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Draft Report on Social Responsibility and Health

This draft report has been drawn up on the basis of the reflection carried out by IBC since 2005 on the principle of social responsibility and health: the deliberations of its working group on this issue and discussions held at the twelfth (2005), thirteenth (2006), fourteenth (2007) and fifteenth (2008) sessions of IBC as well as comments and opinions expressed during the fifth session of the Intergovernmental Bioethics Committee (IGBC) (2007) and the joint session of IBC and IGBC (2008). It also benefited from written comments of IBC members and from a general discussion at the UN Inter-agency Committee on Bioethics.

Division of Ethics of Science and Technology

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I. INTRODUCTION

1. **The Universal Declaration on Bioethics and Human Rights** (hereafter 'the Declaration') was adopted by acclamation on 19 October 2005 by the 33rd session of the General Conference of UNESCO. In its Preamble, the Declaration expresses the desirability of "developing new approaches to social responsibility to ensure, whenever possible, that progress in science and technology contributes to justice, equity and to the interest of humanity" and devotes an entire article – Article 14 – to the issue of social responsibility and health⁽¹⁾. By including Article 14, the Declaration opens up perspectives for action that go beyond just medical ethics and reiterates the need to place bioethics and scientific progress within the context of reflection open to the political and social world.

2. Article 14 is designed to draw the attention of policy makers in the field of medicine and life sciences to the practical concerns of bioethics, contributing to re-orienting bioethical decision-making towards issues that are urgent for many countries. Even though the list is not exhaustive, five specific elements are singled out as priority and universal areas of decision to be taken into account:

- a) access to quality health care and essential medicines, especially health of women and children;
- b) access to adequate nutrition and water;
- c) improvement of living conditions and the environment;
- d) elimination of the marginalization and exclusion of persons on the basis of whatever grounds;
- e) reduction of poverty and illiteracy.

3. Article 14 therefore significantly broadens the agenda of bioethics, so that the social and basic issues related to the provision of health care are taken into account. This article formulates directions for policy making in health care. The stakeholders are numerous and include governments, and groups of people organized within societies, such as communities identified, for example, by religious beliefs or ethnic characteristics, commercial companies, political organizations, educational institutions, law enforcement agencies and others.

4. Article 14 does not make it possible to regard the geographical boundaries of a society as the point at which social responsibilities end. If so, governments would be encouraged to look no further than to the needs and interests of their own citizens in discharging these obligations, and commercial companies, no further than to their shareholders, clients and employees. However, it is clear that States can no longer be isolated pockets of interests and responsibilities. International trade and research activities, for example, involve social relationships beyond State boundaries.

5. The problems of global inequities remain nonetheless the most difficult to address. The difficulty that distance in time and space creates for our moral awareness and the measure of sympathy we feel for others is well known. The commitment to solidarity, however it could be achieved, would constitute a palliative for this phenomenon and extend

1. *'1. The promotion of health and social development for their people is a central purpose of governments that all sectors of society share.*

2. *Taking into account that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition, progress in science and technology should advance:*

- (a) *access to quality health care and essential medicines, especially for the health of women and children, because health is essential to life itself and must be considered to be a social and human good;*
- (b) *access to adequate nutrition and water;*
- (c) *improvement of living conditions and the environment;*
- (d) *elimination of the marginalization and the exclusion of persons on the basis of any grounds;*
- (e) *reduction of poverty and illiteracy'.*

social responsibility. Bioethical analysis of Article 14 should take into account the global perspective of health care problems that are confronted by all people similarly, though in different conditions, and its implications within different cultures and traditions.

6. Article 14 is complex, and it is essential that its possible interpretations and applications be elaborated. This is why the International Bioethics Committee of UNESCO (IBC) decided to focus on the principle of social responsibility and health, as set forth in Article 14 of the Declaration. This report is the result of a long reflection within IBC which began at its twelfth session (Tokyo, Japan, December 2005) immediately after the adoption of the Declaration. It does not aim at duplicating the work or debates on public health-policy issues already addressed in other international bodies, in particular the World Health Organization (WHO), and it has indeed built upon such work and debates. It attempts to address those questions from a bioethical standpoint by developing the ethical and legal dimensions of the principle of social responsibility and its relations to health.

II. SOCIAL DETERMINANTS OF HEALTH AND CONSTRAINTS TO HEALTH-CARE ACCESS

7. At the beginning of the 21st century we have to consider the effects of two different and conflicting processes. On one side, scientific progress has made available new and more effective therapies, surgical techniques, drugs and technical instruments for diagnosis and treatment of diseases that were once considered incurable. There is increasing awareness of the importance of health care as a fundamental right. As a result, in many countries life expectancy is much higher than it was for the previous generations, and other improvements are likely to come. On the other side, global health conditions are marked by inequities due mostly to poverty and lack of access to health-care services.

8. Health policy has been considered recently to be more than the provision and funding of medical care by taking into consideration that for the health of the population as a whole, the social and economic conditions that make people ill and in need of medical care are clearly of utmost importance. These include, among others, the lifelong importance of health determinants in early childhood, and the effects of poverty, unemployment, malnutrition, working conditions, drugs, social support, life style including adequate food, and position in the social ladder (an overview of the global health conditions is given in Annex II).

9. According to WHO (WHO Commission on Social Determinants of Health (2008) the determinants of health include the social, physical, and economic environments, as well as individual characteristics and behaviours. The context of people's lives determines their health, not less than their genetic inheritance and their personal choices and way of life. Thus, blaming individuals for having poor health is inappropriate. Individuals are unable to directly control many of the determinants of health. These determinants include factors such as:

- income and social status – higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health;
- education – low education levels are linked with poor health, more stress and lower self-confidence;
- physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health;
- employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions;
- social support networks – greater support from families, friends and communities is linked to better health;
- culture – customs and traditions, and the beliefs of the family and community all affect health;

- genetics – inheritance plays a part in determining lifespan, healthiness and the likelihood of developing certain illnesses;
- personal behaviour and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health;
- health services – access and use of services that prevent and treat disease influence health;
- gender – men and women suffer from different types of diseases at different ages.

10. Throughout the world, vulnerable and disadvantaged peoples have less access to health resources, get sicker and die earlier than those in more privileged social positions. The greatest share of health problems is attributable to the social conditions in which people live and work. Good medical care is vital to the well being of populations, but it is not enough to meet major health challenges and overcome health inequities. Action to reduce health inequalities aims to improve everyone's level of health to ensure that the health needs of the most disadvantaged are fully addressed, and to help the health of people in countries and regions with lower levels of health to improve faster.

11. Tackling major health determinants is of great importance for reducing the burden of disease and promoting the health of the general population. Without action on social determinants, those countries in greatest need will neither meet the health-related United Nations Millennium Development Goals (MDG), nor achieve global targets for reducing chronic diseases such as cardiovascular diseases, cancer and diabetes. Problems are especially urgent in developing countries where the burden of chronic illnesses is growing rapidly on top of the burden of unresolved infectious diseases.

12. WHO's Commission on Social Determinants of Health (2008) has recently established the following overarching recommendations:

- a) improve the conditions of daily life – the circumstances in which people are born, grow, live, work and age;
- b) tackle the inequitable distribution of power, money, and resources – the structural drivers of those conditions of daily life – globally, nationally, and locally;
- c) measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health.

III. THE ETHICAL AND LEGAL DIMENSIONS OF SOCIAL RESPONSIBILITY AND HEALTH

a. The emergence of the notion of social responsibility

13. Moral obligations are deeply rooted in social relationships and as such are integral to society. They find their home in the context of societal institutions, such as the family and in social practices such as promise keeping. They are independent of the law insofar as they are not usually justiciable. Indeed, where obligations become justiciable it is evident that the laws in question find their origins in social commitments and responsibilities, the neglect of which leads to totally unacceptable social consequences which society seeks to remedy.

14. The expression 'social responsibility' has come into use only recently. The term appeared in the context of the ethics of private companies and institutions, as the way of defining the moral duties these companies have with the societies in which they are rooted, beyond the constraints and obligations determined by law. This relatively new expression implies that the notion of responsibility is extended from individuals to groups, communities,

institutions and corporations, public and private. Institutions and corporations, like individuals, have moral duties that go beyond what is legally required. In other words, institutions and corporations do not only have a legal personality, but also a moral one, and they should assume duties which are exclusively moral, apart from those determined by law. These are, among others, the so-called 'duties of good citizenship'.

15. From a moral point of view, the duties of social responsibility should be understood as being part of what has traditionally been called in ethics 'imperfect duties'. These duties, also called 'duties of beneficence', they are morally binding for individuals, but cannot be demanded, requested or imposed by others or by the State. The word 'imperfect' does not mean that these are duties of less importance than those called "perfect duties" or 'duties of law' (like paying taxes). It simply means that there is no legal coercion. Perfect duties are public; their fulfilment can be demanded by the State, in contradistinction to imperfect duties. This difference is important, especially when considering the obligations deriving from a fundamental right. Duties are correlative to the rights: when there is a universal agreement about some duties, then it is possible to define a set of universal rights, corresponding to these duties. This is the origin of human rights. These rights have been defined in order to determine the duties that all human beings have in relation to each other. Responsibility and social responsibility, however, seem to be connected just to the moral vocabulary of imperfect duties. Therefore, they may appear less effective. Individuals as well as institutions and corporations have duties that cannot be imposed by others or by States. What is at stake, however, is a fundamental right to health. States and governments are called to meet specific obligations towards their citizens to the maximum of the available resources, and in order to implement and achieve progressively the full realization of the right to health.

b. The moral task of social responsibility

16. This is the context of the ethical analysis of Article 14 of the Declaration. The novelty and the importance of this article is that it widens the concept of social responsibility, applying it not only to the private sector but also to the public domain. The spirit of this article is that States also have duties of social responsibility. These duties, therefore, are now applicable not only to individual or private bodies, but also to public institutions and corporations. Article 1.2 of the Declaration emphasizes that the Declaration "is addressed to States", Articles 21, 22, 23, and 24 reaffirm their irreplaceable responsibilities.

