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COMMUNICATING RISKS: HEALTH AND ENVIRONMENTAL
ISSUES (with emphasis on developing countries)

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Abstract

In dealing with communication issues relating to health and environment, two vital aspects come to mind: the need for toxicovigilance and transparency. It remains a fact that toxicovigilance data in most developing countries are still weak and inadequate. Consequently, the health of society becomes compromised. It is therefore imperative that toxicovigilance be emphasised as it directly affects the well-being of society at large. While there is a need for new information and data, it appears that the public’s response to them is not forthcoming. More often the ‘knee-jerk’ response to new information is one of denial. In certain instances some people adopted a ‘gag’ mindset towards them. This is counter-productive as ultimately they too will become victims of their own ignorance.

Equally important is to assert the need for transparency in order to allow the free flow and sharing of key information among individuals and organisations as well as the related agencies - particularly on issues affecting the safety and health of a good majority of the population. Everyone should have the right to health information when the society at large is at stake. The situation can be worsened if information is regarded as ‘power’ rather than a resource to be shared.

Indeed, there is much urgency for the dissemination and sharing of important information on health and environmental issues particularly to all those concerned. Our society will then become more enlightened where individuals are nurtured into maturity on issues affecting them through collective responsibility. For this to happen, they must be informed and remain so at all times.

This paper will discuss on the above aspects and will also review the following: the relationship between health and environment with respect to communicating risks, the importance of communicating risks and the barriers to it; our own experiences at the Centre in communicating risks; and also a proposal on ten basic questions that need to be focused on in communicating risks.

Friday, 22 May 1998, 1600-1730 at Novotel Hotel on Siam Square
Introduction

Undoubtedly, communication remains a crucial aspect in the overall management of health and the environment. This has been recognised by many international bodies for example the World Health Organization (WHO), even as it celebrates its 50th anniversary. Established in 1948, WHO was given the mandate “to act as the world’s directing and coordinating authority” on questions of human health. In fact, WHO Constitution states: “informed opinion and active cooperation on the part of the public are of the utmost importance in the improvement of health”. In all these, it is implicit that WHO has an important role to play in communicating health issues to all sectors of the global population. In a recent issue of WHO publication, World Health, the Director-General reiterated “the need to communicate [health issues] more fully and clearly with members of the public.”(1)

While health traditionally has been identified with risks due to the lack of development (e.g. lack of access to safe drinking water, inadequate basic sanitation), natural disasters (floods, earthquakes), and disease vectors (mainly insects and animals), this scenario is fast changing given the rapid pace of development driven by science and technology. Consequently, today’s health and environmental risks are more varied and could easily transcend geopolitical boundaries. These would include problems like pollution (water, air), chemical exposures (pesticides, industrial chemicals), waste disposals (radioactive, industrial, healthcare wastes), occupational mishaps (workplace illnesses, accidents, injuries), ecological changes (global warming), food hazards (mad cow, bird flu, mass poisonings) and “new” diseases (emerging - AIDS, Ebola; and re-emerging - TB, malaria). Relative to the risks traditionally associated to health, today’s risks can be even more devastating and difficult to handle, let alone eliminate.

It is poignant at this juncture to note that in the last 2 decades (1970-1990) there were at least forty serious industrial accidents - involving 50 or more deaths, or 100 or more injured. Of this figure, about half (24/40) took place in Asia. It has been observed that countries in the early stages of industrialisation (like many Asian countries) are particularly vulnerable to frequent accidents of tragic dimensions. Some of the classic instances of mass diseases resulting from toxic environmental exposures occurred in Japan in its period of modernisation (Table 1), although the numbers involved does not reflect the full impact of such disasters.

As for the developed countries however, many continue to exacerbate the risks now experienced by developing countries through the transfer of obsolete industries and technologies. In any case recently the Panel on Industry of WHO Commission on Health and Environment considers at 16 industrial sectors as the mostly to have adverse health and environment impacts on the general population and on workers (2).

