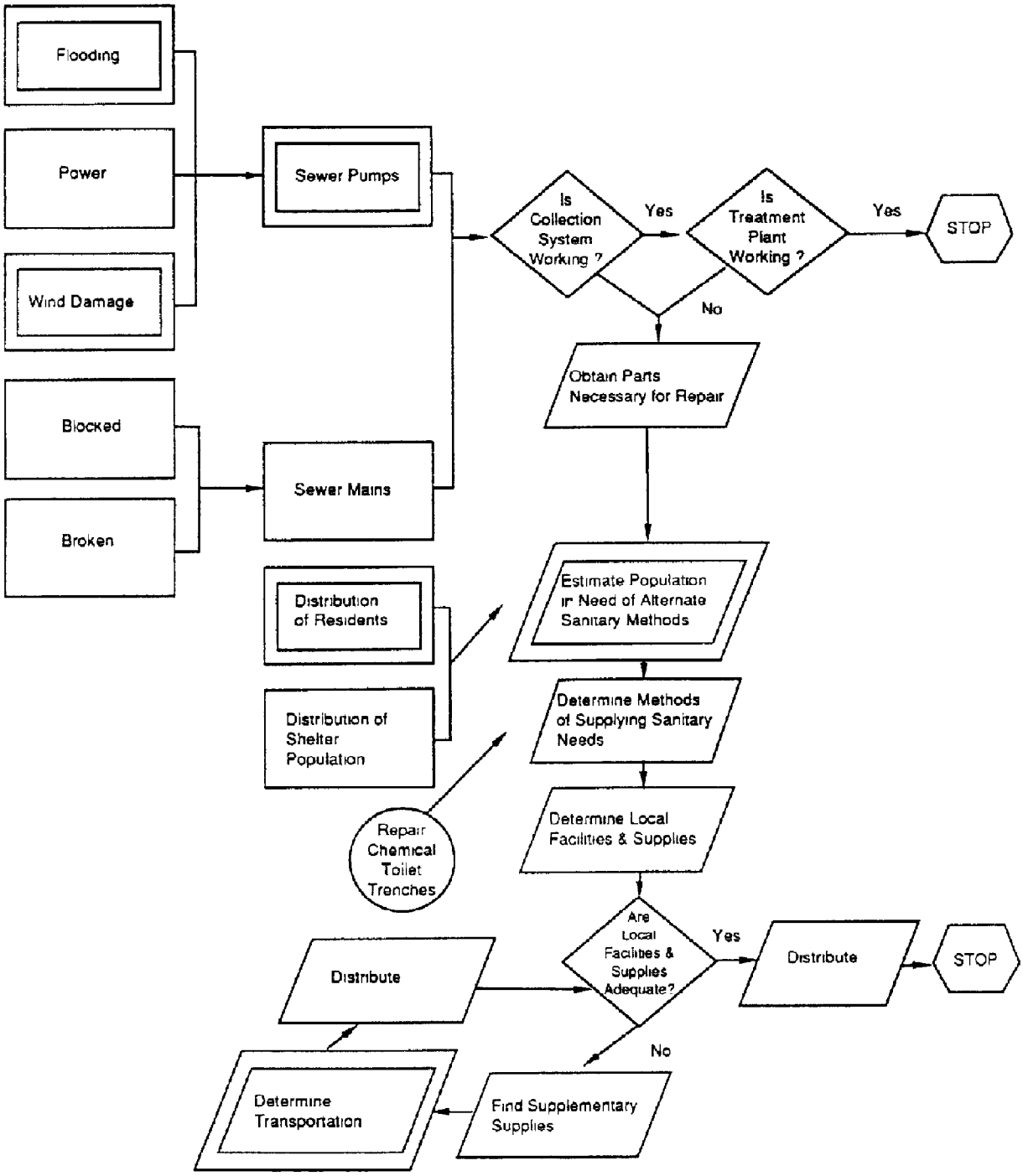
