

EMF RISK COMMUNICATION DEALING WITH PUBLIC PERCEPTION

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Modern technology offers powerful tools to stimulate a whole range of benefits for society, in addition to economic development. However, technological progress in the broadest sense has always been associated with hazards and risks, both perceived and real. Industrial, commercial and household applications of EMF are no exception. Around the start of the twentieth century people were worried about the possible health effects of light bulbs and the fields emanating from the wires on poles connecting land-based telephone systems. No adverse health effects appeared, and these technologies were gradually accepted as part of normal lifestyle. Understanding and adjusting to newly introduced technologies depends partly on how

the new technology is presented and how its risks and benefits are interpreted by an ever more wary public.

Throughout the world, some members of the general public have indicated concern that exposure to EMF from such sources as high voltage power lines, radar, mobile telephones and their base stations could lead to adverse health consequences, especially in children. As a result, the construction of new power lines and mobile telephone networks has met with considerable opposition in some



countries. Public worry about new technologies often stems from unfamiliarity and a sense of danger from forces that they cannot sense.

Recent history has shown that lack of knowledge about health consequences of technological advances may not be the sole reason for social opposition to innovations. Disregard for differences in risk perception that are not adequately reflected in communication among scientists, governments, industry and the public, is also to blame. It is for this reason that *risk perception* and *risk communication* are major aspects of the EMF issue.

This section aims to provide governments, industry and members of the public with a framework to establish and maintain effective communication about EMF associated health risks.

DEFINING RISK

In trying to understand people's perception of risk, it is important to distinguish between a health hazard and a health risk. A *hazard* can be an object or a set of circumstances that could potentially harm a person's health. *Risk* is the likelihood, or probability, that a person will be harmed by a particular hazard.

HAZARD AND RISK

- Driving a car is a potential *health hazard*. Driving a car fast presents a *risk*. The higher the speed, the more risk is associated with the driving.
- Every activity has an associated risk. It is possible to diminish risks by avoiding specific activities, but one cannot abolish risk entirely. In the real world, *there is no such thing as a zero risk*.

MULTIPLE DETERMINANTS OF THE EMF RISK ISSUE

Scientists assess health risk by weighing and critically evaluating all of the available scientific evidence to develop a sound *risk assessment* (see *Box*, page 13). The public may perform its own



assessment of risk by an entirely different process, often not based on quantifiable information. Ultimately this perceived risk could take on an importance as great as a measurable risk in determining commercial investment and government policy.

BASICS OF RISK ASSESSMENT

Risk assessment is an organized process used to describe and estimate the likelihood of adverse health outcomes from environmental exposures to an agent. The four steps in the process are:

- 1. Hazard identification:** the identification of a potentially hazardous agent or exposure situation (e.g., a particular substance or energy source)
- 2. Dose-response assessment:** the estimation of the relationship between dose or exposure to the agent or situation and the incidence and/or severity of an effect
- 3. Exposure assessment:** the assessment of the extent of exposure or potential exposure in actual situations
- 4. Risk characterization:** the synthesis and summary of information about a potentially hazardous situation in a form useful to decision-makers and stakeholders.

The factors that shape *risk perception* of individuals include basic societal and personal values (e.g. traditions, customs) as well as previous experience with technological projects (e.g. dams, power plants). These factors may explain local concerns, possible biases or hidden agendas or assumptions.

Careful attention to the social dimensions of any project allows policy makers and managers to make informed decisions as part of a thorough *risk management* programme. Ultimately, risk management must take into account both measured and perceived risk to be effective (Figure 3).

The identification of problems and the scientific risk assessment of those problems are key steps to defining a successful risk management programme. To respond to that assessment, such a programme should incorporate actions and strategies, e.g. finding options, making decisions, implementing

FIGURE 3. EVALUATING, INTERPRETING AND REGULATING RISKS ASSOCIATED WITH EMF

RANGE OF RISK MANAGEMENT OPTIONS

DECISION TO TAKE NO FORMAL ACTION is an appropriate response in cases where the risk is considered very small, or the evidence is insufficient to support formal actions. This response is often combined with watchful waiting, i.e. monitoring the results of research and measurements and the decisions being made by standard-setters, regulators, and others.

COMMUNICATION PROGRAMMES can be used to help people understand the issues, become involved in the process and make their own choices about what to do.

RESEARCH fills gaps in our knowledge, helps to identify problems, and allows for a better assessment of risk in the future.

CAUTIONARY APPROACHES are policies and actions that individuals, organizations or governments take to minimize or avoid future potential health or environmental impacts. These may include voluntary self-regulation to avoid or reduce exposure, if easily achievable.

REGULATIONS are formal steps taken by government to limit both the occurrence and consequences of potentially risky events. Standards with limits may be imposed with methods to show compliance or they may state objectives to be achieved without being prescriptive.

LIMITING EXPOSURE or banning the source of exposure altogether are options to be used when the degree of certainty of harm is high. The degree of certainty and the severity of harm are two important factors in deciding the type of actions to be taken.

TECHNICAL OPTIONS should be used to reduce risk (or perceived risk). These may include the consideration of burying power lines, or site sharing for mobile phone base stations.

MITIGATION involves making physical changes in the system to reduce exposure and, ultimately, risk. Mitigation may mean redesigning the system, installing shielding or introducing protective equipment.

COMPENSATION is sometimes offered in response to higher exposures in a workplace or environment. People may be willing to accept something of value in exchange for accepting increased exposure.

those decisions, and evaluating the process. These components are not independent, nor do they occur in a predetermined order. Rather, each element is driven by the urgency of the need for a decision, and the availability of information and resources. While there is a range of risk management options (see Box, page 14), emphasis in this handbook is placed on the second option, namely communication programmes.

