

**ASSESSMENT OF AGRICULTURE
AND NON-AGRICULTURAL
TECHNIQUES FOR COMBATTING
HUNGER AND POVERTY**

Draft Final Study

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ASSESSMENT OF AGRICULTURAL AND NON-AGRICULTURAL TECHNIQUES FOR COMBATING HUNGER AND POVERTY

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ABSTRACT:

Poverty is a very real evil, even if it is difficult to define and measure. There are ways of combating poverty – by improving food security, by allowing the poor access to certain types of capital goods like housing and by encouraging social mobility through education and health services.

Poverty is often associated with overpopulation. However the relationship between demography and poverty is complex and action to combat poverty is one of the solutions that could be envisaged for reestablishing the demographic balance. The experience of the green revolution in Asia demonstrates that poverty is not inevitable.

Key words: poverty, food security, demography, education, health, housing, green revolution.

EXECUTIVE SUMMARY

OPTIONS BRIEF

DRAFT FINAL STUDY

ASSESSMENT OF AGRICULTURAL AND NON-AGRICULTURAL TECHNIQUES FOR COMBATING HUNGER AND POVERTY

EXECUTIVE SUMMARY

Poverty is an evil about which it is easy to have a more or less vague idea but which is difficult to define precisely. It is manifested primarily in malnutrition, the lack of education, poor health and degradation of the environment. But these phenomena by themselves cannot define it and certainly cannot measure it.

It is accepted that 1 billion of the inhabitants of developing countries live in poverty. During the International Year for the Elimination of Poverty (1996) three types of definition were put forward – monetary poverty (using income as the sole criterion), poverty of living conditions (based on the satisfaction of basic needs), poverty of potential (based on the minimum capital required to live or function properly in a given society). On the basis of each definition considered, a measure of poverty was determined (simple, weighted and complex indicators).

Unfortunately, the definition of poverty chosen will almost inevitably affect the technical choices and the economic policies implemented to eradicate poverty or, at the very least, to reduce its adverse effects, as officialdom always tends to get rid of the symptoms rather than treat the causes of the evil.

To combat poverty it is often useful to redistribute wealth by taking resources from the wealthy to give to the poor. However, it is undoubtedly easier to create the dynamic conditions of social mobility and economic growth which make it possible to improve the lot of the poor without taking anything away from the rich. The first solution is generally difficult to implement in practise, as the wealth of the rich is often insufficient to improve the situation of the poor, while the loss of utility of the rich in such an operation is very considerable.

The purpose of this document is to identify the types of interaction that occur between the techniques, the effects and the limitations of anti-poverty strategies with a view to developing a general catalogue of resources for the elimination of poverty and the conservation of the environment. But before dealing with the heart of this question, there is a need for a general picture of the main factors that limit production of those goods which are essential to the poor.

1 – FOOD SECURITY

Food is an essential requirement for every individual. It not only helps to guarantee the welfare of the individual but also serves to improve the productivity of the labour force and reduce social expenditure and hence to safeguard political stability. It is thus essential and of primary importance to ensure minimum levels of food security for the poor.

Food insecurity is the result of a discrepancy between agricultural production and population growth. The lack of social mobility encourages the poor to have more children and to create conditions for even greater poverty. This last factor combines with others to increase the discrepancy still further.

In global terms, agricultural production is growing faster than the population. But a more detailed examination of this phenomenon reveals that the reverse is true in the developing countries. Agricultural production remains blocked by a number of constraints. The pressure on natural resources is increasing steadily, not only because of farming but also as a result of industrial activity and urbanisation. Agricultural surface area is declining all the time and is affected constantly by problems of erosion, degradation and loss of fertility. Water shortages are an increasingly frequent phenomenon, and competition for the use of fresh water is becoming ever more intense. Monocultures, agricultural specialisation and deforestation have seriously jeopardised genetic biodiversity. Freshwater resources are affected by management problems. Sea fishing, an important source of protein, has reached its limits and has even collapsed in some parts of the world. Overfishing is liable to exhaust marine fish stocks. The growth in production has fallen since 1989 (100 million tonnes less). Fishing effort is concentrated at present in the developing countries, which account for 50% of world trade in fish.

As far as agricultural policy is concerned, current moves are towards further restructuring to facilitate entry into a 'liberal' regulatory environment, similar to that for non-agricultural sectors. Many economists have expressed their concern about this development. They are afraid that this sector is not like the others. Its specific characteristics

mean that in the long term there could be failure if there is too mechanical an application of the theory of comparative advantages. However this question of the impact of liberalisation on poverty remains extremely complex and depends on local situations.