17. When dealing with social primary goods, State duties of social responsibility are perfect, and therefore correlative to rights. This statement, however, is to be interpreted considering the standard of attainability. It is also necessary to know that the economic, social, and cultural rights of people are correlative to duties of States only within the limits established by the own State. This is the difference with the other human rights, the so-called civil and political rights, which are justiciable by everyone and under any circumstance.

c. Wide scope of article 14

18. Article 14.1 is of crucial importance to a proper understanding of the wide ranging scope of the Article as a whole. It clearly States that the promotion of health and social development is not only a purpose, but "a central purpose of governments", not to be pursued just by the means of moral persuasion. The centrality of this goal is easy to justify in the democratic tradition. One perhaps surprising line of argument finds justification in a neo-Hobbesian analysis of the obligations of the sovereign: to protect the citizens from the threat of war or violence. In our time we also include the risk of death due to (untreated) disease as one of the main threats facing citizens. The legitimation of sovereignty must therefore be the ability to protect citizens from current threats, and this gives a reason to make the promotion of health, and the protection against health threats a central purpose of government. Similarly, States have obligations to protect citizens from social threats like poverty or severe environmental degradation.

19. Article 14 also makes clear that all sectors of society participate in the promotion of health and social development. Health is a basic good because it contributes significantly to welfare and satisfaction. Individual well-being and welfare are connected with social development. This is a normative and not a descriptive statement, and is perhaps the most important statement of the Article. It is possible for a sector in society not to feel any responsibility for health and social development and not to act in a way that promotes health and social development. Article 14 denies the legitimacy of these arguments. No sector in society can isolate itself from responsibility for the promotion of health and social development. A corollary to this is that it is a valid criticism of a sector in society if it does not take this responsibility seriously, whether this is a criticism mounted by government or by civil society organizations. The exact addressee of such a criticism can be difficult to identify because even with an intuitive grasp of what 'a sector of society' is, there is rarely any natural or elected representative of such a sector we can address. We may, for instance, believe that parts of the food industry do not take their responsibility for preventing childhood obesity seriously or seriously enough, but there may not be one easily identifiable representative of that industry to whom we can address our criticism or who would be able to act on it.

d. Article 14 and the notions of health and social development

20. In the philosophical literature on the concept of health there is agreement only on two things: 1) health is not the opposite of disease and 2) the definition of health as 'complete physical, psychological and social well being' may define some human state, but it does not define health. Accepting the second definition would entail that all areas of societal policy are relevant to health policy since all of them influence psychological and social well-being.

21. The two leading contenders for a philosophical conception of health are:

- the bio-statistical conception: health as a state of species typical functioning;
- the action-theoretic conception: health as an ability to pursue autonomously chosen goals.

22. The bio-statistical conception of health sees health as an objective biological state that can be defined in terms of species typical functioning, in relation to an age and gender-matched reference class. A healthy organ is thus an organ with species typical functioning, and a healthy organism is an organism where all parts are functioning at their species typical level. The attraction of this conception of health is that it is seemingly objective, value free and linked to biology only. This conception has been criticized for hiding the value judgments in the choice of reference class, and for having difficulty in dealing with mental illness and subjective elements of illness and disease.

23. The action-theoretic conception of health sees it as the set of biological and mental properties that enables an agent to pursue goals. The healthy agent is thus the agent not restricted by biology in pursuing his or her reasonable goals. This conception is avowedly value-laden in the sense that what counts as health for you may not count as health for me if we have different reasonable life goals. Values also enter in discussing what counts as 'reasonable goals'. The attraction of this conception of health is that it inherently links health with the main reasons why we value health. It has been criticized, on the one hand, for allowing too many States to be classed as healthy (for persons who have limited life goals) and, on the other hand, for allowing too many States to be classed as unhealthy (for persons who have expansive and ambitious life goals).

24. It is plausible that the action-theoretic conception is closer to the conception of health and the value of health embodied in the Declaration in Article 14.2a '... health is essential to life itself and must be considered to be a social and human good' which is clearly not a purely biological conception. However, in many policy decisions (e.g. in relation to public health interventions) it will not matter what conception of health the policy maker adopts.

There is a large overlap between the States classed as healthy (or unhealthy) by the two conceptions, and most people who are affected by the policy decision will be unhealthy and in need of health promotion according to both.

25. Determining the content of the concept of 'social development' is more complicated partly because the reference of 'social' is vague and partly because the concept of 'development' is itself contested. Positive social changes can occur across the whole range of societal sectors and activities but they are not all equally important social developments and it would, for instance, be strange to define an improved ability of teenagers to sing in tune and keep rhythm as a social development that government should promote as a central purpose even though it would undoubtedly be a beneficial social change.

26. We therefore need to ask what kind of social developments are covered by the obligations outlined in Article 14. A help in this task is the partial explication provided by article 14.2a-e:

- a) access to quality health care and essential medicines, especially for the health of women and children, because health is essential to life itself and must be considered to be a social and human good;
- b) access to adequate nutrition and water;
- c) improvement of living conditions and the environment;
- d) elimination of the marginalization and the exclusion of persons on the basis of any grounds;
- e) reduction of poverty and illiteracy.

27. Any social change that improves one of the areas mentioned here is in itself a social development that should be promoted by governments and all sectors in society.

28. It is important to note that the social developments that should be promoted refer to developments in material conditions (e.g. access to water), formal and cultural structures (e.g. elimination of marginalization and exclusion), and education (e.g. reduction in illiteracy). The scope of promotion of social development is wide and must involve most sectors in society. The promotion of social development and the promotion of health are contingently linked since the areas of social development are at the same time the social determinants of health.

e. The status of health as 'a good'

29. Article 14.2 a) States that '... health is essential to life itself and must be considered to be a social and human good'. But exactly what kind of good is health?

30. Many philosophical and ethical theories acknowledge health as a basic good, either on its own or because of the strong links between health, welfare and social participation. These arguments are not affected by the case of individuals who do not value health or for whom health is not important. There is also little doubt that having healthy citizens is a benefit to society and that health is a social or public good. The health of individuals contributes positively to general social conditions.

31. Indeed, the 'health is a public good' argument does face significant obstacles. It is clearly not the case that most forms of health care are non-rivalrous or non-excludable. Physical and manpower resources are finite leading to rivalry between consumers and it is very easy to exclude people from health care or the benefits of health care. Health-care knowledge is non-rivalrous, but it is not non-excludable and therefore still falls outside the definition of an economic public good. The increasing tendency to patent university-based inventions in the health-care area indicates that exclusion is possible in health-care knowledge, and that it is seen as economically desirable by some. Nonetheless, there are areas where it is more plausible to see health as an economic public good, especially in relation to the prevention and treatment of infectious diseases. First and foremost,

acknowledging that health could be seen as a private good in an economic sense does not deny the fact that it is a public good in the broader sense outlined above that a society with healthy citizens is a better society than one with a lot of illness.

32. Some ethical theories advance the argument that talking about health as a public good treats it as a commodity, and not as a basic need. If we agree with this approach, common good, being the good of everybody and not an addition of individual good, it is difficult to escape the duty to contribute to the access to health care to everybody in the world.

33. The emergence and re-emergence of communicable diseases and pandemics emphasize the importance of thinking globally about health, also from an economic point of view. This perspective, moving away from individually-centered bioethics, should take into consideration contextual and cultural differences. Cure and care do not have the same priority and are not reflected in the same policies in each country. However, political leadership should endeavour to allocate resources to prevention of disease and to the protection and promotion of health. Considering health as a universal common good can also invite countries to work towards a more equitable distribution of health resources.

f. Health as a human right

34. December 2008 marked the 60th anniversary of the Universal Declaration of Human Rights, which provides the foundation for the international code of human rights. This code gives an internationally agreed set of standards to guide and assess the conduct of governments across a wide range of sectors and has a direct, close bearing on medicine, public health, and health systems. The lack of health care and commitment to promoting health directly infringes upon the right which is simply the keystone of all the others: the right to life.

35. Access to health care and the right to health, however, are not synonymous. Of course, it is impossible to ensure something like a right to be perpetually healthy. In turn, the simple right to health care may appear too narrow to include important factors like safe environmental conditions or adequate sanitation. Therefore, the international community has clarified the concept of the right to health both in its meaning and in its scope. The International Covenant on Economic, Social, and Cultural Rights (1966) includes as a central provision the right to health in international human rights law with a decisive specification: “the States Parties to the covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health” (Article 12). The content of the right is what is actually attainable and not whatever possibility one could ever think of. On the other hand, the UN Committee on Economic, Social and Cultural Rights adopted comment 14 in 2000, which States that in addition to access to health care, the right to health includes underlying determinants of health, freedom from discrimination, participation and accountability.

36. Accepting attainability as the standard implies that what we ought to do cannot be realized overnight; it is expressly subject to both progressive realization and resource availability. At the same time, this “fundamental” human right encompasses many responsibilities and goals: medical care, access to safe drinking water, adequate sanitation, education, health-related information, and other underlying determinants of health. It includes freedoms, such as the right to be free from discrimination and involuntary medical treatment, and entitlements such as the right to essential primary health care. Like other human rights, the right to health applies to disadvantaged and poor populations. The right to health requires an effective, responsive, integrated health system of good quality that is accessible to all.