<table>
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<tr>
<th>Place &amp; Time</th>
<th>Environmental Risks</th>
<th>Health Consequences</th>
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| Minamata Bay, Japan, 1953 - 1961 | Methyl mercury pollution of seafood ("Minamata disease") | - more than 100 cases (including 40 deaths)  
- neuro- & fetal toxicity |
| Fuchu area, Japan, 1955 - 1968  | Cadmium contamination of rice ("Itali-Itali-Byo disease") | - more than 200 cases (mainly women)  
- bone deformities & kidney disease |
Even then the agricultural sector is not without its own health and environmental risks. Common risks factors normally associated with it include: chemical poisoning, insecticide resistance, introduction of new and 'more hardy' vector species, and changed disease transmission potential.

Thus, it is increasingly clear today that in terms of risks, the issues of health and environment are so closely intertwined that no arguments against environmental deterioration can be any stronger than the need to eliminate health risks resulting from it. In view of all these, communicating risks therefore is an important strategy in trying to create a safer, healthier society. Needless to say communicating risks is about creating change towards a risk-free environment.

The Importance of Communicating Risks

As implied above in almost all matters involving health and the environment, risk is indeed an inherent factor. A simplified health and environment cause-effect framework modified after Briggs, Corvalan & Nurminen (3) and Kjellstrom & Corvalan (4) sums up the relationships operating between the driving forces, environmental pressures and states. This further resulted in human exposures and the related health effects - both of which may constitute some form of risks (Figure 1). The action therefore is aimed at reducing all the effects so that when properly managed the impact of the risks can be minimised, if not totally eliminated. Therein lies the role of risks communication. In other words the impact of communicating risks is as important as that of the risks themselves.

![Figure 1: The relationship between risks, health and environment](image)

<table>
<thead>
<tr>
<th>Driving Force</th>
<th>Population growth</th>
<th>Economic development</th>
<th>Technology</th>
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<tr>
<td>Environmental Pressure</td>
<td>Production</td>
<td>Consumption</td>
<td>Water release</td>
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<td>Environmental State</td>
<td>Natural hazards</td>
<td>Resource availability</td>
<td>Pollution levels</td>
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<tr>
<td>Human Exposure (Risk)</td>
<td>External exposure</td>
<td>Absorbed dose</td>
<td>Target organ dose</td>
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<tr>
<td>Health Effect (Risk)</td>
<td>Well-being</td>
<td>Morbidity</td>
<td>Mortality</td>
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<tr>
<td>Action: Communicating risks</td>
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modified from (3,4)

While some of these risks are immediately manifested (as in the case of acute poisoning for example in the "poison gas" attack at a Tokyo subway station in March 1995), others are rather insidious and thus pose a unique problem in communication. Indeed, a good majority
of risks associated with health and the environment are 'latent' in nature (for example, exposure to heavy metals like lead, mercury and cadmium - Table 1). Even so, some are fairly predictable while others are not, given the state of knowledge that are currently available. This makes the process of communicating risks not only much more vital but also fraught with difficulties. Notwithstanding however, communication is only a tool which need to be applied constructively for appropriate action, making it all the more challenging.

One good example to illustrate the importance of communicating health risks is the use of tobacco. Despite the many health and environmental hazards linked to the use of tobacco, various sectors of the population continues to be bombarded with the “positive” image of smoking in various forms. This is part of the effort mounted by the tobacco industry to de-emphasise the risk of tobacco by employing various communication strategies. In general it makes the issue of communicating risks even more difficult given the level of sophistication involved in promoting the use of tobacco despite concerted global efforts like the World No-Tobacco Day to be celebrated on May 31 each year. In 1998 it will feature the theme “Growing Up Without Tobacco” - yet another attempt to communicate risk about smoking particularly in children. However, the impact of communication in this respect could be described as ‘schizophrenic’ in the sense that while the media took a clear anti-tobacco stand in terms of its news coverage for events like the World No-Tobacco Day, at the same time it seems to have no qualm in providing prominence to advertisements from tobacco companies. Invariably the net outcome is that the message on the risks of tobacco use becomes overwhelmingly sidelined.