Urbanisation has a considerable role to play in this context; it creates other forms of poverty and problems and also involves a change in food requirements (switch to meat-based diets). The problem is no longer restricted to that of agricultural production but extends to the distribution circuits. The rise in urbanisation is giving a new face to contemporary poverty. The poor in society are no longer to be found in the countryside but on the edges of the cities. It is predicted that the urban population will overtake the rural population, particularly in the southern hemisphere. It is likely that the urban population will more than treble in the next 30 years.

Urbanisation entails the establishment of a market between the producer and the consumer. That very fact, however, creates new difficulties, which are associated with the instability of the markets, especially those markets on which poor people depend.

Foodstuffs are a product for which demand is rigid, and are thus susceptible to fluctuation in a free, non-controlled market. An increase in the price of foodstuffs has the effect of reducing incomes for the poor. For this reason the poor, and also the producers, are the main beneficiaries of policies to stabilise the prices of basic foodstuffs.

Lastly the rise in urbanisation and geographical distance transforms agricultural policies into food policies. In particular, monitoring of the hygiene aspects of products must be integrated throughout the food chain.

2 – THE MAIN LINKS BETWEEN THE FIGHT AGAINST POVERTY AND FUTURE PROGRESS

As has just been observed, there is now a whole range of suitable techniques to ensure the survival of a global population which is significantly higher than today's population, for example double or triple today's population. But these techniques are not implemented because there is not an adequate social and economic environment. Sustainable agricultural development can both guarantee food security and facilitate and boost social and economic development. These aims can be achieved by a combination of the following measures:

- promoting the prosperity of rural areas (job creation, generation of incomes, improvement of living conditions and reduction of migration to the towns),
- reducing the demographic growth rate,
- enhancing food security by supporting, intensifying and diversifying agricultural activity,
- improving public health,
- promoting environmental protection.

It presupposes several conditions:

- **investment in agricultural research**: the amount of investment in agricultural research and technology seems to be constantly diminishing in the developing countries. It has fallen from 7% of public expenditure to 2.7%, in particular in Africa and Latin America. This trend is liable to have serious consequences;
- **effective marketing channels** that are capable of guaranteeing food supplies to any region at any time;
- **sufficient purchasing power** to guarantee access to food supplies particularly for the poor.

These proposals are certainly not purely theoretical. The **green revolution** in Asia showed that effective deployment of available resources, including knowledge and information, has achieved extraordinary success. Whilst in the 1960s everyone predicted famine for the countries on this continent, the **green revolution** achieved extraordinary success. This, in fact, is both a technical and an economic revolution, which is helping to narrow the gap between developing and developed countries, particularly with regard to knowledge, but which has also served to increase agricultural yields spectacularly and thus to improve the incomes of poor farmers and landless peasants. A survey conducted in Southern India showed that the average income of small farmers had increased by 90% between 1973 and 1994, while that of the landless peasants – the poorest of the poor – had risen by 125%. The switch to high-yield crops has been accompanied by greater use of labour-intensive techniques, and the additional demand for labour has benefited the most impoverished sections of society. From a nutritional point of view, it is worth noting that the daily calorific intake of small farmers and landless peasants has risen from 58 to 81% of the FAO recommended minimum requirement, while their protein intake has increased from 103 to 115%.

The green revolution is thus still an effective model for developing countries.

In the case of the ACP countries, particularly those in Africa, there are good reasons to be optimistic:

- the basic agricultural resources are very plentiful compared with those in Asia;
- the methods that have hitherto been employed remain traditional, which means that there is scope for the improvement of yields through intensification and hence for the improvement of the food situation and of socioeconomic conditions in general.

The **green revolution** has its limits; signs of saturation have already been observed while the population has not stopped growing. Increasing the present limits on yields is the challenge that currently faces policymakers, researchers and administrative bodies. There is talk in some quarters of a 'super revolution' while others speak of a 'Doubly Green Revolution'.

The **super revolution** involves rationalising the functioning of the productive systems and pursuing intensification.

This strategy faces numerous technical and ecological constraints and therefore people are more inclined to refer to a **Doubly Green Revolution**. It is designed:

- to increase production in order to ensure global food security. This increase should be achieved in a large number of regions and a wide diversity of locations, especially in areas with low production potential and areas where there is heavy pressure for the use of ecosystems,
- to respect the environment,
- to reduce poverty.