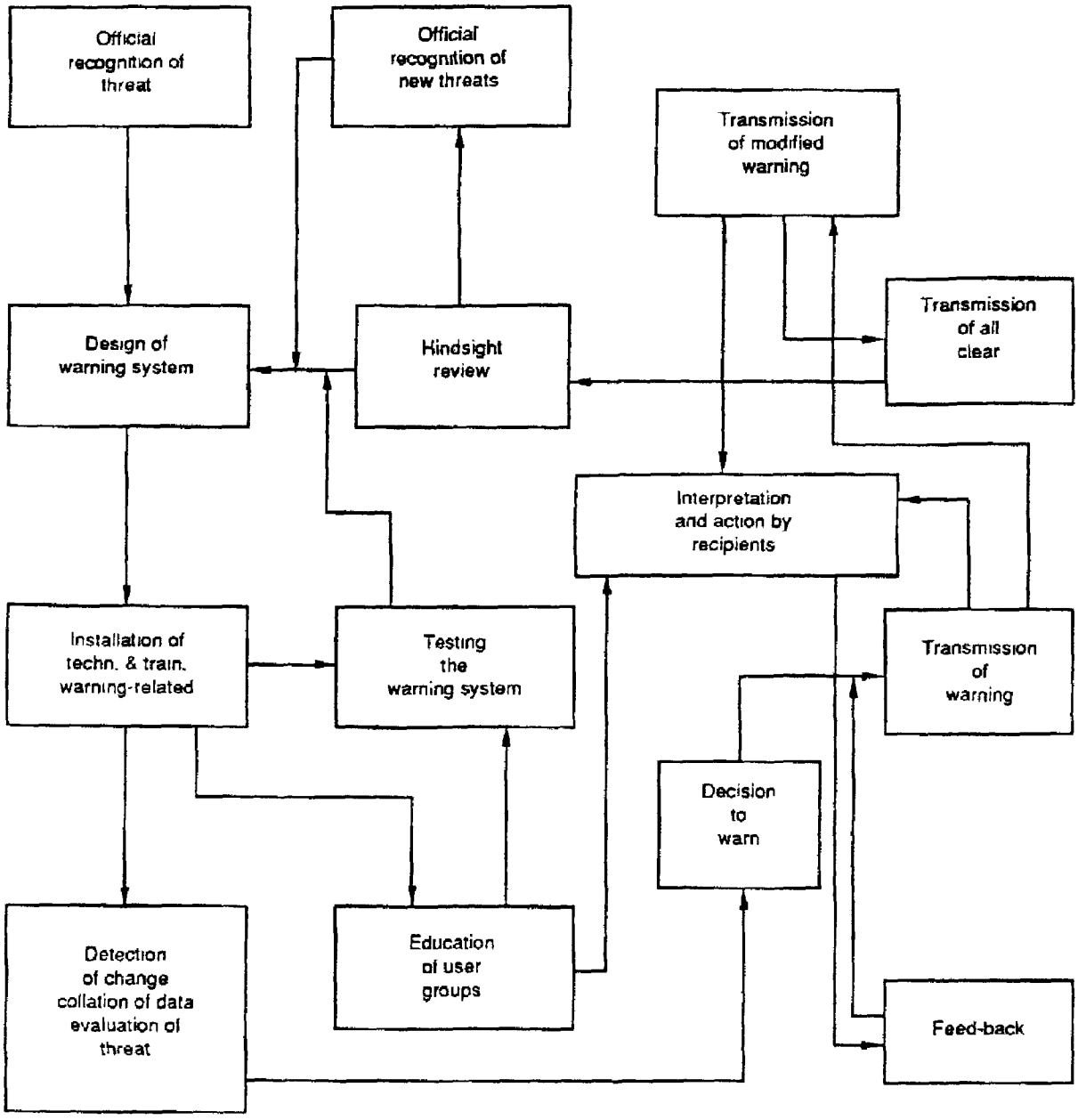