37. Progressive realization also means that a country has to improve its human-rights performance steadily; if there is no progress, the government of that country has to provide a rational and objective explanation. Because of their greater resource availability, more is expected of high-income than of low-income countries. However, the right to health also

imposes some immediate obligations, such as non-discrimination and the requirement for States to have a national plan for health care and protection. Furthermore, the right to health requires that there are indicators and benchmarks to monitor progressive realization and that individuals and communities have opportunities for active and informed participation in health decision making that affects them. Under international human rights law, developed countries have some responsibilities towards the realization of the right to health in developing countries. Because the right to health generates legal entitlements and obligations, effective mechanisms of monitoring and accountability are needed.

38. According to the United Nations Special Rapporteur on the right to the enjoyment of the highest attainable standard of physical and mental health, this right consists of global standards generating legal obligations which demand effective mechanisms of accountability. The combined effect of these three dimensions – standards, obligations and accountability – may result in the empowerment of disadvantaged individuals and communities.

g. Social responsibility, justice, solidarity, and equality

39. Whatever contents the concept of human dignity may include in different cultures and traditions, a fundamental right ought to be conceived in terms of equality. That means, following the Universal Declaration of Human Rights of 1948, that neither distinctions stemming from “race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status”, nor those made on the grounds “of the political, jurisdictional or international status of the country or territory to which a person belongs (Article 2), should operate as factors of restriction and constraint”. In the case of health care, however, it is not the pursuit of the highest but rather of the highest attainable standard that can be claimed as such a right. The idea of attainability as we have already underlined implies the acknowledgement of some limits. Does it imply, by the same token, the acceptability of inequalities? Huge, growing inequalities are indeed what we see both at the domestic and especially at the international level. Is that a real dilemma or rather the expression of unavoidable shift from the dimension of legal rules to that of moral, non mandatory principles?

40. Current discussions about justice, solidarity and equality are relevant for a proper understanding of the justification for and scope of the obligations imposed by Article 14, especially because these concepts are mentioned in other preceding articles of the Declaration. Solidarity is probably the most contested of the three concepts. There is a common shared understanding of what justice and equality are, although there is disagreement concerning what justice requires of us and whether equality is a goal that should be pursued. But for solidarity, both the content and the normative importance of the concept remain elusive. It is not the aim here to give a full analysis of solidarity in its manifold possible forms, but to provide a brief outline of a fairly common understanding of social solidarity, where solidarity is seen essentially as a group concept. This shows that solidarity differs from justice. According to the group conception of social solidarity, without the existence of a definable group, solidarity has no meaning. In addition, horizontal solidarity among peers should be distinguished from vertical solidarity, the one existing between leaders and their followers or between authority and those under its rule.

41. The commitment to justice is not necessarily a commitment to equality, although the maximum of equality remains the ultimate goal when everyone’s right to life is at stake. The standard of equity and fairness must ensure in any case that the minimum to support human dignity be guaranteed to every individual. At the domestic level, the enjoyment of the highest attainable standard of health and access to quality health care without distinction – among others – of economic condition are objects of demanding obligations for the governments. In the transnational scope, the States retain their freedom to choose what to do. Even in the European Union, maybe the most advanced attempt to realize an innovative frame of political integration, “the area of health is essentially the responsibility of the Member States”. Therefore, the role of other organizations becomes more important, and a call for solidarity unavoidable.

42. In most groups there is some tendency to be benevolent towards other members of the group, but solidarity requires more than that. It requires an idea of shared life or destiny. It also requires a sense of belonging, integration or rootedness of each individual member within the group. This sense of belonging is the underlying motivation which changes the passive understanding of a common destiny to active work for common goals. If solidarity can be harnessed to goals such as the promotion of health and social development it can be a powerful motivating force.

h. Relationship of Article 14 with other articles of the Declaration

43. Article 14 of the Declaration cannot be interpreted as an isolated text fragment. In accordance with Article 26 of the Declaration, any interpretation must take account of the whole of the Declaration, in particular the other principles. These provide both constraints on the possible interpretations and guidance concerning the fundamental values underlying the Declaration.

44. First of all, Article 14 should be read in the light of Article 13 on solidarity and co-operation (“Solidarity among human beings and international cooperation towards that end are to be encouraged”), which reflects the commitment that the Declaration is based not only on the individualist concept of rights but that it also recognizes the importance of solidarity between individuals and across communities, with special regard to those rendered vulnerable (Article 8). Cooperation between and among individuals, families, groups and communities should be of special concern in the relevant decision-making and the establishment of appropriate practices within the scope of the Declaration. The international dimensions of health care today are more significant than ever before. Rare diseases that are sometimes neglected by health care systems at the national level may be very dangerous in other parts of the world, and this requires international cooperation. In the case of HIV/AIDS-prevention, for example, the ethical dimensions of health care frequently go beyond national frontiers.

45. As progress in science and technology is viewed as crucial for health and social development, it becomes clear that Articles 15, 23 and 24 are also highly relevant for the promotion of such development. Furthermore, these articles state that high income, industrialized countries, have a special responsibility with regard to the promotion of benefit sharing, solidarity, and international cooperation in the field of science and technology, by assisting developing countries in building up their capacity, thus enabling them to make use of the fruits of scientific and technological progress and to develop their own research policies and scientific and technological know-how.

46. Article 15⁽²⁾, in dealing with the benefits resulting from scientific research and its applications and the need to share them with society and the international community, echoes Article 14. It identifies as concrete areas of implementation of such sharing the access to quality health care, provision of new diagnostic facilities, new treatments, or medical products stemming from research.

2. *‘1. Benefits resulting from any scientific research and its applications should be shared with society as a whole and within the international community, in particular with developing countries. In giving effect to this principle, benefits may take any of the following forms:*

- (a) special and sustainable assistance to, and acknowledgement of, the persons and groups that have taken part in the research;*
- (b) access to quality health care;*
- (c) provision of new diagnostic and therapeutic modalities or products stemming from research;*
- (d) support for health services;*
- (e) access to scientific and technological knowledge;*
- (f) capacity-building facilities for research purposes;*
- (g) other forms of benefit consistent with the principles set out in this Declaration.*

2. Benefits should not constitute improper inducements to participate in research’.

47. The relevance of Article 21 (Transnational practices) to Article 14 relates to the crucial role attributed to 'progress in science and technology' to promote health and social development. Article 21.3 states that transnational health research 'should be responsive to the needs of host countries'. This implies that promotion of health and social development is not the sole responsibility of the government of a country hosting transnational research; States sponsoring transnational research also have a responsibility in safeguarding that the transnational research undertaken in a host country contributes to the research needs of that particular country. Moreover, Article 21 not only addresses States and governments involved in transnational practices but also public and private institutions associated with such practices. This implies that promotion of health and social development in a country hosting transnational research is also a shared responsibility of such involved institutions. Article 22.2 emphasizes the role of States in establishing independent, multidisciplinary and pluralistic ethics committees. The relevance of such institutions in relation to Article 14 relates to the role they could play in developing sustainable research priority policies within the domain of health and social development in the countries concerned.

48. The relevance of Article 23 (Bioethics education, training, and information) to Article 14 also relates to the crucial role attributed to 'progress in science and technology' to promote health and social development, in so far such development is dependent on:

- the production, implementation and application of context sensitive scientific and technological products, but also on
- raising awareness and sensitizing researchers, policymakers and the public about the ethical implications and possibilities of scientific and technological progress.

IV. SPECIAL AREAS OF FOCUS

a. Health care

49. Improving health is not only an outcome of development but also a prerequisite for development. Consequently, investment in health yields one of the highest rates of return that a country can achieve. There is a growing gap between medical knowledge and medical practice, sometimes referred to as "know-do gap". Despite important biomedical and biotechnological advances with positive results in reducing morbidity and mortality, access to health care is far from satisfactory. Millions of people have no access to proper health care. Even in developed countries, many well established preventive treatments are not used, having as a consequence future complications and sometimes, the need of using more expensive treatments when the illness that could have been prevented actually occurs. Many effective treatments are frequently underused or misused.

50. Some examples illustrate the magnitude of this problem: 27 million children have not been vaccinated to prevent different illnesses; many patients do not receive treatments based on evidence; about 30% of patients with myocardial infarction do not receive aspirin to prevent new events; 50% of patients with coronary disease do not receive beta blockers, only 37% receive statins and less than 40% have LDL cholesterol less than 100, all factors which prevent new coronary events. Failure in using proved treatments as a primary or secondary prevention produces future complications which need to be treated using more expensive methods. Undetected and untreated hypertension, depression and failures in prenatal care are examples of underused medical services.

51. Sometimes patients undergo medical interventions under circumstances in which the potential for harm might exceed the benefits; some patients are exposed to expensive treatments simply because the technology exists without there being any reasonable expectation of receiving a benefit; a variety of new treatments, with scientifically known benefits compete with treatments used every day without evidence of effectiveness or even

with negative results; treatments which have scientific evidence for a specific clinical situation are also used in other clinical settings in which no evidence has been obtained. Antibiotics are frequently overused, which increases adverse reactions and antibiotic resistance. Coronary angiographies, carotid endarterectomies, gastrointestinal endoscopies, and pacemakers have also been reported in the literature as examples of overuse.

52. In addition to the significant problems described before, health-care systems are faced with one of the most difficult challenges: the costs of medical care have driven up expenses far beyond the limits of any realistic budget, even in the richest countries. The increase in health-care costs reduces the opportunities of many patients to receive the treatment they might need.

53. Even if it is accepted that full equality in the access to the best possible care will not be achievable, each member of society, irrespective of his or her economic position, should have equitable access to an adequate level of health care. In order for a health-care system to be just and equitable, it needs first to be efficient. Beyond the management decisions to reach this goal, it is necessary to address important ethical questions: should all new technologies be used in every patient? Should all patients be treated? Are the new medical technologies being used for saving people with good chances of having an acceptable quality of life or, instead of that, are these new treatments being used on individuals with bad prognosis, in terms of life expectancy and quality of life?

