could, under certain circumstances, be used to grow crops is roughly three times the amount that is currently used for this purpose (Bongaarts 1993).

A. Deforestation

The food needs of a growing population can be met either through intensification of production on land that is already cultivated or through expansion of cultivation into new territories (extensification). . . . In view of the amount of attention that has been directed to deforestation, it may be surprising to learn that the world's forested area has declined by only 20% since the dawn of agriculture 10,000 years ago (Miller et al. 1991). Just how rapidly the remaining forests are disappearing is a matter of some dispute. Recent reports using high-resolution satellite photography suggest that previous estimates of deforestation in the Amazon were approximately 50% too high. . . .

B. Intensification of Production

. . . In certain settings, the economic attractiveness of intensifying production dominates that of extensification. For example, total food production has increased in Europe between 1966 and 1983 while cropland fell by a quarter and the total forested area grew by 30%. The United States Department of Agriculture projects a 30% shrinkage of cropland in the United States between 1982 and 2020 (Waggoner 1994). Waggoner (1994) describes feasible strategies by which the projected 20 billion people in the middle of the 21st century can be fed while total cropland is reduced. He notes that the world's farmers are already producing enough calories and protein to sustain 10 billion people on a vegetarian diet. However, it seems unlikely that those who can afford to eat meat will forgo the opportunity to do so; instead, they will likely be joined by hundreds of millions more who will be able to act on a preference for meat in their diets. The additional food needs of a much larger human population are certain to be met primarily by increased production rather than by redistribution among food types. . . .

The prospects for agriculture in developing regions are not unremittingly grim. There is no question that agricultural research is capable of solving many current production problems and that existing techniques for increasing yields on a sustainable basis are not fully exploited. Even in Africa, there are many examples of successful innovation and adaptation in the face of rising population pressure, for example, the introduction of maize in northern Nigeria (Spencer and Polson 1991). Many successful institutional adaptations can also be cited. For example, government authorities constructed a dam in Northwest India in return for villagers' agreement to forgo grazing on hillsides held in common, which reduced the rate of soil erosion by a factor of 25 (Chopra and Rao 1991). The fact that the real price of food has been declining through most of the 20th century is the best indication that agricultural systems have been able to keep up with both population growth and rising demand for food induced by affluence (Bongaarts 1993).

Currency Rates