Fig. 5. Decision making flows for liquid wastes disposal after a disaster

APPENDIX 2

IDEALIZED WARNING SYSTEM



APPENDIX 3

INFECTIONS

1. Water-related infections

All water-related infections are transmitted by one or more of four mechanisms:

- Water-borne transmission

Transmission occurring when the pathogen is contained in water which is drunk or used in the food, e.g. cholera.

- Water-scarce or water-washed transmission

Transmission from person-to-person in the domestic environment which might be reduced if more water was available and if it was used to improve personal and domestic cleanliness, e.g. scabies.

- Water-based transmission

Transmission of a pathogen which needs an aquatic intermediate host or hosts to maintain its life-cycle, e.g. schistosomiasis.

- Water-related insect vector transmission

Transmission by insects which breed in water or which live and bite near water, e.g. malaria.

All water-related infections which may be transmitted by the water-borne mechanism may also be transmitted by the water-scarce or water-washed mechanism.

2. Excreta-related infections

An excreta-related infection is one related to human urine and faeces. Only two transmission mechanisms are exreta-related:

- Transmission via infected excreta

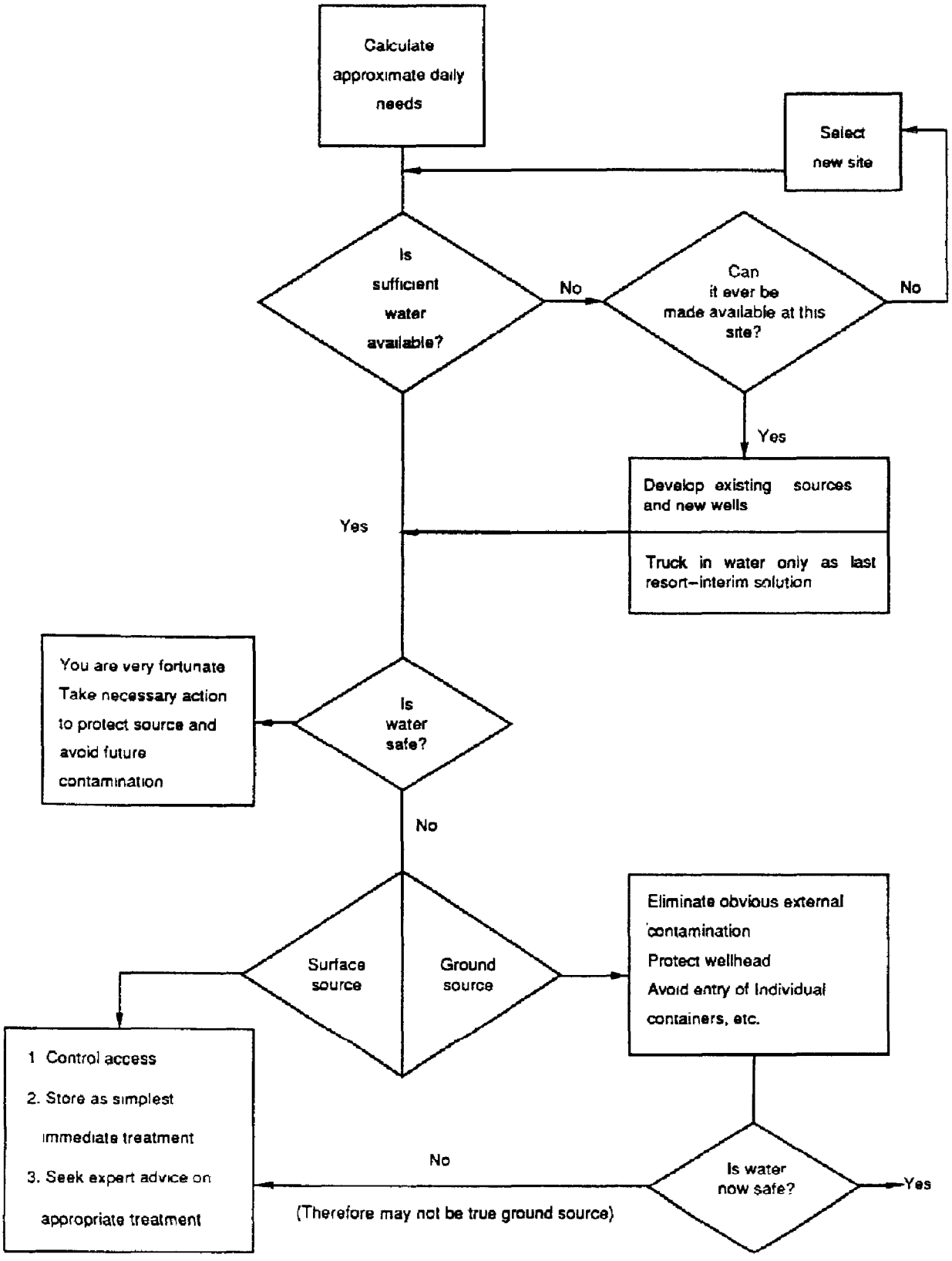
The pathogen is released into the environment in the faeces or urine of an individual.