HOW IS RISK PERCEIVED?

Many factors influence a person's decision to take or reject a risk. People perceive risks as negligible, acceptable, tolerable, or unacceptable, in comparison to perceived benefits. These perceptions depend on personal factors, external factors as well as the nature of the risk. *Personal factors* include age, sex, and cultural or educational backgrounds. Some people, for example, find the risks associated with taking street drugs as

acceptable. On the other hand, many people do not. Inherent acceptability in personal risk-taking is the ability to control it.

However, there are situations where individuals may feel that they do not have control. This is especially true when it comes to exposure to EMF where the fields are invisible, the risk is not easily quantifiable, and the degree of exposure is beyond immediate control. This is further exacerbated when individuals do not perceive direct benefit from exposure. In this context, public response will depend on the perception of that risk based on *external factors*. These include available scientific information, the media and other forms of information dissemination, the economic situation of the individual and community, opinion movements, and the structure of the regulatory process and political decision-making in the community (Figure 4).



The *nature of the risk* can also lead to different perceptions. The greater the number of factors adding to the public's perception of risk, the greater the potential for concern. Surveys have found that the following pairs of characteristics of a situation generally affect risk perception.

■ **FAMILIAR VS. UNFAMILIAR TECHNOLOGY.**

Familiarity with a given technology or a situation helps reduce the level of the perceived risk. The perceived risk increases when the technology or situation, such as EMF, is new, unfamiliar, or hard-to-comprehend. Perception about the level of risk can be significantly increased if there is an incomplete scientific understanding about potential health effects from a particular situation or technology.

■ **PERSONAL CONTROL VS. LACK OF CONTROL OVER A SITUATION.** If people do not have any say about installation of power lines

and mobile telephone base stations, especially near their homes, schools or play areas, they tend to perceive the risk from such EMF facilities as being high.

■ **VOLUNTARY VS. INVOLUNTARY EXPOSURE.**

People feel much less at risk when the choice is theirs. Those who do not use mobile telephones may perceive the risk as *high* from the relatively low RF fields emitted from mobile telephone base stations. However, mobile telephone users generally perceive as *low* the risk from the much more intense RF fields from their voluntarily chosen handsets.

■ **DREADED VS. NOT DREADED OUTCOME.**

Some diseases and health conditions, such as cancer, or severe and lingering pain and disability, are more feared than others. Thus, even a small possibility of cancer, especially in children, from a potential hazard such as EMF exposure receives significant public attention.

FIGURE 4. FACTORS AFFECTING PERCEPTION OF ENVIRONMENTAL RISKS

■ **DIRECT VS. INDIRECT BENEFITS.** If people are exposed to RF fields from mobile telephone base stations, but do not have a mobile telephone, or if they are exposed to the electric and magnetic fields from a high voltage transmission line that does not provide power to their community, they may not perceive any direct benefit from the installation and are less likely to accept the associated risk.

■ **FAIR VS. UNFAIR EXPOSURE.** Issues of social justice may be raised because of unfair EMF exposure. For example, if facilities were installed in poor neighbourhoods for economic reasons (e.g. cheaper land), the local community would unfairly bear the potential risks.

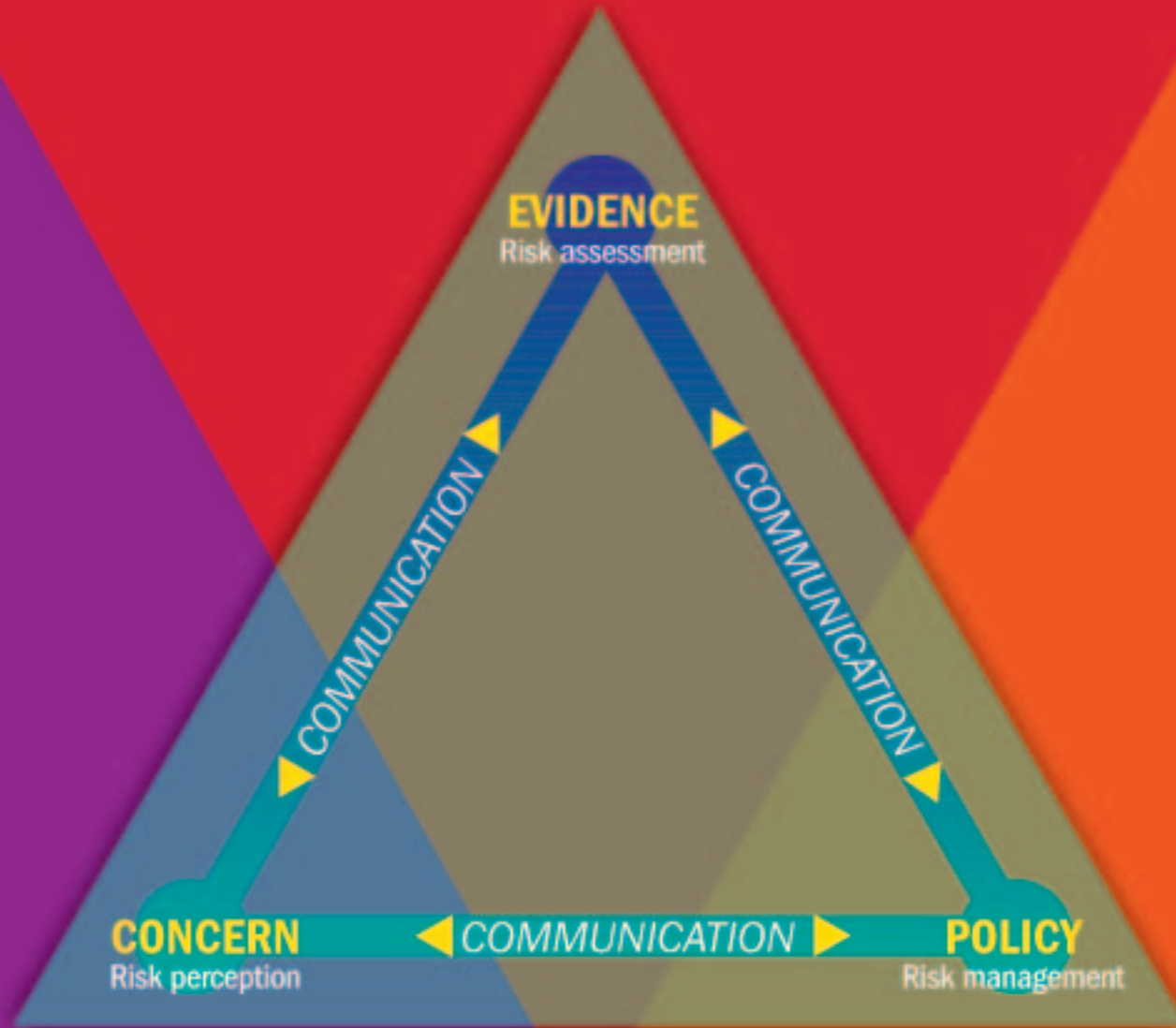
Reducing perceived risk involves countering the factors associated with personal risk.