Another good case in point that are of particular relevant to all of us is perhaps the use of medicinal drugs. While it is well-recognised that medicines will bring some therapeutic advantages in treating the patients, much of the risks associated with the medicine are normally taken for granted and thus not well-presented (if at all) to the patient. Crucial information like: side-effects, adverse drugs reactions, the use in pregnancy, the use in children, the use in elderly and the possible interactions with other concurrent diseases or drugs are seldom communicated and as a result the awareness about the risk of using medicines (especially new ones) remains low. This has been known to lead to what is being termed as “drug misadventuring” (7). Although in a majority of the case the risks could be considered small, nevertheless it could turn out to be just as costly as reported by authors like Manasse (7, 8). In any case the risks involved could be widespread considering the number of people that could be exposed to such medication, again promoted through advertising. The tragedy involving the use of thalidomide in the early sixties where more than 12,000 babies were maimed for life remains not only as an important reminder as to the inherent risk in the use of medicines, but also reinforces the message that communicating risks is vital.

The need to communicate risks about drug use is even more important as most drug promotional materials and advertisements tend to emphasize only the “benefits” of the medication. There are several evidences to indicate that there are in fact deliberate attempt not to communicate the risks involved (9). This is re-emphasised in a statement during the 49th World Health Assembly in Geneva (1996): “access to drugs is still inexcusable, that promotion of commercially produced drugs still outweighs, independent, comparative, scientifically validated and up-to-date information on drugs.”

 Needless to say these are just some of the immediate issues that could be randomly cited as examples. There are many other issues that call for the need to effectively communicate risks to the vast majority of the population. In the last six years there many attempts to communicate issues on health and the environment at a global level, realising that the future of humankind will invariably be put at risk if certain trends are not modified (Table 2). In-
Indeed, communication has been accepted as an important preventive strategy in managing risks identified in such conferences.

Table 2: Selected conferences on health and environment (1992-1997)

<table>
<thead>
<tr>
<th>Year</th>
<th>Conference</th>
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<tr>
<td>1992</td>
<td>UN Conference on Environment and Development (Earth Summit), Rio de Janeiro, Brazil</td>
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<td>1994</td>
<td>International Conference on Population and Development, Cairo, Egypt</td>
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<td></td>
<td>Second European Conference on Environment and Health, Helsinki, Finland</td>
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<td></td>
<td>International Conference on Chemical Safety, Stockholm, Sweden</td>
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<td></td>
<td>Ninth World Conference on Tobacco or Health, Paris, France</td>
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<tr>
<td>1995</td>
<td>UN World Summit for Social Development, Copenhagen, Denmark</td>
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<td></td>
<td>WHO International Conference on Health Consequences of the Chernobyl and other Radiological Accidents, Geneva, Switzerland</td>
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<td></td>
<td>Pan American Conference on Health and Environment in Sustainable Human Development, Washington, USA</td>
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<td></td>
<td>Second Conference on Health, Environment and Development, Beirut, Lebanon</td>
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<tr>
<td>1996</td>
<td>UN Conference on Human Settlements (Habitat II), Istanbul, Turkey</td>
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<td></td>
<td>One Decade after Chernobyl: Summing Up the Radiological Consequences, Vienna, Austria</td>
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<td>World Food Summit, Rome, Italy</td>
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<tr>
<td>1997</td>
<td>UN General Assembly Special Session (UNGASS) to Review the Implementation of Agenda 21 (Earth Summit II)</td>
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<tr>
<td></td>
<td>Tenth World Conference on Tobacco or Health, Beijing, People's Republic of China</td>
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<td></td>
<td>International Conference on Global Warming, Kyoto, Japan</td>
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Barriers in Communicating Information about Risks

Despite the importance of communicating risks related to health and environmental issues, there are still a number of existing barriers that need to be overcome. In a similar conference - Getting health information to developing countries - held in London in 1994, three barriers were identified as restriction in the dissemination of such information, namely (10):

- lack of coordination and communication among the health providers
- lack of collective action to build a clear understanding of global health information needs and provision, and
- lack of advocacy for political and financial commitment.