54. Today, it is accepted that some rationing in health care is needed. What criteria should be followed? Solutions are not easy to find and coping with these issues will require, first of all, an intense educational programme which should include all members of society, followed by a wide deliberation process which should be addressed to:

- define the concepts of health and illness, understand the limits of technology
- set forth strategies for defining the health necessities in health care, as well as the criteria for establishing a decent minimum in health care;
- discuss acceptable criteria for rationing, and clarify the limits of the patients' rights regarding the use of new technologies.

55. Quality health care requires: 1) adequate prevention and/or treatment, based on evidence, are applied at the right time; 2) primary or secondary harm are avoided or reduced; 3) patient's wishes are respected; 4) the cost-benefit relationship is preserved.

56. Our moral responsibility increases in the same proportion as our knowledge does. When a person gets sick or dies due to an illness with unknown preventive or effective treatment, there is no moral responsibility, but when this illness is preventable or has an effective treatment, an enormous moral responsibility exists which has to be assumed by societies. Members of society as well as patients bear a great burden of harm because of a lack of an adequate quality health care system, a burden that produces lost lives, reduced functioning and wasted resources. Improving the quality of health care systems requires the cooperation of all institutions and members of our society, each of them has to know and accept its own responsibility.

b. Research

57. Improving health requires the effective application of existing research. It also, crucially, requires research aimed at creating new knowledge and new technologies. This includes the whole spectrum of research: a) biomedical sciences (creating affordable and accessible new drugs, vaccines, diagnostics and appliances), b) health systems and policy research, social sciences, political sciences, health economics, behavioural and operational research, and c) epidemiological research into the relationship between health and the cultural, physical, political and social environments.

58. Research for health can make a major contribution both to health and to more general development. At the 2008 Bamako Global Ministerial Forum, Ministers of Health, Ministers of Science and Technology, Ministers of Education and ministerial representatives from 62 countries recognized that in a world facing significant environmental, demographical, social and economic challenges, research is essential to clarify the nature and scope of health problems, to develop and implement effective life-saving interventions and accelerate achievement of the Millennium Development Goals. The so-called “Bamako Call for Action” urges national governments to give priority to development of policies for research and innovation for health as part of their broader national strategies.

59. In many countries, however, the benefits of health research are not optimized due to low investments, absence of a culture of evidence-based decision making or lack of capacity. International aid needs to ensure that research for health is part of its total package and is fitted in a manner that enhances national health research systems.

60. Moreover, few of the world’s resources for health research are directed to solving the health problems of developing countries. In 1990, the Commission on Health Research for Development estimated that less than 10% of the global health research resources (totalling US\$30 billion/year in 1986) were being applied to the health problems of developing countries, which accounted for over 90% of the world’s health problems – an imbalance subsequently captured in the term the ‘10/90 gap’. The world now spends considerably more on health research: the latest estimate puts the figure at US\$105.9 billion for 2001, of which 44% by the public sector, 48% by the private for-profit sector and 8% by the private not-for-profit sector. Despite these positive increases, there is still a massive under-investment in health research relevant to the needs of low-and middle-income countries – the imbalance of the ‘10/90 gap’.

61. More research is needed to address the lack of appropriate drugs and technologies to treat the multiple burdens of communicable and chronic diseases that many developing countries now face, and to provide knowledge and evidence about what policies, systems and services work in different places and settings, about what is failing, and about what is needed to improve them at the most cost-effective ways.

62. A specific recommendation on research funding was made at the end of Forum 8 in 2004, in Mexico City stating:

To provide the resources necessary for essential research within developing countries, we urge governments of these countries to spend at least 2% of their national health budgets on health research, as recommended by the 1990 Commission on Health Research for Development. These funds should be used locally for health research and research capacity strengthening. Also in line with the Commission’s recommendation, donors are urged to allocate 5% of their funding for the health sector to health research and research capacity strengthening in developing countries. Monitoring the use of funds for capacity development is a vital complementary activity.

63. The point here is how governments perceive research. If they see research as an expenditure and not as an investment, the amount of funds will be scarce, mainly when the funds in poor countries have to be distributed among greater needs, relegating health research as an expenditure and one activity that is not a priority, falling with this into a vicious cycle that will not make it possible to improve social determinants of health. But also, we come to a basic question: is there a greater need than health, as a key determinant to development?

64. Setting of research agendas for developing countries is important. Who should set the research agenda in developing countries? What methods should be used? It is important to empower countries to set their own agendas and priorities. Countries need to involve all national stakeholders in coming up with national research agendas. There is need to focus the scarce resources on health research in poor countries that will optimize health benefits and lead to equity. There is need to budget for research and to see research as an

investment and not as an expenditure. It is difficult to ask a government that has a budget of only a few dollars per person per year to spend on health, to contribute to the research agenda, but there is need for them to make a start. IBC requests to cut down on other priorities, such as defence expenses.

c. Industry

65. Development agencies have challenged the pharmaceutical industry (but some remarks could apply to public research as well) to improve its efforts to tackle the health crisis affecting developing countries. They consider that a socially responsible company should have policies on access to treatment for developing countries which include the five priorities of pricing, patent, joint public private initiatives, research and development and the appropriate use of drugs. They observe that industry currently defines its policy on access largely in terms of philanthropic ventures. Some important initiatives have been taken. Nonetheless, critical challenges remain, particularly the issue of pricing.

66. The generalized lack of interest on the part of industry in research geared to the development of new vaccines and drugs to treat tropical diseases and ailments typical of the poor could be explained by the high cost of research and the small or negative profit margins to be expected. Since the establishment of the World Trade Organization (WTO) and the signing of the Agreements on Trade-Related Aspects of Intellectual Property Rights (TRIPS), developing countries have faced increases in the cost of basic medicines, whose protective patents enable the pharmaceutical industry to impose their price. Consequently, some basic medicines cannot be made available to poor population groups at affordable prices. The industrial and commercial rationale of the pharmaceutical industry often runs counter, however, to the public health objectives of developing countries that are confronted by epidemics of diseases such as AIDS, malaria, and tuberculosis. The excessively high price of medicines puts them virtually beyond the reach of the world's poorest communities.

67. One solution to prohibitive prices, which are indeed a huge stumbling block, would be to reach agreements with the pharmaceutical industry on a voluntary price differentiation between rich and poor countries, allowing the latter to pay only production costs and not research and development costs. WHO and UNAIDS have had some success in this regard. This system presupposes, however, that poor countries agree not to re-export the medicines to rich countries and that they are careful to ensure that the products are properly used to reduce any possibility of resistance. The TRIPS Agreement has also been revised in favour of the poorest countries. Those that do not have the capacity to produce medicines may now request an extension of compulsory licenses for generic products protected by patent, so that they may be imported from other countries. Although the number of generic medicines is large it is likely to rise in the future because of the expiration of patents. This may lead to a fall in the profits of the pharmaceutical industry.

68. Some recent projects have a charitable aspect and will not generate profits. Examples include the new Institute for Tropical Diseases in Singapore for the discovery of drugs for tuberculosis and dengue, and a considerable number of privately funded projects aimed at new treatments for malaria, elephantiasis, river blindness, HIV/AIDS, leprosy, dengue, and sleeping sickness.

d. Education

69. It has been demonstrated that illiteracy and poverty are two major factors that produce poor health and poor social development. It is also known that low literacy impacts on mortality and quality of life. This is why Article 14 starts by advocating the promotion of health and social development and concludes by calling for the reduction of poverty and illiteracy.

70. Health literacy has also been defined as ‘the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions’. Current data, according to the UNESCO Institute for Statistics, indicate that around 774 million adults are unable to read and write. In sub-Saharan Africa, there are now more illiterate adults than in 1990, and 150 million primary school-age children are out of school according to a joint UNESCO/UNICEF global estimate. This number equals almost one in five of children worldwide and so millions of people are unable to achieve health literacy.

71. By insisting that these three goals – health, social development and literacy – are intimately linked together, we also stress the link between health promotion and education as awareness of everyone’s personal responsibility towards those determinants of health that are chosen as goals or styles of life. The individual level of responsibility we can achieve through a proper education, adapted to the different cultures and traditions, is fundamental and unavoidable. Everyone takes or does not take care of themselves. This care may include, for example, balanced eating, keeping active, avoiding smoking, obesity, or excessive drinking and how everyone deals with life’s stresses and strain. Indeed, they may be a serious – although different – problem of education for developed and rich countries, not less than for developing and poor ones.

72. The term illiteracy can also be related to science education. In the so-called knowledge societies it is almost impossible for a country to have the capacity to cope with scientific progress without a strong cohort of researchers. This means that children must become literate in science early in their life, in order to develop a basic understanding of the world around them and the capacity to support science development.

73. Governments must also provide opportunities for educating people in bioethics. Education in bioethics is called for in Article 18 of the Declaration. It is through education in bioethics that citizens will be able to engage in debates about moral issues pertinent for their country and other countries.

V. COURSES OF ACTION

a. Decision-making procedures

74. It is evident that pursuing the goals of promoting health and social development is not without cost and that few societies, if any, have the resources to actively pursue all the goals mentioned in Article 14 to a sufficient degree. Societies will have to prioritize between and within goals. Recent work on priority setting in health care and on societal priority setting more generally shows that there is no uncontroversial algorithm that can provide definite answers to how such priorities should be set.

75. Article 14 of the Declaration must be considered a blueprint for more explicit and detailed formulations of the concepts related to solidarity, reciprocity, justice, and dignity as they relate to the formulation, justification, and application of health-related policies by Member States. Its wide scope and vagueness of formulation should not deter legislators and policymakers from considering it as a step forward in the consolidation of a widespread agreement on rights and duties surrounding one of the most essential societal functions, which is to enhance, preserve, and promote social well-being at the individual and group levels, respecting cultural diversity, caring for the worst-off, maximizing total benefits and striving at equity and quality in the creation and delivery of health-related services.