Communities feel they have a right to know what is proposed and planned with respect to

the construction of EMF sources that, in their opinion, might affect their health. They want to have some control and be part of the decision-making process. Unless an effective system of public information and communication among scientists, governments, the industry and the public is established, new EMF technologies will be mistrusted and feared.

THE NEED FOR RISK COMMUNICATION

Today, communication with the public about environmental risks from technology plays an important role. According to the U.S. National Research Council, risk communication is “an interactive process of exchange of information and opinion among individuals, groups and institutions. It involves multiple messages about the nature of risk and other messages, not strictly about risks, that express concerns, opinions, or reactions to risk messages or to legal and



institutional arrangements for risk management”. Risk communication is therefore not only a presentation of the scientific calculation of risk, but also a forum for discussion on broader issues of ethical and moral concern.

Environmental issues that involve uncertainty as to health risks require

supportable decisions. To that end, scientists must communicate scientific *evidence* clearly; government agencies must inform people about safety regulations and *policy* measures; and *concerned* citizens must decide to what extent they are willing to accept such risk. In this process, it is important that communication between these stakeholders be done clearly and effectively (Figure 5).

FIGURE 5. CHANNELS OF COMMUNICATION



MANAGING EMF RISK COMMUNICATION

As the public becomes increasingly aware of environmental health issues, there has been concurrently a decreasing sense of trust in public officials, technical and scientific experts, and industrial managers, especially in large private and public businesses. Also, many sections of the public believe that the pace of scientific and technological change is too fast for governments to manage. Moreover, in politically open societies,

people are ready to act and are able to become involved. Individuals, community-based organizations, and non-governmental organizations are willing to intervene with action to direct decisions or to disrupt activities if they are excluded from the decision process. Such a societal trend has increased the need for effective communication between all stakeholders.



A successful approach to planning and evaluating risk communication should consider all aspects and parties involved. This section provides an introduction to communication on the EMF issue through the four-step process described in the following pages.

WHEN TO COMMUNICATE

KEY QUESTIONS

- When should you enter into a dialogue?
- Is there sufficient planning time?
- Can you quickly research who and what influences community opinions?
- When do you include the stakeholders? When do you plan the process, set the goals and outline the options? When are decisions made?

There is often significant public anxiety over particular sources of EMF, such as transmission lines and mobile phone base stations. This anxiety can lead to strong objections to the siting of such facilities. When community opposition builds, it is often because the communication process was not started early enough to ensure public trust and understanding.

Successful communication about a project requires planning and skill. It is important

to anticipate information needs: know what to share and when to share it.

Establishing a dialogue as early as possible provides several benefits. First, the public will see the communicator as acting in a responsible manner and demonstrating concern about the issue. Avoiding delays in providing information and discussion will also dispel controversy, and decrease the likelihood of having to rectify misinformation and misunderstandings. One should take clues from the stakeholders, and use what is learned to improve communication planning and implementation. Initiating risk communication proves that one is trying to build a relationship with stakeholders, and that, in itself, can be almost as important as what is communicated.

WHEN TO COMMUNICATE

The communication process passes through different stages. At the beginning of the dialogue, there is a need to provide *information* and knowledge. This will increase awareness, and sometimes concern, on the part of the different stakeholders. At this stage, it will become important to continue communication, through an open *dialogue*, with all parties involved before setting policies. When it comes to planning a new project, for example, building a power line or installing a mobile phone base station, the industry should start immediate communication with regional and local authorities as well as interested stakeholders (landowners, concerned citizens, environmental groups).

