

2.1 Agriculture and forestry

Sufficient evidence is now available from a variety of different studies to indicate that changes of climate would have an important effect on agriculture and livestock. Studies have not yet conclusively determined whether, on average, global agricultural potential will increase or decrease. Negative impacts could be felt at the regional level as a result of changes in weather and pests associated with climate change, and changes in ground-level ozone associated with pollutants, necessitating innovations in technology and agricultural management practices. There may be severe effects in some regions, particularly decline in production in regions of high present-day vulnerability that are least able to adjust. These include Brazil, Peru, the Sahel Region of Africa, Southeast Asia, and the Asian region of the USSR and China. There is a possibility that potential productivity of high and mid latitudes may increase because of a prolonged growing season, but it is not likely to open up large new areas for production and it will be mainly confined to the Northern Hemisphere.

Patterns of agricultural trade could be altered by decreased cereal production in some of the currently high-production areas, such as western Europe, southern USA, parts of South America and western Australia. Horticultural production in mid-latitude regions may be reduced. On the other hand, cereal production could increase in northern Europe. Policy responses directed to breeding new plant cultivars, and agricultural management designed to cope with changed climate conditions, could lessen the severity of regional impacts. On the balance, the

evidence suggests that in the face of estimated changes of climate, food production at the global level can be maintained at essentially the same level as would have occurred without climate change; however, the cost of achieving this is unclear. Nonetheless, climate change may intensify difficulties in coping with rapid population growth. An increase or change in UV-B radiation at ground level resulting from the depletion of stratospheric ozone will have a negative impact on crops and livestock.

The rotation period of forests is long and current forests will mature and decline during a climate in which they are increasingly more poorly adapted. Actual impacts depend on the physiological adaptability of trees and the host-parasite relationship. Large losses from both factors in the form of forest declines can occur. Losses from wildfire will be increasingly extensive. The climate zones which control species distribution will move poleward and to higher elevations. Managed forests require large inputs in terms of choice of seedlot and spacing, thinning and protection. They provide a variety of products from fuel to food.

The degree of dependency on products varies among countries, as does the ability to cope with and to withstand loss. The most sensitive areas will be where species are close to their biological limits in terms of temperature and moisture. This is likely to be, for example, in semi-arid areas. Social stresses can be expected to increase and consequent anthropogenic damage to forests may occur. These increased and non-sustainable uses will place more pressure on forest investments, forest conservation and sound forest management.

2.2 Natural terrestrial ecosystems

Natural terrestrial ecosystems could face significant consequences