It is essentially a matter of finding a so-called 'viable' solution **from an ecological point of view** (reduction of agricultural pollution, optimised management of resources in order to guarantee their long-term use), **from an economic point of view** (ensuring the solvency and profitability of farms and agribusinesses) and **from a social point of view** (ensuring that the poor have permanent access to services and resources that can help them to improve their situation).

3 – POVERTY AND HEALTH

In the absence of minimum health and hygiene standards and of preventive care, poor quarters are prime breeding grounds for infections and for the spread of epidemics such as malaria and Aids. Poverty is one of the main causes of premature death. It is also, as has been seen above, one of the main factors in demographic growth, because of a lack of access to health services for family planning and because children are considered by the poor as a means of safeguarding daily needs.

Increasingly in the developing countries mortality rates are falling because of medical developments but at the same time economic growth is weak which results in an alarming population explosion and a disastrous food situation. Diseases occur that are basically due to malnutrition which weakens the resistance of the human organism to infections. Recent epidemiological data reveal that more than half the population of the world is affected by micronutrient disorders.

Public health expenditure in the developing countries remains very low if compared with the development of the population. Furthermore, almost one billion people in the developing countries still have no access to health services and a large percentage of the total population of the developing countries, especially in rural areas, still have no drinking water, which is a basic cause of disease and death.

Health policies, geared towards medical services and prevention would seem to be indispensable components of any development policy or strategy.

4 - EDUCATION

The poor are not only the people who are hungry but also those who are ignorant and illiterate. Their ignorance limits their productivity, their opportunities to improve their standard of living and their participation in all areas of economic, social and political activity. There is a strong correlation between illiteracy and poverty. According to Unesco, the highest illiteracy rates are to be found in Africa and Asia: of the 18 countries which had an illiteracy rate of 60% or above in 1995, 14 were in Africa and four in Asia.

Although literacy rates have risen in relative terms, the total number of illiterate people continues to rise. Women are most affected by this problem.

Literacy is primarily a matter for national governments. Nevertheless the international community still has a major role to play by lending indispensable support to the national effort.

5 – POVERTY AND HOUSING

The stagnating economies in the developing countries and their indebtedness has resulted in a sharp increase in urban poverty. Half the poor in the cities live in temporary housing. This situation is likely to worsen over time.

Poverty automatically generates a discrepancy in structural terms between the options available to the poor and the threshold which would give them access to modern forms of housing production. Their low incomes cannot even cover food and clothing and the resources set aside for housing are virtually non-existent. As a result the poor are denied access to capitalist production of housing. Only the old run-down areas of the town or makeshift housing (huts, shacks) generally built by the people themselves using recycled materials on land on which they are squatting are accessible to the very poor. Living conditions in these areas are very poor. Other illegal forms of access to housing have become frequent, ranging from land takeover to the illegal purchase of plots. A whole informal housing chain has developed (construction, purchase and sales) with illegal dwellings spread over land which is unsuited for urban development (marshes, steep slopes, public areas around bridges, along rivers or major traffic arteries, etc.), creating shantytowns where the poor are crammed 6 to 8 people in rooms of 20 to 30 m², in discomfort and deprived of all basic sanitation (drinking waters, sewers and refuse collection).

The housing crisis thus arises basically because it is impossible for the poor to accumulate sufficient savings, but there is also a specific problem of access to land. To resolve this issue many policies have been implemented, ranging from repressive to protectionist policies.

In some cases the public authorities have taken responsibility for construction, which solves the problem of savings and have then moved on to rehousing policies for the former inhabitants of the shanty towns, which solves the problem of occupation. However the effects of such activities are limited as they require the beneficiaries to make a relatively large contribution themselves, which excludes the poorest population groups even more. Efforts can be made to alleviate such exclusion by means of loan policies, which places the public authorities in the role of financial promoters. But even using such methods access to these loans requires applicants to have a regular income, which is sufficiently high, and a stable financial situation, which excludes a large proportion of this population group.

In certain countries the intervention of the public authorities has proved effective. This is true of the reconstruction programmes undertaken in Korea and Taiwan. Other projects integrating the private sector and the state (conventional projects for creating plots, land sharing, innovative systems of loans and access to housing funding for low income households) have also proved to be of interest and are often held to be the most effective.