MANAGING A TIME-SENSITIVE ISSUE

Public health and environmental health issues have a dynamic life; they evolve with time. The life cycle of an issue illustrates how social pressure on decision-makers develops with time (Figure 6). During the early stages of the life cycle, when the problem is dormant or just emerging, public pressure is at a minimum. While the problem may not yet be on the research agenda, there can still be ample time to research and *analyse* potential risks. As the problem bursts into current public awareness, often brought into the forefront by a triggering event (e.g. due to media attention, organized activist intervention, the Internet, or simple word of mouth), it is important to take *action* in the form of

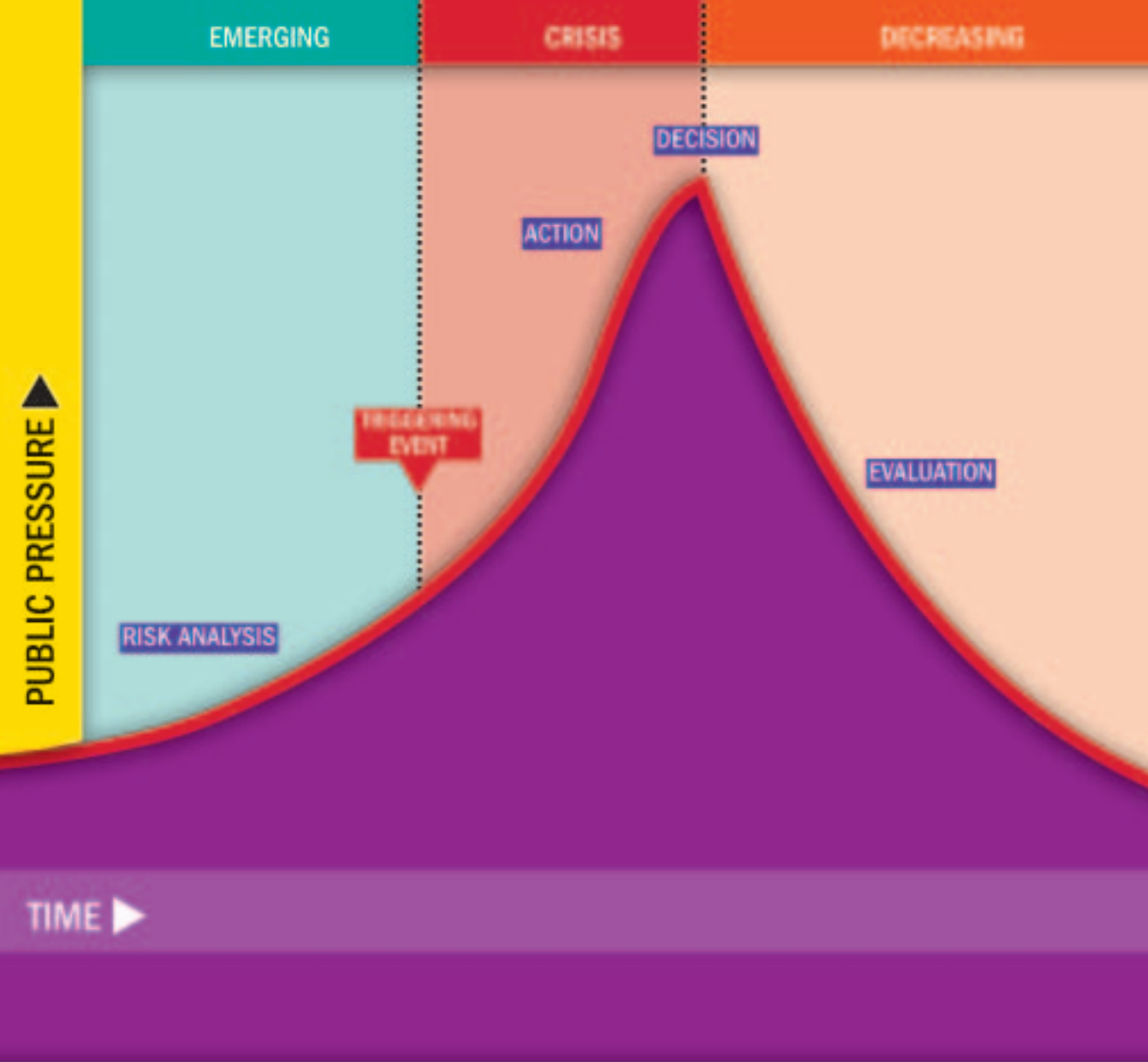


FIGURE 6. THE RISK PERCEPTION LIFE CYCLE

(adapted from *Evaluating Response Options*, Judy Larkin, Proceedings of the International Seminar on EMF Risk Perception and Communication, WHO 1999)

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communication with the public. As the problem reaches crisis proportions, a *decision* must be taken but a hurried outcome can leave all sides dissatisfied. As the problem begins to diminish in importance on the public agenda, time should be made for a follow-up *evaluation* of the issue and decisions made. The transition between different phases within the life cycle of an issue is dependent upon the levels of awareness and pressure from various stakeholders (Figure 6).

The earlier balanced information is introduced, the more able the decision-makers will be to prevent the issue reaching the crisis stage. It is indeed much easier to help people form opinions than to change opinions. Once there is a crisis, it is increasingly difficult to conduct effective risk communication and to achieve successful outcomes from the decision-making process since there is less time to consider options and to engage stakeholders in dialogue. Because topics that can generate controversy

SOME DRIVING FORCES OF THE LIFE CYCLE

- Lack of trust
- Perception of a “villain” in the story (e.g., industry)
- Misinformation
- Belief that the majority is treating the minority “unfairly”
- Media coverage
- Intervention of activist groups and other highly motivated interest groups
- Emotional dynamics in the public

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become even more critical in periods of elections and other political events, it is advisable to prepare strategies and have options at hand for action.

ADAPTING TO A DYNAMIC PROCESS

Throughout the life cycle of the issue, the communication strategy will need to be tailored to the groups or individuals concerned on an ad-hoc basis, and may take a variety of forms to be most effective. The means of communication and actions should be appropriately modified, as new information becomes available. An

opportunity to influence the life cycle can arise from the timely publication of scientific results. While international scientific bodies have to respond publicly to recent scientific discoveries in an unbiased manner, decision-makers can prove to the stakeholders that their concerns are taken seriously by adopting a similar strategy. Indeed, *risk surveillance* is a key component to ensure proper risk management, as continuing information is essential for monitoring and providing feedback to the ongoing risk management process.

