

## 6. *What are the policy implications of the most robust findings and key uncertainties?*

**A** robust finding is defined as one that holds under a variety of approaches, methods, models and assumptions and that is expected to be relatively unaffected by uncertainties. In this context, addressing key uncertainties regarding ecosystem change and human health, potentially may lead to new and robust findings in relation to the questions addressed in this report, or may provide greater accuracy regarding quantification of the magnitude or timing of costs, benefits, ecosystem changes, impacts on human well-being or on responses.

### 6.1 Policy implications of the most robust findings

**Ecosystem services are indispensable to the well-being of people everywhere.** Local conditions exert a very strong influence on the nature, extent and timing of the effects of a particular ecosystem disruption on health. In general, the links between ecosystem change and human health are seen most clearly among impoverished communities. These lack the buffers that the rich can afford and often are most directly dependent on productive ecosystems for their health (R16).

- Changes in ecosystems have a more direct influence on human well-being among poor populations than among wealthy populations.
- Social adaptations may minimize, displace or postpone the health effects of ecosystem disruption, but there are limits to what can be achieved.
- Even wealthy populations cannot be insulated fully from the degradation of ecosystem services.
- Policies and actions to reduce vulnerability need to be comprehensive and sensitive to broader driving forces and issues of scale but at the same time account for differences between settings and locales.
- Broad frameworks should not be taken automatically as reliable guides to local conditions.

**Major inequalities exist in the access to ecosystem services (R16).** Historically, poor people have lost access to ecosystem services disproportionately as demand for those services has grown. Where a population is weighed down by disease related to poverty, and lack of entitlement to essential resources such as shelter, nutritious food or clean water, the provision of these resources should be the first priority for public health policy. Such changes could improve health in the short term and contribute to long-term ecological sustainability.

**Growing populations and growing economies are associated with higher consumption; this increases pressures on ecosystems.** At the same time, wealthier societies have a greater capacity to protect ecosystems and the services they provide. Therefore, the degree of pressure depends on technologies, behaviours, policies, social systems and other factors. Economic growth tends to increase consumption of energy and materials. Efficiency gains and shifts of consumption patterns from goods to services tend to reduce energy and materials' consumption intensity (per unit of output). Nonetheless, such savings have been outpaced by the overall global demand for, and consumption of, energy and materials so that absolute consumption of ecosystem services continues to grow.



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- Where ill-health is directly or indirectly a result of excessive consumption of ecosystem services (such as food and energy), substantial reductions in consumption would have major health benefits and simultaneously reduce pressure on life-support systems.
- Introducing less-polluting transportation systems and reducing vehicle dependence could lead to fewer injuries, more physical activity among sedentary populations and reductions in local air pollution and greenhouse gas emissions.
- Integration of national agricultural and food security policies with the economic, social and environmental goals of sustainable development could be achieved, in part, by ensuring that the environmental and social costs of production and consumption are reflected more fully in the price of food and water.
- In rich countries, reduced consumption of animal products and refined carbohydrates would have benefits for both human health and ecosystems.

**Measures to ensure ecological sustainability could safeguard ecosystem services and therefore benefit health in the long term (R16).** A healthy community is more capable of sustaining local ecosystems, so inequalities in access to ecosystem services could become ecologically unsustainable. The goals of

ecological sustainability and human health are mutually reinforcing. Choices made about the management of ecosystems can have important consequences for health, and vice versa. Consideration of ecosystem change enlarges the scope of health responses by highlighting 'upstream' causes of disease, injury and premature death. Consideration of social determinants of ecosystem change enlarges the scope of ecosystem management. The health sector can make an important contribution to reducing the damage caused by environmental disruptions, but the greatest gains would be made by interventions that are partly or wholly placed in other sectors.

**To achieve the goal of enhancing human well-being while conserving ecosystems, wide-ranging reforms of governance, institutions, laws and policies are required.** Effective management cannot focus on a single approach (markets, local control, government control etc.). Response strategies must be tailored to the specific social and environmental context. Effective management of the ecosystems in any particular region cannot be achieved through a narrow focus on responses at any one scale (local, national, regional or global). International agreements are indispensable for addressing ecosystem-related concerns but they tend to work most effectively when focused on narrowly defined issues.

**Market mechanisms do not automatically address poverty and equity goals.** Intervention strategies will be more effective in reducing poverty when they respect different degrees, and types of use, of ecosystem services by different communities. Poverty reduction strategies must take into account the important role ecosystems can play to improve the health and well-being of the world's poorest. Markets can be modified to ensure that poverty and equity goals are met but still use scarce environmental and natural resources efficiently to meet those goals. For example, the benefits of reducing effluent emissions into fresh water can be internalized by imposing emissions taxes on the polluters.

## 6.2 Policy implications of key uncertainties

### **A cascade of uncertainties is associated with legal, market, institutional and behavioural responses.**

Integration across response strategies can mitigate and reduce elements of uncertainty but it is unlikely that it can be eliminated in any important context. Main current uncertainties include:

- a limited ability to quantify and predict the actual relationships between biodiversity changes and changes in ecosystem services for particular places and times (C29);
- the absence of quantitative models linking ecosystem change to many ecosystem services (S13);
- limited information on the details of linkages between human well-being and the provision of ecosystem services, except in the case of food and water (C29); and
- limited information on the economic consequences of changes in ecosystem services at any scale.

### **Can society achieve a "sustainability transition" in which human well-being is improved without critical degradation of ecosystems and their goods and services?**

Ingenuity, technological progress and social reorganization are facilitating decreased energy and material intensity per unit of economic output. This, together with the possibility of increased ecosystem service intensity and substitution, suggests that pressure on ecosystem services can one day be decoupled from equitable growth in human well-being. In the near future, however, humankind's ecological 'footprint' inevitably will expand further due to population growth, poverty reduction goals and the parallel expansion of affluence and consumption.

### **Unavoidable uncertainties about the impacts of global environmental changes on public health should not be an excuse for delaying policy decisions.**

A precautionary approach to policy-making may be most appropriate, given the potential for serious and irreversible adverse human health impacts of ecological degradation. ■