ASSESSMENT OF AGRICULTURAL AND NON-AGRICULTURAL TECHNIQUES FOR COMBATING HUNGER AND POVERTY

OPTIONS BRIEF

- Poverty is an evil about which it is easy to have a more or less vague idea, but which is extremely difficult to define precisely, in particular when trying to study the manifestation of poverty in quantitative terms. None of the current 'poverty indicators' is fully satisfactory.
- It is possible and often useful to redistribute wealth, but it is undoubtedly easier to create the dynamic conditions of social mobility and economic growth which make it possible to improve the lot of the poor without taking anything away from the rich.
- The needs of the poor are not the same as those of the rich, which implies that action to combat poverty will require appropriate changes to be made to the productive systems.
- Food security is essential for the poor. It can be guaranteed using administrative methods, involving varying degrees of bureaucracy, which is better than nothing. It is more natural to make the market responsible for achieving such security. But if the market is to fulfil this role it must be controlled and guided. Agricultural production and the means for distributing the products to the poor must exist and a minimum income is required to be able to purchase them.
- Minimum agricultural price stability is required so that farmers and the industries upstream and downstream of farming can produce a regular supply of the foodstuffs required by the poor, in particular during periods of economic difficulty.
- There is now a whole range of suitable techniques to ensure the survival of a global population which is significantly higher than today's population – for example double or triple today's population. But these techniques are not implemented because there is not an adequate social and economic environment. Sustainable agricultural development can both guarantee food security and facilitate economic and social development. The '**green revolution**' in Asia is thus still an effective model for developing countries enabling them to cover their food needs and combat poverty.
- The growth in food supplies must be based on increased yields, while respecting environmental considerations and limiting soil degradation. Hence the major role of research and development in this area.
- Reference is made at present to a '**doubly green revolution**', which seeks to create a viable solution **from an ecological point of view** (reduction of agricultural pollution, optimised management of resources in order to guarantee their long-term use), **from an economic point of view** (ensuring the solvency and profitability of farms and agribusinesses) and **from a social point of view** (ensuring that the poor have permanent access to services and resources that can help them to improve their situation).
- In terms of dynamics, poverty feeds on itself. The lack of social mobility encourages the poor to have more children and this creates the conditions for even greater poverty. Everything which encourages poor families to invest in human capital also reduces the birth rate and thus makes it easier to find a solution to the problems. This implies that state intervention in the areas of health and education could be very useful.
- The rise in urbanisation gives poverty today a different face. The poorest classes are no longer in the countryside but on the edges of the cities. At the same time this situation creates very adverse environmental conditions, as the poor tend to overexploit non-renewable natural resources within their means.
- The precariousness of their situation does not generally allow the poor to make long-term savings. As a result they do not naturally have access to long-term goods, and in particular to decent housing. State intervention in the economy, in the form of loans with reduced rates of interest, or other procedures to finance cheap housing could make a significant contribution to rectifying these market faults.

**ASSESSMENT OF AGRICULTURAL AND NON-AGRICULTURAL TECHNIQUES FOR COMBATING
HUNGER AND POVERTY**

FINAL STUDY

INTRODUCTION

A- FOOD SECURITY

B – THE MAIN NATURAL FACTORS LIMITING AGRICULTURAL PRODUCTION

C – ORGANISATION OF THE MARKET: market instability and its consequences

D – THE MAIN LINKS BETWEEN THE FIGHT AGAINST POVERTY AND FUTURE PROGRESS

E – POVERTY AND HEALTH

F – EDUCATION

G – POVERTY AND HOUSING

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INTRODUCTION

The concept of poverty

The scale of the phenomenon

The concept of poverty is rooted in many of the scourges that afflict mankind: famine, malnutrition, poor health, lack of education and degradation of the environment. Today one billion people in the world are starving. Southern Asia has the largest number of destitute people, Africa contains 22% of the world's poor and 62% of the rural poor in the world. The burden of inequality weighs heavily on Latin America, while in Western Europe and the United States more than 15% of the population live beneath the poverty line, which is defined below.