76. Procedures for priority setting emphasize the application of a fair process allowing agreement on what is legitimate and fair. Key elements involve transparency, relevant and acceptable rationales, and procedures for revising decisions. The basic notion behind the process is to increase the likelihood of priority decisions based on a commitment to fairness.

77. It may be said that four principles have been identified as essential to the process of priority setting in health: treating people equitably, favouring the worst-off peoples, maximizing total benefits for society, and promoting or rewarding social usefulness. The application of these general principles should follow agreed-upon rules of procedures in order to become legitimized.

78. It could be argued that any societal priority setting within and between goals outlined in Article 14 would have to follow a legitimate decision-making procedure. More generally a decision maker who is contemplating a decision with implications for the promotion of health and/or social development ought to ensure that the effect of the contemplated activity on all the goals mentioned in Article 14 are considered. Otherwise there is a significant possibility that important reasons have not featured in the decision-making process. Article 14 can thus be the basis for a rough checklist for the reasonableness of arguments given by policy makers to justify decisions in the areas covered by the Article.

b. Transnational scope

79. Article 14 may appear not to have implications in an international context and its wording may suggest an explicit restriction to national States. Furthermore, all the actions Article 14 describes are within the scope of normal governmental activities. In this context, it is important to remember that all articles in the Declaration must be interpreted as accepting Article 21 that covers transnational activities. However, since activities of many social actors are pursued in different nation-States, indications of Article 14 should be considered in all nations affected by them. For example a company engaged in activities in a country other than the country in which it is incorporated cannot relieve itself from its local obligations, invoking that it only has obligations in 'its own country'.

80. Another possible transnational aspect of Article 14 relates to intellectual property. Establishing rules for the legal recognition and exploitation of intellectual property is one of the ways in which a state can ensure that '...progress in science and technology ...' (Article 14.2) advances health and social development, but modern intellectual property regimes reach far beyond the borders of individual States. In so far as the intellectual property regime of one State has implications elsewhere, or in relation to negotiations concerning international intellectual property rules, State and societal actors have an obligation to consider the effects of the rules on other States.

c. National bioethics committees

81. According to Article 19 c) of the Declaration, national bioethics committees should be established in order to 'assess scientific and technological developments, formulate recommendations, and contribute to the preparation of guidelines on issues within the scope of this Declaration'.

82. National bioethics committees are independent, multidisciplinary and pluralistic bodies with an ethics mandate that does not only cover medical research. They have been established in order to assess scientific and technological developments in all the bio-, life- and health sciences. Besides, they have been established to formulate recommendations and foster debate, education, and public awareness in bioethics. These national bodies should therefore be encouraged to take responsibility of:

- identifying the most pertinent research for health and social development needs in the country concerned and formulating recommendations about sustainable research priority policies within the domain of health and social development;
- being kept continuously informed about current and potentially relevant questions of research ethics within the field of medicine and international convention related to human research, and ensuring that medical research involving humans are evaluated by the committee.

- fostering debate and public awareness about the ethical dimensions of the link between health and social development;
- promoting a deeper insight into the conditions of a “fair” rationing about priority setting and allocation of resources in public and private health care systems;
- supporting the concrete experiences of solidarity, such as the willingness to donate organs, but also to volunteer in the civil society to help suffering and marginalized people;
- suggesting solutions for the crucial issues concerning equity in access to health care and equitable access to medical treatment.

83. This would represent a way of linking Article 14 on social responsibility and health to the need for developing sustainable research priority policies within the domain of health and social development in the countries concerned, as well as protecting the individuals themselves inside the health system, when they are in a vulnerable state.

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**HISTORICAL OVERVIEW OF INTERNATIONAL INITIATIVES IN PROMOTING
THE PRINCIPLE OF SOCIAL RESPONSIBILITY AND HEALTH**

INITIATIVES UNDERTAKEN WITHIN THE UN SYSTEM

The international context regarding health and social responsibility can be traced back to many existing international instruments, declarations, international covenants or statements, as well as initiatives, which explicitly refer to health and welfare of human beings.

Constitution of the World Health Organization (WHO)

The well-known Constitution of WHO defines health as *'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'* and affirms that *'the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition'*.

Universal Declaration of Human Rights

The Universal Declaration of Human Rights (1948) refers to health and welfare of human beings in Article 25, which States that: *'Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services...'* and follows:

'(2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection'.

International Covenant on Economic, Social and Cultural Rights

Article 15 of the International Covenant on Economic, Social and Cultural Rights (1966), States that *'everyone has the right to enjoy the benefits of scientific progress and its applications'* and Article 12 States:

- '1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.*
- 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:*
 - (a) The provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child;*
 - (b) The improvement of all aspects of environmental and industrial hygiene;*
 - (c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases;*
 - (d) The creation of conditions which would assure to all medical service and medical attention in the event of sickness'*.

Health-for-All by the Year 2000

In 1977 the Thirtieth World Health Assembly decided that the main social goal of governments and WHO in the coming decades should be the attainment by all people of the world by the year 2000 of a level of health that would permit them to lead a socially and economically productive life. This goal is commonly known as Health-for-All by the Year 2000 (Resolution WHA30.43).

The commitment to global improvements in health, especially for the most disadvantaged populations, was reviewed in 1998 by the World Health Assembly. This led to the development of 'Health-for-All for the Twenty-First Century' policy and programme, within which the commitment to primary health care is restated.

In the report of the 51st World Health Assembly, it is indicated: *'Over the past two decades primary health care acted as a cornerstone of Health-for-All. Despite gains, however, progress has been hampered for several reasons, including insufficient political commitment to the implementation of Health-for-All, slow socioeconomic development, difficulty in achieving intersectorial action for health, insufficient funding for health, rapid demographic and epidemiological changes, and natural and man-made disasters. Further, poverty has increased worldwide. Health has suffered most where countries have been unable to secure adequate income levels for all'*. The report also indicated that primary health-care policy approaches should reinforce the following points:

- make health central to development and enhance prospects for intersectorial action;
- combat poverty as a reflection of primary health care's concern for social justice;
- promote equity in access to health care;
- build partnerships to include families, communities and organizations;
- reorient health systems towards promotion of health and prevention of disease.

The WHO 'Health-for-All' commitment and programme were marked by a series of Global Conferences on Health Promotion which began in Ottawa in 1986 and produced the Ottawa Charter on Health Promotion. This benchmark conference was followed by conferences in Adelaide (1988), Sundsvall (1991), Jakarta (1997), Mexico City (2000), and Bangkok (2005).

Alma Ata Declaration

The International Conference on Primary Health Care (PHC), held in Alma-Ata, Kazakhstan, in 1978, realized that improving health called for a comprehensive approach whereby primary health care was seen as 'the key to achieving an acceptable level of health throughout the world in the foreseeable future as a part of social development and in the spirit of social justice'. The Conference adopted 'The Alma-Ata Declaration' which reaffirmed that *'health... is a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector'*. The Conference called for a transformation of conventional health-care systems and for broad intersectorial collaboration and community organizing.

Ljubljana Charter

The Ljubljana Charter, adopted by the Ministers of Health or their representatives from the European Member States of WHO at the WHO Conference on European Health Care Reforms in Ljubljana, Slovenia in June 1996, addressed health-care reforms in the specific context of Europe. The purpose of this Charter was to articulate a set of principles which are an integral part of current health-care systems or which could improve health care in all the Member States of WHO in the European Region. These principles emerged from the experience of countries implementing health-care reforms and from the European health-for-all targets, especially those related to health-care systems.

Jakarta Declaration

The promotion of social responsibility for health was first established as a priority at the WHO Fourth International Conference on Health Promotion: New Players for a New Era – Leading Health Promotion into the 21st Century, held in Jakarta, Indonesia in July 1997.

In the final Declaration, the Conference, the first to be held in a developing country, and the first to involve the private sector in supporting health promotion, recommended that decision makers must be 'firmly committed to social responsibility' and both public and private sectors 'should promote health by pursuing policies and practices that:

- avoid harming the health of individuals,
- protect the environment and ensure sustainable use of resources,
- restrict production of, and trade in, inherently harmful goods and substances such as tobacco and armaments, as well as discourage unhealthy marketing prices,
- safeguard both the citizen in the marketplace and the individual in the workplace,
- include equity-focused health impact assessments as an integral part of policy development'.

Bangkok Charter

More recently, the Bangkok Charter, adopted at the WHO Sixth Conference on Global Health Promotion held in Thailand in August 2005, identified actions, commitments and pledges required to address the determinants of health in a globalized world through health promotion. Thus, it was recommended that 'governments at all levels must tackle poor health and inequalities as a matter of urgency because health is a major determinant of socioeconomic and political development'. Its four key commitments were to make promotion of health:

- central to the global development agenda: strong intergovernmental agreements that improve health and collective health security and effective mechanisms for global governance for health are needed;
- a core responsibility for government as a whole: the determinants of health need to be addressed by all ministries at all levels of government;
- a key focus of communities and civil society: well-organized and empowered communities are highly effective in determining their own health, and are capable of encouraging governments and the private sector to be accountable for the health consequences of their policies and practices;
- a requirement for good corporate practice: the private sector has a responsibility to ensure health and safety in the workplace and to promote the health and well-being of employees, their families and communities, and to contribute to lessening wider impacts on global health.

UN Millennium Development Goals

Further international efforts to meet the needs of the poorest, including better health, have been included in the eight UN Millennium Development Goals (MDG) (United Nations Millennium Declaration adopted by the General Assembly in September 2000). The MDG address health in a global and social perspective. Indeed, among the development goals, reduction of child mortality (Goal 4), improvement of maternal health (Goal 5) and combat HIV/AIDS, malaria and other diseases (Goal 7) can be found. Moreover, one of the seven modalities set out to achieve Goal 8 'Develop a global partnership for development' is to provide access to affordable essential drugs in developing countries in cooperation with pharmaceutical companies.