- Transmission by an excreta-related insect vector

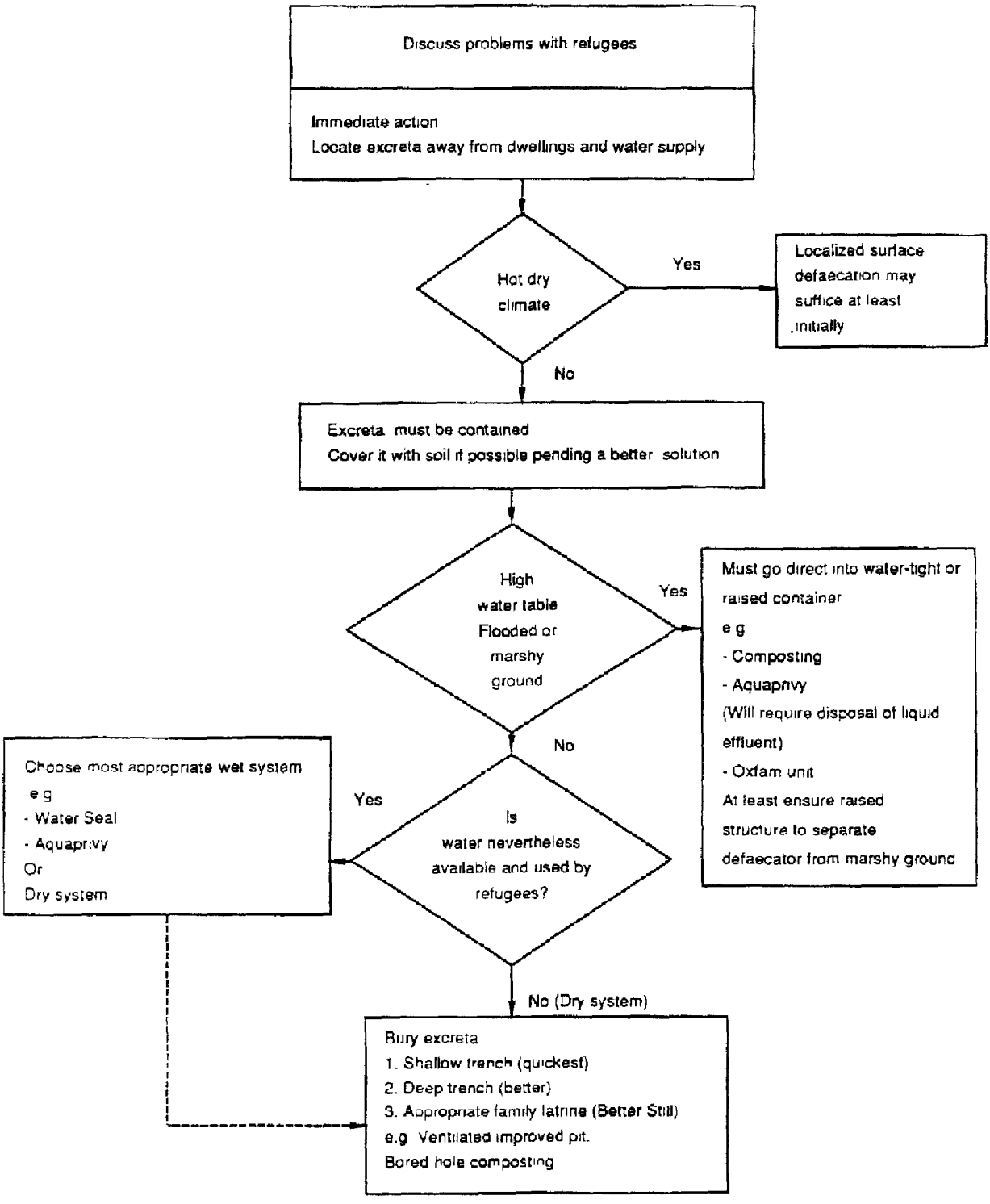
An insect which visits excreta to breed or feed may mechanically carry excreted pathogens to food. An insect vector of a non-excreted pathogen may preferentially breed in faecally polluted sites.