WITH WHOM TO COMMUNICATE

KEY QUESTIONS

- Who will be most interested in this issue?
- What is known about the interests, fears, concerns, attitudes and motivation of the stakeholders?
- What authorities are responsible for determining and implementing policy?
- Are there organizations with whom to form effective partnerships?
- Who can provide advice or scientific expertise?

Developing effective communication about risk depends upon identifying the key stakeholders, those who have the strongest interest or who can play the greatest role toward developing understanding and consensus among the relevant constituency.

Identifying these stakeholders and recognizing their role often requires a substantial investment in time and energy. Failure to make this investment may compromise the effectiveness of the message.

IDENTIFYING THE STAKEHOLDERS

It is crucial to have a good understanding of the “playing field” and in particular the key “players” or stakeholders in the EMF issue. Depending on the particular situation, the communicator may need to consider several, if not all, of the stakeholders (Figure 7). Each of these groups needs to be included in the communication process and will become, in turn, the instigator or the recipient of the communication. The roles of some of the key stakeholders are discussed below.

The *scientific community* is an important stakeholder as it provides technical information, and is therefore assumed to be independent and apolitical. Scientists can help the public understand the benefits and risks of EMF, and help regulators evaluate risk management options and



FIGURE 7. THE KEY STAKEHOLDERS IN THE EMF ISSUE

WITH WHOM TO COMMUNICATE

assess the consequences of different decisions. They have the important role of explaining available scientific information in a way that helps people understand what is known, where more information is needed, what the main sources of uncertainty are, and when better information will become available. In this role, they can also try to anticipate and put boundaries on expectations of the future.

The *industry*, such as electricity companies and telecommunications providers as well as manufacturers, is a key player and is often seen as the risk producer as much as the service provider. Deregulation of these industries in many countries has increased the number of companies (and, in some cases, the number of EMF sources as companies compete for coverage). In a

number of countries, industry players, especially electrical utilities, have taken a proactive and positive approach to managing risks and have emphasized open communication of information to the public. However, profit motive ultimately causes the public to have misgivings about their messages.

Government officials at the national, regional and local levels have social as well as economic responsibilities. Because they act in a political environment, the general public does not always trust them. In particular, regulators have a crucial role as they devise standards and guidelines. To that end, they need detailed and complete information from the major stakeholders to decide on policy measures regarding protection from EMF exposure. They have to consider any

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new sound scientific evidence, which would suggest the need to revise the existing exposure measures, while being sensitive to society's demands and constraints.

The *general public*, now better educated and better informed on technology-related issues than ever before, may be the single greatest determinant to the success or failure of a proposed technology project. This is especially true in democratic and highly industrialized societies. Public sentiment often makes itself heard through highly vocal *associations* or other special interest groups that usually have good access to the media.

The *media* plays an essential role in mass communications, politics and decision-making in most democratic societies.

Media coverage—newspapers, radio, television and now the Internet—has a major impact on the way an environmental risk is perceived and ultimately on the success of the decision-making process.

The media can be an effective tool to increase problem awareness, to broadcast information through clear messages, and to increase individual participation. However, it can be equally effective at disseminating incorrect information, thereby reducing trust and support of the decision-making process. This is especially true of the Internet, since there is no quality control. The professionalism of presentation does not necessarily reflect in the quality of content. Individuals have to establish in their own minds how much they trust a particular source, which is not an easy decision for a layperson to take.

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KEY QUESTIONS

- Do the stakeholders have access to sufficient and impartial information about the technology?
- Is the message intelligible or does it contain a large amount of complex information?
- Are the messages of all key stakeholders being heard? i.e. is there an effective means for providing feedback?

Identification of public concerns and potential problems is critical for strategic and pro-active approaches. Once stakeholders become aware of an issue, they will raise questions based on their perceptions and evaluations of the risk. Therefore, the dissemination of information should be done in a way that is sensitive to these preconceived notions, or else the decision-makers risk offending and alienating the stakeholders.

The strategy and rationale to pursue will depend on the audience. The public will also dictate which questions can be expected. To convince the audience, appropriate and credible arguments that appeal not only to reason, but also to emotion and social bonds should be advanced. Different types of arguments are described in Figure 8.

COMMUNICATING THE SCIENCE

Scientists communicate technical results derived from research through publications of different scientific value (the highest being peer review publications), expert reviews and risk assessments. Through this process, the results of scientific investigation can be incorporated into the development and implementation of policy



FIGURE 8. THE COMPONENTS OF THE MESSAGE

WHAT TO COMMUNICATE

guidance and standards. Continuous monitoring and review of technical findings is important to ensure that any residual uncertainties are addressed and minimized in the medium to long term, and to provide reassurance to the public.

However, while scientific information has proven to be valuable in making public health decisions, it is not error-free. The contributions of scientists can fail for several reasons. For example, the available information may be presented in a way that is not useful to the decision-makers (either because it is too complex or oversimplified) and leads to incorrect conclusions or decisions (possibly because of the uncertainty inherent in the data or problems in communicating), or is erroneous.

■ SIMPLIFYING THE MESSAGE

Technical experts are faced with the challenge of providing information that is comprehensible by the public at large. This entails simplifying the message. If not, the media will take on this task with the danger of miss-communicating the information. This is especially true of EMF, as most people have a very diffuse picture of electromagnetism, perceiving these invisible and pervasive waves as potentially harmful.