In very much the same way, these barriers would also apply to problems of communicating risks and in fact more so. This is because information about risks are not as readily available and the appreciation for the need of such an information is relatively low as demonstrated above. Moreover, communicating a "negative" piece of health information (such as 'risks' and 'hazards') can provoke entirely different responses and sensitivities which could be counter-productive.

In this respect, no less a barrier in communicating risks are the prevalent attitudinal tendencies observed across the board be it the health professionals, the media, the policy makers and the public. In most cases, professionals in the health and scientific community tend to assume that technical and scientific information are too 'specialized' to be understood by the
lay population. As such, any relevant information are normally kept close within the scientific community and are not well articulated for public consumption even when it is vital to do so. They fear of being labeled 'unprofessional' or even 'alarmists.' The media professionals, on the other hand, seem quite reluctant to venture beyond reporting what is deemed as newsworthy (as in the case of tobacco use cited above). The fear of misreporting or even 'distorting' the scientific facts is of course real, and they are often being accused of 'sensationalism.'

Indeed, by and large there have always been an uneasy relationship between the health and media professionals in attempting to communicate risks through the mass media. The case of the recent haze incident in the region is perhaps a good illustration when the environmental health risk involved is not well articulated in some of the press reports. There has been a considerable confusion, for example, as what does the Air Pollution Index stands for, and what the health ramifications are, and thus the actions that should have been taken (11).

In some instances the scenario is further confounded by an atmosphere of 'political apathy' reflecting a lack of understanding of the long-term risks involved. Again in the case of the haze the appropriate public health policies are not being seriously implemented or in some cases shelved indefinitely. Yet when the situation turned ugly, the political action could be swift and unpredictable making communication altogether impossible. At some point during the recent haze such an attitude was observed among some quarters perhaps due to the underestimation for the need to communicate the risk involved. It was construed to be politically sensitive to communicate in any form the risks involved even though the threat of a potential epidemic or disaster remained unabated (12). It later led to an emergency situation at least in some places.

At the extreme end of the spectrum, even when the risks are so well known and well publicised, 'political ego' could still stand in the way. Such seemed to be the case when a series of nuclear blasts were carried out on Mururoa atoll in the South Pacific throughout 1995, despite the reaction of rage and indignation expressed around the world.

Thus, communicating risks is hard work despite the best of intention, and it could be a global phenomenon.

Apart from the above-mentioned, other barriers could be even more fundamental, for example, the lack of resources for any meaningful communication; poor access to reliable (often specialised) information; and biased or restricted flow of information (public health versus commercial/political interest) - as often the case in developing countries. The situation is especially more serious in areas where people live in poverty and in neglected conditions: crowding, deprivation, undernutrition, poor sanitation, chronic exposure to pollutants, pests and diseases, and where there is inadequate access to health care. During the period of economic downturn as the one experienced today, the impact of risks become even more prominent, as the situation worsened.

It is not surprising then, especially in the developing countries that the public in general has long been 'ignored' in attempting to articulate appreciate what environmental health risks are all about. This is reinforced by the general perception that government agencies are by and large bureaucratic, insensitive and uncaring in their efforts to openly communicate about risks. Consequently the public are largely not as motivated to know enough despite the potential damage that they are likely to face over a long-term period. In turn, the health and media professionals continue to be complacent.
PRN Perspectives in Communicating Risks

The National Poison Centre of Malaysia, officially known as *Pusat Racun Negara* (PRN) was established in 1994 with the mission: "To reduce the morbidity, mortality, occurrence and cost due to poisoning in a manner that strives for excellence, compassion and innovation." In short, being a national resource centre one of its important role is to communicate about risks to the general population as well as professionals and policy makers.