INITIATIVES UNDERTAKEN BY OTHER ORGANIZATIONS

Outside the United Nations systems, a number of alliances between public, private, nongovernmental, and international organizations and civil society have been organized with the aim to address the determinants of health in a globalized world through health promotion. Recent initiatives are described below as examples.

Global Forum for Health Research. At recent parallel meetings of the Forum 8 organized by the Global Forum for Health Research and the Ministerial Summit on Health Research, in Mexico City in November, 2004, over 1,400 policy makers, health ministers, researchers and representatives of governments, development agencies, and research institutions examined the issue on how research could improve strategies and help to attain the MDG. One of the conclusions of both the Forum and the Summit was that achieving the MDG will require addressing health and its determinants in a comprehensive way and will necessitate further health research, of high quality, focused on the needs of developing countries and vulnerable populations. It must give systematic attention to cross-cutting issues of poverty and equity, taking account of inequities based on gender, ability, ethnicity and social class, among others; the needs of both the aged and the largest generation ever of young people 0-19 years, and the needs of other specifically disadvantaged groups such as migrants, refugees and those exposed to violent conflict. It was concluded that all the participants must commit themselves to the shared responsibility of advancing the volume and pace of health research that is focused on improving the lifespan and health of people everywhere. Special consideration was given to increase funding for health systems research, as this activity of research is the one that may have the largest impact on improving health.

Global Ministerial Forum on Research for Health. At a 2008 meeting in Bamako, Ministers and representatives of Ministries of health, science and technology, education, foreign affairs, and international cooperation from 53 countries recognized that research and innovation have been and will be increasingly essential to find solutions to health problems, address predictable and unpredictable threats to human security, alleviate poverty, and accelerate development, and called national governments for action, as follows:

1. to give priority to the development of policies for research and innovation for health, especially related to primary health care, in order to secure ownership and control of their research for health agendas;
2. to allocate at least 2% of budgets of ministries of health to research;
3. to improve capacity in institutions, ministries, and throughout systems for the implementation of research policies, including: identifying national research priorities; responding in a timely way to unpredictable health threats; providing a conducive environment for development of a strong research culture; ensuring technology transfer; improving education and training of researchers; integrating research for health within health systems; translating research into action, and evaluating the impact of research for health;
4. to develop, set, and enforce standards, regulations, and best practices for fair, accountable, and transparent research processes, including those related to ethical review and conduct, product development and manufacturing, quality and safety of patient care, the registration and results reporting of clinical trials, and open and equitable access to research data, tools, and information;
5. to promote knowledge translation and exchange through the application of effective and safe interventions, evidence-informed policies, policy-informed research, and publication and effective dissemination of research results, including to the public, taking into consideration the diversity of languages and advances in information technology;
6. to develop mechanisms and tools to enable effective inter-sectorial, inter-ministerial, and inter-country research collaboration and coordination to address complex health challenges;
7. to strengthen the efficient collection, storage, and sharing of reliable health information and data according to international standards, to ensure utilization of the existing bodies of knowledge, and to develop skills for local data analysis and its use in policy development, planning, monitoring, and evaluation;

8. to strengthen research capacity and build a critical mass of young researchers by developing and including curricula on research methods and research ethics, especially but not exclusively for students of health sciences; and to stress the importance of scientific research in secondary and tertiary levels of education.

Grand Challenges in Global Health. This initiative is a partnership dedicated to supporting scientific and technical research to solve critical health problems in the developing world. The initiative's partners are the Bill & Melinda Gates Foundation, the Canadian Institutes of Health Research, the Foundation for the National Institutes of Health, and the Wellcome Trust. A grand challenge is meant to direct investigators to a specific scientific or technical breakthrough that would be expected to overcome one or more bottlenecks in an imagined path towards a solution to one or preferably several significant health problems. Therefore a grand challenge is envisioned as distinct from a simple statement of one of the major problems in global health, such as malnutrition or the lack of access to medical care. The initiative has identified and supported seven long-term goals to improve health in the developing world:

- to improve childhood vaccines;
- to create new vaccines;
- to control insects that transmit agents of disease,
- to improve nutrition to promote health;
- to improve drug treatment of infectious diseases;
- to cure latent and chronic infection;
- to measure health status accurately and economically.

Reaching the Poor Programme (RPP). This is an effort to begin finding better ways of ensuring that the benefits of health, nutrition, and population (HNP) programmes flow to disadvantaged population groups. It has been undertaken by the World Bank, in cooperation with the Gates Foundation, and the Dutch and Swedish Governments. In order to help improve how well HNP programmes reach poor people, the RPP seeks to:

- determine which HNP programmes do or do not reach disadvantaged groups effectively. The resulting information, produced through application of recently-developed quantitative techniques for assessing programmes' distributional performance, is intended to provide guidance to policy makers about which approaches to adopt or to avoid in developing pro-poor initiatives;
- encourage others to undertake similar determinations of HNP programme effectiveness in reaching the poor. More widespread application of the techniques just mentioned, derived from the 'benefit incidence' approach used to determine who benefits most from government expenditures, would allow policy makers to assess and then improve their performance in reaching the poor on an ongoing basis.

The programme considers that health policies do not have to be inequitable: 'While most health, nutrition, and population services exacerbate poor-rich inequalities by achieving much lower coverage among the disadvantaged than among the better-off, many significant and instructive exceptions exist. This demonstrates the feasibility of reaching the poor much more effectively than at present, and point to promising strategies for doing so'.

GLOBAL HEALTH CONDITIONS – AN OVERVIEW

(This Annex includes mostly findings of the World Health Organization, for illustrative purposes. The pertinent references are mentioned in the Bibliography section)

Global health conditions at present have been summarized in 2006 by WHO: 'In this first decade of the 21st century, immense advances in human well-being coexist with extreme deprivation. In global health we are witnessing the benefits of new medicines and technologies. But there are unprecedented reversals. Life expectancies have collapsed in some of the poorest countries to half the level of the richest – attributable to the ravages of HIV/AIDS in parts of sub-Saharan Africa and to more than a dozen 'failed States'. These setbacks have been accompanied by growing fears, in rich and poor countries alike, of new infectious threats such as SARS and avian influenza and 'hidden' behavioural conditions such as mental disorders and domestic violence. The world community has sufficient financial resources and technologies to tackle most of these health challenges; yet today many national health systems are weak, unresponsive, inequitable – even unsafe. What is needed now is the political will to implement national plans, together with international cooperation to align resources, harness knowledge and build robust health systems for treating and preventing disease and promoting population health'.

MAJOR PUBLIC HEALTH PROBLEMS

Despite progress in the medical and health fields, major public health problems and inequalities of health care between North and South still remain. Today 800 million individuals suffer from hunger and malnutrition, and more than a billion people do not have access to safe drinking water, basic education, and health care. In this information age where future development is supposed to be based on knowledge, two billion are not connected to an electricity supply and more than 4.5 billion or 80% of the world's population is deprived of basic telecommunication technology.

Maternal mortality

Notwithstanding all the advances of science and technology in medical and health fields witnessed in the 20th century, maternal deaths continue unabated. According to WHO only a few countries have empirical data on maternal mortality for more than one year, and these are mostly middle-income countries and countries with initial maternal mortality ratios below 200 deaths per 100 000 live births. The latest estimate is that 536 000 women died in 2005 as a result of complications of pregnancy and childbirth, and that 400 mothers died for every 100 000 live births. The maternal mortality ratio was 9 in developed countries, 450 in developing countries and 900 in sub-Saharan Africa. This means that 99% of the women who died in pregnancy and childbirth were from developing countries. Slightly more than half of these deaths occurred in sub-Saharan Africa and about a third in southern Asia: together these regions accounted for over 85% of maternal deaths worldwide. Every 45 seconds a woman dies from pregnancy related causes, and every seven and a half minutes a woman dies from an unsafe, often self-induced abortion. Over 300 million women suffer from short-term or long-term illness brought about by pregnancy and childbirth.

Child mortality

Globally, mortality rates in children under five years of age fell throughout the latter part of the 20th century: from 146 per 1000 live births in 1970 to 79 in 2003. Towards the turn of the millennium, however, the overall downward trend started to falter in some parts of the world. In 93 countries, totalling 40% of the world population, under-five mortality is decreasing fast. A further 51 countries, with 48% of the world population, are making slower progress: they

will only reach the Millennium Development Goals if improvements are accelerated significantly. Even more worrying are the 43 countries that contain the remaining 12% of the world's population, where under-five mortality was high or very high to start with and is now stagnating or reversing.

At the beginning of the 21st century over 10 million children (more than 27,000 per day) die each year, although most of these deaths can be avoided. Each year some 3.3 million babies are stillborn and more than 4 million die within 28 days of coming into the world, and a further 6.6 million young children, most of them from the poor countries, die before their fifth birthday. The main causes of death among children under five years of age are avoidable illnesses. Six illnesses account for 70% to 80% of all these deaths: acute respiratory infections, diarrhoea, malaria, measles, HIV/AIDS, premature birth and neonatal problems. Three quarters of neonatal deaths could be avoided if pregnant women received better nutrition and adequate perinatal care.

Infectious diseases

Infectious diseases continue to be a serious burden around the world, in developing as well as industrialized countries. Infections can cause illness, disability and death in individuals while disrupting whole populations, economies and governments. Transmissible diseases constitute the main cause of death in the poorest countries: 59% of deaths reported in the 20 poorest countries are caused by such diseases, compared with 8% in the 20 richest countries. WHO estimates that in 2002 some 11 million people died from infectious and parasitic diseases, 52% of them in Africa, 26% in South-East Asia, and 3% in Latin America. The main causes of annual deaths from transmissible diseases were respiratory infections (4 million), HIV/AIDS (2.8 million), tuberculosis (1.5 million), diarrhoea (1.8 million), and malaria (1.3 million).