■ EXPLAINING SCIENTIFIC UNCERTAINTY

When it comes to risk assessment, the available information for decision-making is based on science. However, scientific evaluation of the biological responses from environmental exposures rarely leads to unanimous conclusions. Epidemiological studies are prone to bias, and the validity of

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extrapolation from animal studies to humans is often questionable. The “weight-of-evidence” determines the degree to which available results support or refute a given hypothesis. For estimates of small risks in complex areas of science and of society, no single study can provide a definitive answer. Strengths and weaknesses of each study should be evaluated and results of each study should be interpreted as to how it alters the “weight-of-evidence”. Uncertainty is therefore inherent in the process and should be an integral part of planning any risk management or communication task. Indeed, the public commonly interprets uncertainties in scientific knowledge on EMF health effects as a declaration of the existence of real risks.

■ PRESENTING ALL THE EVIDENCE

The public will often base its preconceptions on publicised scientific results that have shown a possible association to a health effect. It is important for the scientist to present *all* of

SOME RULES OF THUMB TO POPULARISE TECHNICAL INFORMATION

- Determine and classify the key messages that you want to pass on, i.e. define your information goals
- Make sure you understand the information needs of your audience
- Explain concepts in simple language, and if needed, clarify the technical vocabulary used in press releases by experts, e.g. IARC classification of potential carcinogens into different categories depending on the scientific evidence (“is carcinogenic”, “probably carcinogenic” and “possibly carcinogenic”).
- Avoid oversimplifying, as you may seem to be ill informed or hiding the truth.
- Acknowledge that you are simplifying and provide references to supporting documents.

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the available evidence when disseminating scientific information even if research is showing opposing results. Only then can scientists be seen to be truly independent. Scientific reasoning can always be used to argue against a particular finding.

■ UNDERSTANDING THE AUDIENCE

It is important to discern what type of information the public wants and to address that need head on, acknowledging when necessary that the science is incomplete. Restricting communication to those issues about which there is scientific certainty may leave the public, and sometimes policy makers, with the feeling that their information needs are not being met. Understanding the motivations of the stakeholders will help to fine-tune the message. For example, a resident facing the

possibility of construction of a nearby power line may be worried by unforeseen depressed property values or the impact on landscape or environmental damage, while a potential home buyer in the vicinity of an existing power line may be mostly worried about health.

■ DISTORTING SCIENTIFIC INFORMATION

Science is a powerful tool and has earned its credibility by being predictive. However, its usefulness depends on the quality of the data, which is related to the quality and credibility of the scientists. It is important to verify the knowledge and integrity of so-called “experts”, who may look and sound extremely convincing but hold unorthodox views that the media feel justified in airing “in the interests of balance”. In fact giving weight to these unorthodox views can

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disproportionately influence public opinion. For the public, often the best sources of information are from panels of independent experts who periodically provide summaries of the current state of knowledge.

PUTTING THE EMF RISK IN PERSPECTIVE

Even though the current scientific evidence does not indicate that health risks from EMF are high, the public remains concerned about facilities that produce EMF. This discrepancy in viewpoint is mostly based on differing approaches to risk issues on the part of the experts and the general public. On one hand, the experts will have to evaluate the scientific evidence of the risk (risk assessment) using objective and well-defined criteria. Their findings will then be used to draft

TIPS TO BUILD EFFECTIVE RISK COMMUNICATION STRATEGIES

- Do research to answer these questions:
 - What are the sources of information?
 - What are the key journals or magazines?
 - What are the relevant websites?
 - Are there other similar issues you could learn from?
 - Who can explain the scientific research to lay people?
- Make yourself available in both formal and informal settings to improve the communication. Private meetings can destroy trust if access is not balanced among all stakeholders.
- Acknowledge uncertainty, describe why it exists, and place it in a context of what is already known.
- Acknowledge that risk communication skills are important for all levels of the decision-making organization, from inception to project management.
- Avoid unnecessary conflict, but understand that a personal or policy decision is by nature a dichotomy; e.g., a person will decide to buy or not to buy a home near a power line.
- Recognise that even if you communicate well, you may not reach an agreement.
- Remember that in most societies, even though it may take a long time, communities ultimately decide what is an acceptable risk, not governmental agencies or corporations.

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responses in the form of decisions and actions through public policies. On the other hand, the general public evaluates the risk incurred by EMF technologies at the individual level (risk perception). The

differences in approach are further detailed in the Box below. Quantifying risk is of limited utility in communications with the general public who may not possess a technical background.

DIFFERENCES IN RISK EVALUATION AMONG STAKEHOLDERS

EXPERT EVALUATION (RISK ASSESSMENT)	LAYPERSON' S EVALUATION (RISK PERCEPTION)
<ul style="list-style-type: none"> ■ Scientific approach to quantify risk ■ Uses probabilistic concepts (deals in averages, distributions,...) ■ Depends on technical information transmitted through well-defined channels (scientific studies) ■ Product of scientific teams ■ Importance given to objective scientific facts ■ Focused on benefits versus costs of technology ■ Seeks to validate information 	<ul style="list-style-type: none"> ■ Intuitive approach to quantify risk ■ Uses local, situation-specific information or anecdotal evidence ■ Depends on information from multiple channels (media, general considerations and impressions) ■ Individual process ■ Importance of emotions and subjective perceptions ■ Focused on safety ■ Seeks to deal with individual circumstances and preferences

WHAT TO COMMUNICATE

COMPARISON: A TOOL FOR COMMUNICATION

Risk comparison should be used to raise awareness and be educational in a neutral way. It is an advanced tool that requires careful planning and experience. While a comparison puts facts into an understandable context, be careful not to use it to gain acceptance or trust. Inappropriate use of risk comparison may lower the effectiveness of your communication and even damage your credibility in the short-term.