All excreta-related infections are also water-related, except for two types of helminth which are excreted and reinfect through the skin without requiring an intermediate host - namely the hookworms and *Strongyloides*. By contrast, many water-related infections are not excreta-related, for instance, skin infections, trachoma, guinea worm, and malaria.

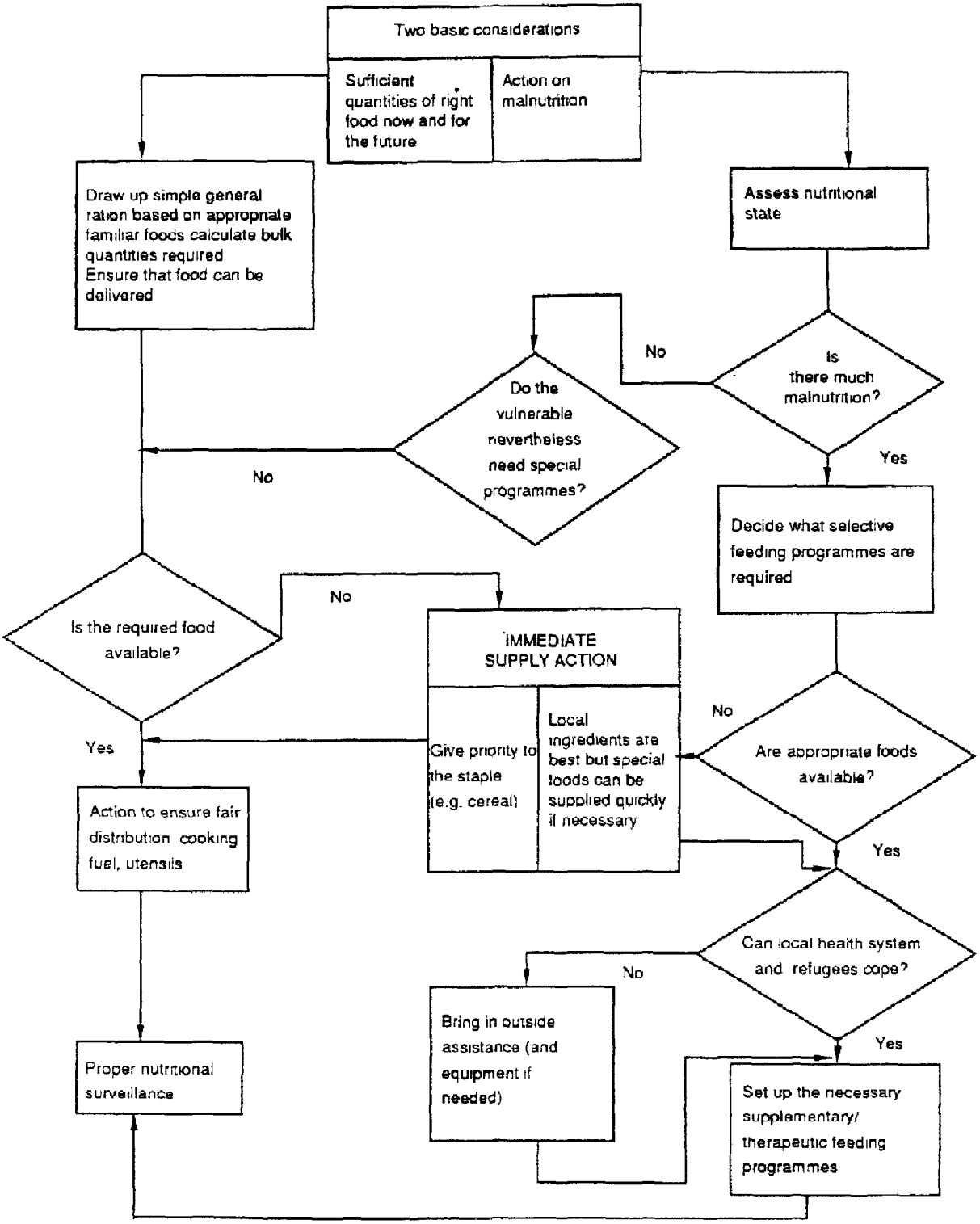
3. General considerations in emergency water supply