This is done through a number of ways, apart from answering queries the conventional ways, namely, by post, telephone, fax. It includes communicating:

- through the mass media - news coverage
- through its regular newspaper columns*, Poison Control, Poison Information, Racun (Malay)
- through its newsletters*, PRN8099 (English) and Penawaracun (Malay)
- through contribution to scientific and lay journals
- through public/professional seminars and workshops
- through participation in public/scientific exhibitions
- by freephone: 1 800 88 8099
- by conducting training and providing study-tours
- by undertaking research and consultancy

* also available electronically, (see also Table 3)

Overall, the PRN experience with the mass media in communicating risks has been an excellent one and benefited tremendously from such relationships(13). Since its establishment, it has sought the assistance of three major local dailies to publish regular PRN columns for its general readership. As a result more than 350 articles have been published over the last three years reaching millions of Malaysians weekly. This has been an important activity of the Centre where queries and feedback from the general public are attended to.

In addition, more than 50 articles were published in a popular science magazine, *Dewan Kosmik*, aimed at teenagers and school children. A general PRN bimonthly bulletin in Malay (*Penawaracun*) for the lay public in addition to a professional bimonthly bulletin - PRN8099 - were also published by the Centre. These often become the source of news items as well as feature articles in the press or even other magazine.

From time to time, PRN focus on a particular issue regarding a related risk potentially endangering the public. One such issue is about lead exposure with particular reference to school children. In dealing with such an issue the Centre conducted its own research and then plan out advocacy campaign to communicate about the risks involved. To date, the Centre has completed two studies and has received extensive media coverage - both printed and electronic - including talk shows and interviews. PRN too has published a number of educational materials: booklets (in English and Malay) as well as audio-visual materials, namely videos and posters.

This experience too proves to be positive in that several government agencies have shown interest in exploring the issue further. An elaborate study are now being planned for a state-wide research on the subject. It would seem so far, some degree of success has been achieved in the attempt to communicate about the risks of lead exposure, in parts thanks to the media.
The Role of Information Technology

Another form of communication strategy seriously being considered and adopted in PRN is the use of information technology. Since 1982, PRN has initiated the use of appropriate technology in delivering health message across the country. For example until 1995, the Centre operates a videotex system jointly with Telekom Malaysia (14). Although this communication tool is now being overtaken by more advanced microchips and CD-ROM technology, it nevertheless illustrates the point that rapid and reliable data and information retrieval is an important aspect in communicating risks. Today this is being replaced by sophisticated telecommunication tools like the Internet, in the various forms and formats (Table 3).

Table 3 How do PRN communicate electronically

- by e-mail: pmriel@pm.usm.my
- through its homepage: (http://pm.usm.my)
- through its own electronic discussion groups nationally and internationally
- through its electronic CD-ROM database
- through specialisation regional information networks

In the foreseeable future, under the Multimedia Super Corridor (MSC) application flagships currently being planned for Malaysia, the use of ‘telemedicine’ would certainly be an attractive option to further enhance the communication of risks across the globe. Currently, Internet too has a number of sites related to certain risks for example on diseases:

- Weekly Epidemiological Record (WER): http://www.who.ch/wer
- Disease outbreak news: majordomo@who.ch - type “subscribe wer-reh”

Issues of Concern

Despite such technological optimism, based on the past experiences gathered at PRN, two issues of concern come to mind in attempting to effectively communicate risks related to health and environmental issues. Firstly, the need of toxicovigilance, and secondly, the need for transparency in communicating risks (13).

Toxicovigilance, that is, to be keenly attentive to detect dangers and risks, is the necessary attitude in the attempt to communicating risks. It also defines the quality of communication needed, namely: rapid, reliable and ‘usable’ (that is, could be used to reduce if not totally avert the particular risks) since quality information (IS) and communication in themselves are crucial in averting risks. Toxicovigilance will also assist in providing an early warning about impending risks and thus becomes imperative in the understanding of the risks involved as well as planning meaningful messages that must be communicated as part of the risk management action plan.