NOTE: *Never compare voluntary exposure (such as smoking or driving) to involuntary exposure. For a mother with three children who has to live close to a mobile phone base station, the risk she is taking is not voluntary. If you were to compare her exposure to EMF with her choice to drive on the freeway at 140 km/h, you may offend her.*

- Take into account the social and cultural characteristics of the audience and make your comparison relevant to what they know
- Do not use comparisons in situations where trust is low
- Make sure that your comparisons do not trivialise peoples' fears or questions
- Do not use comparisons to convince a person about the correctness of a position
- Remember that a comparison of exposure data is less emotional than a comparison of risks
- Be aware that the manner in which you present risks may affect how you are perceived
- Use a pre-test to learn if the comparisons you plan to use cause the response you hope to elicit
- Acknowledge that the comparison in itself does not dispose of the issue
- Recognise that if your comparison creates more questions than it answers, you need to find another example
- Be prepared for others to use comparisons to emotionalise or to dramatise

EXAMPLE : *To illustrate the power level of an EMF emission source,*

- Show emission data before and after a similar facility went into operation
- Compare with guidelines limits, but acknowledge that people concerns might be about levels well below the guidelines

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When quantitative information is used, it may be most useful when compared with readily understood quantities. This has been used effectively to explain the risk associated with commercial air travel by comparing it with familiar activities such as driving, or to explain the risk of radiation exposure from routine diagnostic X-rays by comparing the exposure to that coming from natural background radiation. However, care has to be taken when using risk comparison (see Box, page 40). It is indeed important to quantify different risks to health in a comparable framework, particularly for setting policy agendas and research priorities.

EXPLAINING POLICY MEASURES

The type of measures that a government takes gives a strong message as to where the regulators stand vis-à-vis the risks

associated with the EMF health issue. Regulatory agencies have the responsibility to prepare and disseminate information about policy measures implemented at the local and national level. At the local level, it is important that authorities have at least a minimum knowledge of the EMF issue to answer questions from the public or be ready to direct requests to appropriate sources of information. At the national level, dissemination has been implemented very effectively in several countries through WHO fact sheets or similar simple information pamphlets, often available on the World Wide Web.

When discussing policy measures with the public, the communicator should be ready to explain what the guidelines on exposure limits cover (e.g. frequencies, reduction

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factors,...) and how they were established, i.e. what scientific facts were used, what assumptions were made, what administrative resources are needed to implement them, and what mechanisms are in place to ensure compliance by product manufacturers (e.g. mobile phones) or utilities providers (e.g. electricity or telecommunications supplier).

It is also of interest to let the public know if there are procedures and timetables for updating the guidelines as scientific research advances. Indeed, decision-makers often rely on preliminary results or insufficient data, and their decisions should be reviewed as soon as an assessment is completed.

EXPLAINING EXPOSURE LIMITS TO THE PUBLIC

Using EMF exposure limits as a formal policy argument requires good scientific understanding on the part of the decision maker and the communicator. It is important to stress to the public that:

- The determination of field levels at a certain location is a key element that will determine whether there is a risk or not.

If possible, it is useful to show data from field measurement surveys at selected sites and compare them with numerical calculations and with accepted exposure guidelines.

- The field strength is dependent on distance from the EMF source, and normally decreases rapidly away from it.

In order to ensure human safety, fences, barriers or other protective measures are used for some facilities to preclude unauthorised access to areas where exposure limits may be exceeded.

- Often, but not in all standards, the exposure limits are lower for the general public than for workers.

HOW TO COMMUNICATE

KEY QUESTIONS

- What type of participation tool do you choose to address your audience?
- Where, when and under what circumstances does the discussion take place?
- What tone prevails?
- How formally is the situation handled?

Effective risk communication relies not only on the content of the message, but also the context. In other words, the way that something is said is as important as what is said. Stakeholders will receive information at various stages of the issue. This will come from a wide range of sources with differing perspectives. This diversity influences how stakeholders perceive risks and what they would like to see happen.

SETTING THE TONE

When dealing with an emotive issue such as the potential health risk from EMF, one of the most important communications skills is the ability to build and sustain a relationship of trust with the other parties involved in the process. To that end, one will need to create a non-threatening atmosphere and set the tone for a candid, respectful and supportive approach to resolving issues. Such behaviour should ideally be embraced by all stakeholders.

■ HOW TO WORK WITH DISTRUST

To a large extent, communities with concerns about involuntary exposure to EMF are likely to be distrustful of official views and sources of information. Considerable effort may then

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be required to encourage stakeholders to suspend that distrust. As acknowledged in the Phillips Report for the UK Government on the BSE crisis, “to establish credibility it is necessary to generate trust – Trust can only be generated by openness – Openness requires recognition of uncertainty, where it exists.”

Decision-makers need to ensure that all individuals involved in communicating with the public are kept up to date with developments in the debate and are prepared to discuss, rather than dismiss, public fears.

Some of the necessary components of communication under conditions of distrust are:

- Acknowledge the lack of trust
- Recognize uncertainty, where it exists

BUILDING EFFECTIVE COMMUNICATION SKILLS

INSPIRE TRUST

- Be competent
- Be calm and respectful
- Be honest and open
- Show your human side, personalise
- Use clear language, and be careful not to sound or be condescending
- Explain the consequences of the assumptions used
- Demonstrate your own values

BE ATTENTIVE

- Choose your words carefully
- Watch emotions, yours and those of your audience
- Be an attentive listener
- Be attentive to body language

MAINTAIN AN OPEN DIALOGUE

- Seek input from all
- Share information
- Provide means for frequent communication, e.g. publication of findings on the Web with opportunity to comment

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- Point out what is different this time (e.g. disclosure of information, earlier involvement of stakeholders, clear goals and roles, etc.)
- Ask what would help to dispel distrust
- Be patient—it takes time to earn trust
- Never hold a closed meeting
- Admit when you honestly do not know the answer to a question
- Be accountable in ways the stakeholders value

SELECTING TOOLS AND TECHNIQUES

Members of a community where construction of a new facility is proposed will want to be a part of the decision-making process. To that end, it is important to structure a process that involves the stakeholders in a meaningful way and to

seek out and facilitate their involvement when addressing this decision. The process usually will be carried in three stages: planning, implementation and evaluation.