4. Considerations in excreta disposal



5. Response to food and nutritional needs



APPENDIX 4

THE MEDIA

1. PUBLICATIONS - 1988 (UNITED KINGDOM)

Dailies	127
Sundays	2342
Locals	1596
Periodicals	7699
Annuals	1084

2. PUBLICATIONS - 1988 (EUROPE)

Newspapers	1053
Periodicals	4342
Annuals	412

3. MEDIA REACTION DEPENDS ON:

1. Time of day
2. Geographic location
3. Weather

4. GOVERNMENT PUBLIC RELATIONS

"To influence public perceptions of the government as a defender of the country and its interests, as a good employee, as an efficient user of the taxpayer's money, and as a contributor to the well being of the population."

5. IN DISASTER THE ROLE OF THE PRESS OFFICER IS TO:

- Impart information
- Allay fear
- Reassure

6. MEDIA BRIEFS

1. Attribution
2. Non attribution
3. Partial attribution
4. Off the record

7. MEDIA BRIEF

- Be factual
- Be firm
- Be polite

8. NEVER!

- Lie
- Say "No comment"
- Go "Off the record"

9. ABBREVIATIONS

Do not use! ENG = engineer
electronic news gathering
enrolled nurse general

10. INFORMATION GATHERING

1. Cameras
2. Radios
3. Audacity
4. Spot microphones
5. Lip reading

11. HIGH TECH JOURNALISM

1. Electronic news gathering
2. Portable communications
3. Instant access to computer

12. RUDYARD KIPLING

"I kept myself six serving men
They taught me all I knew
Their names are WHAT and WHERE and WHEN
And WHY and HOW and WHO."

13. INFORMATION OFFICER

The Ten Commandments

1. The Media needs you'
2. You are in charge
3. Never lie
4. Never use abbreviations
5. Be factual, be firm, be polite
6. Impart information, allay fear, reassure
7. Remember always on the record
8. Remember Rudyard Kipling
9. Be in control with a good layout
10. Be like a boy scout

14. INFORMATION PRINCIPLES IN TIME OF DISASTER

The Ten Commandments

1. MUST come from authority
2. MUST be centralized
3. MUST be on the record
4. CANNOT be held back
5. WILL be published
6. CANNOT be treated as classified
7. FIRST available conflicting
8. MISHANDLING worsens situation
9. USEFUL to management
10. USEFUL to assess future questions

REMEMBER!

Lack of information breeds:

This morning's SPECULATION
This afternoon's FEAR
This evening's PANIC

KEEP THE PUBLIC INFORMED!

16. NEWS CONFERENCE/MEDIA BRIEFING

The Ten Commandments

1. Ample room
2. Speaker platform
3. Sound system
4. Recording
5. Lay-out
6. Fact sheets
7. Parking
8. Accreditation
9. Specialist available
10. Interviews - one on one

17. INTERVIEWS

The Ten Commandments

1. Homework
2. Courtesy
3. Copy
4. Have good introduction
5. Know who
6. Know how long
7. Know what for
8. Know questions
9. Know backdrop
10. Know when to stop

18. CORRECTIONS

...this BATTLE SCARED veteran of war.
...this BOTTLE SCARRED veteran of war.

19. INTIMIDATION BY THE MEDIA

1. Loaded introduction
2. Unacceptable alternatives
3. Hypothesis
4. Comment
5. Constant questions

20. LEARN TO USE THE MEDIA
- or prepare to be used

Say what you mean - mean what you say
Be like a boy scout - "Be prepared"