Unfortunately to date, the toxicovigilance data available nationwide in many developing countries is rather weak, and the efforts towards rectifying it is rather slow. ‘New’ and relevant local data and information related to health and environmental risks are still limited, and often viewed with suspicion.

This is compounded by the rather low appreciation for the need of toxicovigilance such that more often the ‘knee-jerk’ responses in the effort to communicate risks is one of denial by the relevant authorities. Much time thus have to be spend in ‘sabre rattling’ before the...
piece of information sinks it. Meanwhile the issue is left hanging with further consequences to the population. The extreme course of action is to doubt to 'censor' what seems to be every citizen's duty to inform and be informed. And this could aggravate the situation even further.

Hence, it is equally important to simultaneously assert the need for transparency in communicating risks. Allowing the free flow and sharing of information about issues affecting safety and health and environment is crucial especially when a good majority of the population is involved; worst still when there is no quick solution insight. The view that information is 'power' rather than a resource to be shared is not only out-moded but could prove dangerous when it comes to dealing with risks. Instead, society should be nurtured into maturity by encouraging collective responsibility in the management of risks. For this to happen there must be an effective communication process being put in place.

Conclusion

In conclusion, it is perhaps appropriate to quote James Grant, former Executive Director of UNICEF (cited in reference 10): "the most urgent task before us is to get medical and health knowledge to those most in need of that knowledge. Of the approximately 50 million people who were dying each year in the late 1980s, fully two-thirds could have been saved through the application of that knowledge."

In other words, communicating risks should not just be confined to just the provision of data and information, but as much as possible be a transmission of knowledge about the various aspects of the risks involved. In this context, communicating risks becomes the joint responsibility of all parties concerned - the health and media professionals, the various agencies be it government and non-governmental (NGOs). It is critical to recognise that the true challenge of communicating risks, is to actively and proactively shape the right attitude and perception in understanding the many facets about risks and how to best deal with them at the various levels (see Appendix 1 - Proposed Ten Basic Questions for Communicating Risks related to Health and Environment). More importantly however is to enroll in the minds of those involved the need for change towards a healthier lifestyle and a risk-free environment.

Failing to communicate risks in a timely and effective way, or acting after the fact can incur an enormous cost in view of the risks to human lives. An important lesson to cite is as in the case of 'Minamata disease' (Table 1) which was first diagnosed in 1956 as toxic reactions caused by methyl mercury converted from inorganic mercury after being released into a small bay in Minamata, Japan through an industrial process. The estimated cost for the disease is reported to be about 12,631 million yen, which is more than a hundred times the cost of pollution control and prevention taken in the areas around the Minamata Bay, in 1990 (16). This figure does not include indirect costs and the fact that it took 40 years to settle after its first outbreak.

It cannot be overemphasised that communicating can be an essential tool and effective preventive strategy in promoting and protecting the welfare of the people and the nation, indeed the world.
References

12. No need to make APT details public: Official. The Sun, Sept 18, 1997

Appendix 1

Communicating Risks related to Health and Environment: Ten Basics Questions

1. What is the nature of risks involved?
2. If there is a toxic substance involved, what is it? What quantity of the substance identified constitute risks?
3. What are the risks in terms of human exposure? How can the risks be assessed?
4. What are the risks in terms of health effects? How can the risks be assessed?
5. What medical/health assistance are available to mitigate the impact of the risks?
6. What are the impact on the environment in relation to health?
7. What action could be taken immediately to: (a) eliminate, (b) substitute, and (c) isolate the risks?
8. What are the controls that could be taken at the (a) workplace (including technical aspects), (b) home, and (c) for individual safety or personal protection?
9. Is there a process of monitoring (health/medical surveillance or toxicovigilance) that could be instituted to ensure long-term protection against similar and related risks?
10. What regulatory or administrative aspects could be used (or put in place) in order to enhance the communication of risks related to all of the above?