Its manifestations

Malnutrition: Poverty manifests itself first and foremost in malnutrition. This is because the need for food and drink is the most pressing of all our needs and because people are naturally disposed to sacrifice everything in order to satisfy that need. Individuals may be considered poor, for example, if they do not have enough to satisfy their most basic needs. The fact is that global nutritional requirements are far from being satisfied. The bulk of the growth in the food requirement is occurring in the developing countries, where 93% of the world's population growth is taking place. The problems are also most acute in the developing countries, where more than a third of the population live below the poverty line (UN, 1998). Undernourishment and malnutrition remain widespread in the world; malnutrition affects 180 million children and two billion adults.

Lack of education: For the same reasons that they are malnourished, the poor are also less well educated than those in more comfortable circumstances; the illiteracy rate diminishes steadily from the bottom to the top of the income scale. Being poor means not only having less money but also having less knowledge.¹

Poor health: Here too, because they do not possess the necessary resources, impoverished populations invariably suffer poorer health than the rest of the world. This situation has dire consequences for individuals as well as leading to collective disasters. Because the poor do not have the resources they need, they cannot afford health care or vaccinations. They are therefore susceptible to transmissible diseases and provide breeding grounds for epidemics. In Russia, for example, it was thought that tuberculosis had been overcome, but poverty has caused it to flare up again. Even wealthy people who can afford health care may be stricken by the disease if they are subject to large-scale infection. The frequency of the disease among the poor is making such infection increasingly likely. Furthermore, if we consider that the tuberculosis bacilli which are currently rampant are often resistant to antibiotics, it is easy to understand how the effects of poverty are not only felt by the poor but by the wealthier classes too. The same reasoning can be applied to many other diseases, such as malaria. Even Aids is particularly widespread among the poorest peoples, and its propagation is vigorously promoted by poverty; because of ignorance and lack of education, poor people are unfamiliar with preventive measures; even those who know about prevention cannot afford to practise it; and, finally, numerous practices, such as prostitution, which help to spread the disease are themselves related to poverty.

Degradation of the environment: Poverty leads to the overexploitation of natural resources. This is a particularly heavy burden on the developing countries, where damage to the environment is becoming more and more alarming.

¹ The latest World Bank report (1998-1999) focuses on the problem of information and knowledge and their role in the fight against poverty.

Forests in the developing countries are disappearing at the rate of 0.8% per annum, two-thirds of the deforestation being undertaken for the purpose of extending the area under cultivation. More than 250 million inhabitants of developing countries are directly affected by forms of diversification which are compromising food production. More than 30% of all useful land (arable land, forests and pastures) has been degraded since the start of the century.²

The difficulty involved in finding a straightforward definition

All of the phenomena outlined above conspire to create the group of people classed as 'the poor'. However, it is also apparent that the concept of poverty is far from being a simple one. It cannot be based exclusively on a single gauge of poverty such as an income threshold. The problem is that the definition of poverty that is chosen will rarely fail to influence the practical means and the economic policies that need to be adopted in order to eradicate it or, at the very least, to soften its impact.³

Three types of definition of poverty were distinguished at the meetings held in 1996 as part of the International Year for the Elimination of Poverty, and a measure of poverty was determined on the basis of each definition (simple, weighted and complex indicators):

Definition 1

Monetary poverty: This definition uses income as its sole yardstick. It is thus an objective criterion. The World Bank sets the threshold for 'absolute poverty' at 370 dollars per person per year, while Eurostat speaks of the 'relative poverty' of those who earn less than 50% of the global average income but also takes account of national criteria to measure minimum subsistence levels. The problem here is that incomes, especially those of the poor, are not very precisely measurable, and their definition is governed by conventions which are often arbitrary. For example, exchange rates have to be used when international comparisons are made. But what do exchange rates mean? Price indices are used to trace the development of poverty from one period to another. However, the basket of goods and services on which price indices are based does not generally relate to the needs of the poor. A fall in the price of personal computers will reduce the price index and hence increase the relative value of incomes, but what do cheaper PCs mean to someone who cannot afford to buy a bowl of rice?

Monetary poverty can be measured by means of two indicators:

the population indicator, which measures the number of poor inhabitants of a given area as a percentage of the total population of that area, and

the poverty line, which expresses the amount of money the individual would need to obtain a basket of basic items that are essential to his or her life; this amount is weighted by use of the Engel multiplier to take account of expenditure on clothing, shelter and transport.

Definition 2

Poverty of living conditions: This measure of poverty is based on the satisfaction of basic needs, including health, education and access to vital services. Once again, the problem has an absolute and a relative aspect. Not having a car is certainly a sign of poverty in the United States, but the same does not apply in New Guinea. Three indicators are normally taken into account: per capita income, life expectancy and education. This is a more comprehensive measure than the previous one, but it is more difficult to apply as it is more subjective and does not lend itself to comparative analysis. How, on this basis, can the poverty of a Polynesian be compared with that of an Eskimo?