As people, products, food and capital travel the world in unprecedented numbers and at historic speeds, so, too, do the myriad of disease-causing microorganisms. Because national borders offer trivial impediment to such threats, especially in the highly interconnected and readily traversed 'global village' of our time, one nation's problem soon becomes every nation's problem. The worldwide resurgence of dengue fever, the introduction of West Nile virus into New York City in 1999, the rapid spread of HIV infection in Russia, and the global spread of multidrug-resistant tuberculosis are but a few examples of the profound effects of globalizing forces on the emergence, distribution and spread of infectious diseases. No nation is immune to the growing global threat that can be posed by an isolated outbreak of infectious disease in a seemingly remote part of the world. In addition to the known diseases, there are new epidemics such as SARS, which infected some 8,000 people in 30 countries in 2003, and avian influenza, which led to the slaughter of millions of animals in three continents; experts fear that the virus could mutate and unleash a human influenza pandemic. WHO released in 2005 the second edition of the International Health Regulations, specifying the measures States should get into line with and devoting special attention to the issue of travellers and of baggage, cargo, and goods inspection.

HIV/AIDS is one of the most urgent threats to global public health. Most of the infections with HIV and deaths due to the disease could be prevented if people everywhere had access to good services for preventing and treating HIV infection. Estimates of the size and course of the HIV epidemic are updated every year by UNAIDS and WHO. In 2007, improved survey data and advances in estimation methodologies led to substantially revised estimates of numbers of people living with HIV, of HIV-related deaths, and of new infections worldwide. The number of people living with HIV worldwide in 2007 was estimated at 33.2 million; there may be as few as 30.6 million or as many as 36.1 million. The latest WHO estimates cannot be compared directly with estimates published in previous years. The new data and improved methods used in 2007 also led to a substantial revision of the estimates. Sub-Saharan Africa continues to be the region most affected by HIV/AIDS. In 2007, one in every three people in the world living with HIV lived in sub-Saharan Africa, a total of 22.5 million.

Chronic diseases

Heart disease, stroke, cancer, chronic respiratory diseases and diabetes are by far the leading cause of mortality in the world, representing 60% of all deaths. Out of the 35 million people who died from chronic disease in 2005, half were under 70 and half were women. Visual impairment and blindness, hearing impairment and deafness, oral diseases and genetic disorders are other chronic conditions that account for a substantial portion of the global burden of disease.

According to WHO, half a century ago, a child born in Europe could expect to live for about 66 years, a life expectancy at birth that was the highest of any region in the world except North America. By contrast, average life expectancy at birth 50 years ago was 38 years in sub-Saharan Africa, 41 years in Asia, 45 years in the Middle East, 51 years in Latin America and the Caribbean, and 60 years in Oceania. Over the following 50 years, average life expectancy at birth improved all over the world, increasing by almost 27 years in Asia, 23 years in the Middle East, 21 years in Latin America, 14 years in Oceania, and 11 years in sub-Saharan Africa. The smallest increase was in Europe, where life expectancy increased by only 8 years, probably due to the very slow pace of change in some parts of the continent of Europe.

As populations age in middle- and low-income countries over the next 25 years, the proportion of deaths due to non-communicable diseases will rise significantly. Globally, deaths from cancer will increase from 7.4 million in 2004 to 11.8 million in 2030, and deaths from cardiovascular diseases will rise from 17.1 million to 23.4 million in the same period. Deaths due to road traffic accidents will increase from 1.3 million in 2004 to 2.4 million in 2030, primarily owing to increased motor vehicle ownership and use associated with economic growth in low- and middle-income countries. By 2030, deaths due to cancer, cardiovascular diseases, and traffic accidents will collectively account for 56% of the projected 67 million deaths due to all causes. This increase in deaths from non-communicable diseases will be accompanied by large declines in mortality for the main communicable, maternal, perinatal, and nutritional causes, including HIV infection, tuberculosis, and malaria. However, deaths worldwide from HIV/ AIDS are expected to rise from 2.2 million in 2008 to a maximum of 2.4 million in 2012 before declining to 1.2 million in 2030.

It is predicted that the four leading causes of death in the world in 2030 will be ischaemic heart disease, cerebrovascular disease (stroke), chronic obstructive pulmonary disease (COPD), and lower respiratory infections (mainly pneumonia). Much of the increase in COPD is associated with projected increases in tobacco use. On the other hand, road traffic accidents will emerge as the fifth leading cause of death in 2030, rising from its position as the ninth leading cause in 2004. Although deaths due to HIV/AIDS are projected to fall by 2030, it will remain the tenth leading cause of death worldwide. Deaths due to other communicable diseases are projected to decline at a faster rate: tuberculosis will fall to no. 20 and diarrhoeal diseases to no. 23 in the list of leading causes.

Tobacco is the single largest cause of preventable death in the world today, being a risk factor for six of the eight leading causes of death. Tobacco kills a third to a half of all those who use it. On average, every user of tobacco loses 15 years of life. Total tobacco-attributable deaths from ischaemic heart disease, cerebrovascular disease (stroke), chronic obstructive pulmonary disease and other diseases are projected to rise from 5.4 million in 2004 to 8.3 million in 2030, almost 10% of all deaths worldwide. More than 80% of these deaths will occur in developing countries.

Deaths from infectious diseases, maternal and perinatal conditions, and nutritional deficiencies combined are projected to decline by 3% over the next 10 years. In the same period, deaths due to chronic diseases are projected to increase by 17%. This means that of the projected 64 million people who will die in 2015, 41 million will die of a chronic disease – unless urgent action is taken. Contrary to common perception, 80% of chronic disease deaths occur in low and middle-income countries. From a projected total of 58 million deaths

from all causes in 2005, it is estimated that chronic diseases will account for 35 million, which is double the number of deaths from all infectious diseases (including HIV/AIDS, tuberculosis and malaria), maternal, and perinatal conditions, and nutritional deficiencies combined. The total deaths from chronic diseases are projected to increase by a further 17% over the next 10 years, while deaths from infectious diseases, maternal, and perinatal and nutritional deficiencies combined are expected to decline.

The threat is growing – the number of people, families and communities afflicted is increasing. This growing threat is an under-appreciated cause of poverty and hinders the economic development of many countries. Common, modifiable risk factors underlie the major chronic diseases. These risk factors explain the vast majority of chronic disease deaths at all ages, in men and women, and in all parts of the world. They include: unhealthy diet, physical inactivity, and tobacco use. The burden of chronic disease has major adverse effects on the quality of life of affected individuals, causes premature death, creates large adverse – and underappreciated – economic effects on families, communities and societies in general.

Despite global successes, chronic diseases have generally been neglected in international health and development work. Furthermore, these diseases have not been included within the global Millennium Development Goal targets. Chronic diseases hinder economic growth and reduce the development potential of countries, and this is especially true for countries experiencing rapid economic growth, such as China and India. However, it is important that prevention is addressed within the context of international health and development work even in least developed countries, which are already undergoing an upsurge in chronic disease risks and deaths.

Malnutrition

Malnutrition is still one of the major public-health problems in the world, as shown by the low nutrition indices in many countries of the South, but above all in East and West Africa (0.46 and 0.50 respectively). Furthermore, it is estimated that over 800 million people do not have access to good-quality food in sufficient quantity and that over 2 billion suffer from deficiencies of micronutrients such as vitamin A, iodine, and iron. Every year, nearly 11 million children under-five die and almost all of these deaths occur in developing countries, three quarters of them in sub-Saharan Africa and South Asia, two regions that also record the highest incidence of problems relating to hunger and malnutrition. Generally, although these children do not die from famine but from neonatal ailments and a variety of curable infectious diseases, particularly diarrhoea, pneumonia, malaria and measles, most of these children would not die if their immune systems were not weakened by malnutrition. Finally, hunger and malnutrition are the main causes of destitution and extreme poverty, giving rise to criminal and violent behaviour.

Hungry children start attending school late (if at all); they finish their studies earlier and learn less, which impedes progress towards primary and secondary education for all. Under-nutrition of women is one of the most destructive results of gender inequality: it reduces their education and employment opportunities and impedes progress towards gender equality and women's autonomy. Hunger and malnutrition increase the incidence and lethality rate of the health problems that cause most deaths during pregnancy and parturition. Hunger and poverty destroy the immune systems of population groups, force them to adopt risky survival strategies and substantially increase the risk of infection and death from HIV/AIDS, malaria, tuberculosis, and other infectious diseases.

SOCIAL DETERMINANTS OF HEALTH

Throughout the world, people who are vulnerable and socially disadvantaged have less access to health resources, get sicker and die earlier than people in more privileged social positions. The greatest share of health problems is attributable to the social conditions in

which people live and work, referred to as the social determinants of health. Good medical care is vital to the well being of populations, but improved clinical care is not enough to meet today's major health challenges and overcome health inequities.

Without action on social determinants, those countries in greatest need will neither meet the health-related MDG nor achieve global targets for reducing chronic diseases such as cardiovascular diseases, cancer and diabetes. Problems are especially urgent in developing countries where the burden of chronic illnesses is growing rapidly on top of the burden of unresolved infectious epidemics.

Health status, therefore, should be of concern to policy makers in every sector, not solely those involved in health policy. To reduce inequalities in health across the world there is a need for a major thrust that is complementary to development of health systems and relief of poverty: to take action on the social determinants of health. Such action will include relief of poverty but it will have the broader aim of improving the circumstances in which people live and work. It will, therefore, address not only the major infectious diseases linked with poverty but also non-communicable diseases – both physical and mental – and violent deaths that form the major burden of disease and death in every region of the world outside Africa and add substantially to the burden of communicable disease in sub-Saharan Africa. If the major determinants of health are social, so must be the remedies. Treating existing disease is urgent and will always receive high priority but should not be to the exclusion of taking action on the underlying social determinants of health. Disease control, properly planned and directed, has a good history, but so too does social and economic development in combating major diseases and improving population health. Wider social policy will be crucial to the reduction of inequalities in health.