The first stage is crucial, because stimulating public interest and involvement can be counter-productive if the communicator is not fully prepared for the public’s participation, questions and concerns. In the second stage, when it is time to engage the public, the communicator will have to choose the setting to discuss the issue with them. The choice will depend on the type, number and interest of the stakeholders. In the last stage, it will be important to evaluate the outcome of the process, take follow-up actions, arrange for documentation of what

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was said and what agreements were reached, and share these summaries with those who participated.

Individual queries may be handled on an ad-hoc basis through, for example, phone or email. Communication with groups of stakeholders requires more planning. For a *small group of stakeholders*, it may be feasible to involve them in sessions devoted to changing undesirable aspects of the project. One could encourage creativity, but always be up front about the limits for change and how the suggestions will be used to influence the final decision. Proponents will have clear views about the extent to which they have room to manoeuvre.

It may be useful to employ individuals from local community organizations to take advantage of existing networks and enhance credibility, but one has to make sure that the individual is qualified, and to establish his or her role, responsibilities and limitations at the start. It is important to identify the stakeholder group that represents the opposition and determine what they specifically want. On major issues it may be possible to use advisory committees to build consensus on specific project decisions to encourage compromise, provide structure, and focus on solving problems that have been identified. Consensus building techniques include the Delphi process, nominal group process, and public value assessment (see Glossary).

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KEY STEPS TO ENGAGING STAKEHOLDERS

1. PLANNING

- Design the programme: Define or anticipate the role of the public and other stakeholders and tailor the programme to enhance stakeholders' involvement.
- Seek comments on the programme plan: Test your proposed programme internally and externally to ensure that it will work as intended.
- Prepare for implementation: Obtain the necessary resources, choose and train your personnel, develop contingencies, assess your strengths and weaknesses, explain the programme internally, find and work with appropriate community partners, develop a communications plan, and prepare the most critical materials.
- Be prepared for managing requests for information and involvement as they arise.
- Co-ordinate within your organization: Even small inconsistencies give an impression of internal confusion and ineptness. The goal is to avoid giving mixed messages. Do all you can to keep the same staff in place throughout the process: They become more proficient and more trusted in the community over time.

2. IMPLEMENTING

- Implement the stakeholder involvement programme: Act on your plan. Use the tools and techniques appropriate to the community and the issue.
- Provide information that meets your stakeholders' needs: Determine what they want to know now and anticipate what they will need to know in the future. Develop a list of problems, issues and needs, with responses to each. Address, where possible, specific concerns of different individuals or groups.
- Cooperate with other organizations: Co-ordinate messages, while openly acknowledging any differences. Mixed messages confuse and create distrust.
- Enlist the help of others who have community credibility: Local groups or residents (e.g., local researchers, medical doctors) that have credibility can be helpful to the outsider, but they cannot substitute for a forthright approach and extensive community involvement.

3. EVALUATING

- Use feedback from stakeholders for continuous evaluation: As you implement the programme, listen carefully to what others are telling you and follow-up with action.
- Evaluate the success of the programme: If stakeholders are not informally telling you how your process is working and what would improve it, formally ask their advice with a questionnaire or other method. Ask again at the end of the process so their ideas can assist you to design and implement the next steps.

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For a *large group of stakeholders*, one could circulate response sheets to gain information on public concern and preferences. It may also be useful to conduct surveys, questionnaires and polls via mail and Internet to sample the

EXAMPLES OF ALTERNATIVES

PASSIVE ENGAGEMENT TECHNIQUES

- Printed materials (fact sheets, brochures, reports)
- Websites and list servers
- Newspaper advertisement, insertions or solicited stories
- Press releases
- Radio or television reporter interviews

ACTIVE ENGAGEMENT TECHNIQUES

- Talk to people about the process
 - Hold “open houses” e.g., with posters
 - Do radio or television “phone-in” dialogue
 - Use third-party networks (do briefings at community group meetings)
 - Provide a staffed information hotline or “drop-in” centre
 - Arrange for tours of successful similar projects
 - Sponsor telephone, internet or mail surveys
 - Respond to personal enquiries
- Conduct small meetings
 - Stakeholder sessions
 - Focus groups
 - Citizen advisory councils
- Conduct large meetings
 - Public hearings
 - Professionally facilitated meetings

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population for attitudes towards specific aspects of the project. Surveys and polls done on the Internet will provide useful information, but may not represent a statistically valid sample. They will only be that part of the group that uses the Internet. A much more efficient method of performing surveys, albeit much more expensive, is to use a trained professional or a specialized polling organization.

There are many ways to provide for the exchange of information. Different methods will be appropriate for different stakeholders at different times. If stakeholders are engaged early in the

process, more passive (one-way) forms of engagement may be the appropriate place to start. If the issue is in a crisis stage, an active form of dialogue that will quickly define and help solve the perceived problems is a better choice. Stakeholders will be involved to varying degrees. Some may sit quietly through a meeting, while others will be quite vocal. Some may come to only one meeting, while others will never miss one. Some may choose to communicate through written correspondence or by posting information on the Internet. Each level of participation is valuable and requires an appropriate response.