Poverty. Links between poverty, increasing population, environmental degradation, poor health, human migration and strife are well known. One could be the cause and the effect of the other. A vast amount of data is now available to establish that the health problems of the poor differ significantly from those of the rich, within a country and between countries. The current trade and economic policies (the free flow of trade and money) around the world has brought economic growth for the fortunate in the largest and strongest economies but has also created widening gaps in wealth and health between and within the countries. To realize an environmentally sound, economically productive, socially responsible and behaviourally possible development requires a developmental strategy which ensures economic growth translated into human development: only then can it be sustainable.

150 million people suffer catastrophic health care costs each year. From 89 countries included in a WHO study, each year an average of 2.3% of households experience financial catastrophe due to health care costs, corresponding to over 150 million people worldwide. More than 100 million people are impoverished because they must pay for health care. Catastrophic health care spending occurs in countries at all levels of development. Nevertheless, the problem is more frequent and more severe in middle-income and in low-income countries

Overpopulation. High fertility rates have historically been strongly correlated with poverty, high childhood mortality rates, low status and educational levels of women, deficiencies in reproductive health services and inadequate availability and acceptance of contraceptives. Poverty and population are linked so closely that their solution must go hand in hand. At the moment poor countries are unable to provide for the total resources required for this purpose. With the exception of sub-Saharan Africa much of the developing world is now well into a transition from high fertility and mortality rates to low ones. The world is thus both younger and older than ever before. Today half the population in developing countries is under 23 years old, an estimated 800 million people – 15% of the world's population is thus in their teens. This results in a 'demographic momentum' implying that even after the fertility rate falls below replacement levels, the population would continue to increase for several decades hereafter. A doubling of the number of older people in developing countries in the

next 25 years will mount to 'an unprecedented demographic revolution'. Ageing populations add to the national pool of chronic debilitating diseases like cardiac and cerebrovascular disorders, degenerative arthritis, osteoporosis, dementia, Parkinson's disease, cancer etc., which add to the already rising cost of health care.

Malnutrition. Altogether it looks as if the global race between population and food is at best going to be rather too close, for the poorest communities (because the prices are rising) it is already being lost. Everyone agrees that the world's population will exceed 8 billion by 2025, an increase of 30% in 25 years. Future increases in food supplies, required to feed these extra numbers, must come primarily from rising biological yields, rather than from area expansion and large-scale irrigation expansion. The challenge is world wide, and both technological and political in nature. The technological challenge is enormous, requiring the development of new, highly productive, more nutritious, environmentally sustainable production systems. New technologies such as genetically modified organisms (GMOs), post-harvest technologies, pest control, and food storage, already known can help meet some of these challenges. It is not more of the same. Under-nutrition triggers an array of health problems like stunted growth, proneness to infections and worst of all mental retardation and cognitive impairment. Adverse socioeconomic circumstances during foetal life and in early childhood also have a specific influence on mortality from stroke and stomach cancer in adulthood, which is not due to the continuity of social disadvantage throughout life. Deprivation in childhood influences risk of mortality from coronary heart disease in adulthood, although an additive influence of adulthood circumstances is seen in these cases.

Life styles. Evidence suggests that modern inactive life styles, affluence related over consumption of food, stress associated with 'get rich quick' or 'extremely competitive world', over-indulgence in unhealthy food and beverages, smoking and recreational drugs, promiscuous sex, and breaking down of conventional joint family systems are responsible for the emerging morbidity and mortality profile already prevalent in many developed countries. Obesity, diabetes, hypertension, cardio and cerebrovascular and mental disorders are already responsible for increasing cost of health care globally. The number of people suffering from diabetes worldwide is projected to more than double from 135 million now to almost 300 million by 2025. Globally, the prevalence of chronic, non-communicable diseases is increasing at an alarming rate. About 18 million people die every year from cardiovascular disease, for which diabetes and hypertension are major predisposing factors. Propelling the upsurge in cases of diabetes and hypertension is the growing prevalence of overweight and obesity – which have, during the past decade, joined underweight, malnutrition, and infectious diseases as major health problems threatening the developing world. The main culprit is an environment which promotes behaviour that causes obesity.

Lack of access to health care. Health care has a limited but not negligible role as a determinant of health. It has been estimated that 5 years of the 30-year increase in life expectancy achieved has been attributed to improved health services. Of these 5 years, it has been estimated that curative services contributed about 3.5 and clinical preventive services about 1.5 years. The greatest share of this gain from health care can be attributed to diagnosis and treatment of coronary heart disease, which contributes 1 to 2 of these additional years of life. It is important, inasmuch as possible, to assume the needs of the population rather than its level of wealth as the benchmark of quality. It is not only the developed countries that have a right to it, as testified for example, by the Salam Cardiosurgery Centre of Khartoum, which provides free medical care to patients coming from many African countries.

Physical environment. The physical environment affects health and disease in different ways. Safe water and clean air, healthy workplaces, safe houses, communities, and roads all contribute to good health. Examples also include exposure to toxic substances that produce lung disease or cancers; safety at work, which influences injury rates; poor housing conditions and overcrowding, which can increase the likelihood of violence; transmission of

infectious diseases and mental health problems, and urban-rural differences in cancer rates. The presence of natural or man-made hazards is a source of environmental diseases, which might be seen as the visible and clinical indication of inadequate environmental conditions. Key areas of action could be outdoor and indoor air pollutants, noise, indoor environment and housing conditions, water quality contamination, radiation and chemical exposures. The impact of these factors is felt in association with hearing problems, sleeping disorders, stress leading to hypertension and other circulatory diseases, skin and other cancers, asthma, or birth defects.

Genetic endowment. Genetic factors are recognized as having a significant influence on health, and it will be important to gain a better understanding of these influences. Genetic determinants are important constitutive factors for individual health; however, they presently fall beyond the scope of public health interventions. The field of genetics will become more and more important in future years as nearly every disease has constitutive and/or acquired genetic components. The identification of disease-susceptibility genes as well as the identification of acquired somatic mutations underlying a specific disease, e.g., cancer, can provide a wealth of new information vital to a more thorough understanding of many common illnesses. Such information can be used to determine both how diseases are diagnosed and how new treatments or more specific drug targets can be identified. For the most part, genetic factors are currently understood as contributing to a greater or lesser risk for health outcomes, rather than determining them with certainty. Genetic factors also interact with social and environmental factors to influence health and disease. It will be important to understand these interactions to learn why certain individuals with similar environmental exposure develop diseases whereas others do not.

Travel/Migration. The present world is characterized by increasing mobility of populations and individuals. Modern means of transportation facilitate greatly the speed and diversity of this mobility. International travellers now number nearly one billion persons per year. The vast majority travel for short periods of time for recreational or professional reasons. But there are some international migrants – approximately 150 million in the world – who travel primarily on a one way ticket, usually from poor to rich countries, their conditions of travel and living conditions in their new country may be difficult with restricted access to medical services. And some (refugees) are forced to leave their country for reasons of insecurity and war. Those travellers and migrants will facilitate transmitting the epidemic of emergency and re-emergency diseases such as SARS, avian flu, HIV/AIDS, and tuberculosis.

Lack of access to safe water leads to 8 million deaths every year, as a result of water-borne diseases (cholera, typhoid, diarrhoea), half of them children. Currently, 1.4 billion people do not have access to safe drinking water and 2.6 billion, that is, 42% of the world's population, are not served by basic sanitation systems (sewage collection and treatment). The United Nations estimates that some 1.6 million lives could be saved each year if access to clean drinking water and to sanitation and hygiene services could be improved. Moreover, natural disasters are increasingly common and 90% of them are water-related. They are the result of improper land use. The case of Lake Chad in Africa is a striking example since it has lost nearly 90% of its surface area since the 1960s, mainly because of overgrazing, deforestation, and large unsustainable irrigation projects.

Much of the same prospect – reflecting fast growing consumption in relation to expanding populations and environmentally adverse technology – applies to other strategic resource stocks such as topsoil, forests, grasslands, fisheries, biodiversity, climate, and the atmosphere.

Environmental consequences of development. Development under the best of circumstances has some adverse effects on health by affecting the environment on one hand and life style on the other. These are further exacerbated when socio-political compulsions demand rapid economic 'development – development at all cost' – unmindful of their socio-cultural, administrative milieu – as happens in many developing countries. The inescapable,

though commonly recognized fact is that the introduction of new technologies, necessary for development brings with it irreversible social, ecological and health consequences, which under certain circumstances can be harmful. A proliferation of water bodies for irrigation purposes increases the number of breeding sites for disease vectors such as mosquitoes resulting in resurgent malaria, dengue, and Japanese encephalitis. Deforestation and soil erosion expand the habitat of sand flies, which transmit leishmaniasis. Increasing use of pesticides for purposes of agricultural production is estimated to be responsible for more than 2 million cases of human poisoning every year with a resultant of 20,000 deaths.

Some signals of threat to sustainability of our ecosystem are: global warming, enlarging ozone hole, acid rain, increasing loss of forests and biodiversity, diminishing availability of cultivable land, environmental pollution of air, water and land, threatened water resources, perceptible reduction in global food reserves, progressive depletion of non-renewable sources of energy, large scale population migrations – within a country (rural-urban) and across national boundaries – in search of sustenance, growing menace of urban slums, unacceptable levels of unemployment in most countries of the world, increasing inequities of wealth distribution between the ‘haves’ and the ‘have nots’ nationally and internationally resulting in social strife, criminality and wars.