The following indicators are used to measure poverty of living conditions:

The human-development indicator: calculated in the framework of the UNDP⁴, this indicator reflects the progress made towards the achievement of three development aims, namely living a long and healthy life, acquiring knowledge and having access to the resources required for a decent standard of living.

The human-poverty indicator: used by the UNDP, this indicator is based on three parameters: longevity, basic education and access to public and private resources.

² All these figures are taken from the document *Food, Agriculture and the Environment: a Vision for the Year 2020*, published by IFPRI in 1995.

³ DIAL 1995 provides a summary of these analyses and theories of poverty.

⁴ United Nations Development Programme

Definition 3

Poverty of potential: This measure of poverty is firmly subjective and is rooted in the concept of human development. It is defined as a lack of the minimum physical capital which is necessary to live or function properly in a given society (Dubois, 1998, p. 2).

This is certainly the most satisfactory measure, but it is also the most difficult to apply.

There is one more conceptual point to clarify, namely the need to distinguish poverty from unequal distribution of income.

It is possible to have a completely even distribution of income and yet a highly impoverished population.

Conversely, there is also a problem of inequality within the poorer classes. That is why the Gini index, which measures inequality of incomes in general, is not a reliable gauge of the poverty that exists in a particular country.

There are, however, two indices that may be used to address this problem:

The Sen index: The Sen index measures the relative depth of poverty on the basis of a combination of the poverty rate, the average degree of poverty and a measure of the range of poverty. This index is used by the countries of the OECD.

The FGT index (Foster, Greer and Thorbecke): The FGT index expresses the distribution of poverty among the poorest classes. It relates to the group with the lowest incomes, expressed as a percentage of the population below the poverty line. (Salama and Valier, 1994, p. 36).

For all their diversity, each of these indicators shows that poverty remains a very widespread phenomenon (see Table 1), even though it has decreased in relative terms over the past 20 years (FAO, 1996). On the other hand, the indicators sometimes diverge on the relative size of the impoverished populations in urban and rural areas, in the developing countries and in the developed countries.

Table 1: Chronological development of poverty

Period	Total population of the developing countries (in millions)	Undernourished population (in millions)	Percentage of the Population of the Developing countries
1969-71	2583	893	35%
1979-81	3228	878	27%
1990-92	4064	809	20%

Source : FAO WFS 96/TECH/1

It is clear, however, that a majority of the world's poor live outside towns and cities and in developing countries. The gap between them and the rest of the population widens if we add to our conception of poverty the criteria of access to health services and education and other social indicators. This divergence is worth emphasising, but it is also clear that there are good reasons for including a subjective element in the definition of poverty.

Research into means of avoiding poverty

One simplistic solution to the problem of poverty consists in the *redistribution of income*, in taxing the rich to give to the poor. But the problem is far from being as simple as that, because such a policy requires the wealthy to make sacrifices. Apart from the fact that this may be difficult to achieve, there are at least two reasons why it is not necessarily a good solution:

- On the one hand, all the money owned by the wealthier classes may be insufficient to improve the lot of the poor to any significant extent.

- On the other hand, if such an operation is to be conducted in the best possible manner, there would have to be a means of objectively measuring the sacrifice to which the rich have consented in order to measure their loss of utility against the benefits derived by the poor. However, there is no reliable means of conducting such an operation, and the vast majority of economists consider it to be utterly impossible.

To illustrate this idea, imagine the redistribution of income in sub-Saharan Africa: taxing the rich and redistributing their excess wealth to the poor would not eradicate poverty (see Table 2 below)⁵. By reducing the income of the rich to the regional average, we could almost double the incomes of the poor from \$175 per capita to \$309, but this would not be enough to secure a 'normal' standard of living for them⁶. Conversely, the sacrifice demanded of the rich would be considerable because of the small size of the relatively prosperous population in relation to the huge numbers of poor people. Such a solution becomes even less feasible when we consider the difficulty involved in implementing it.

Table 2: Income levels before and after redistribution

Class structure	Before redistribution		After redistribution	
	Per capita GNP (in U.S. \$)	Population (in millions)	Per capita GNP (in U.S. \$)	Population (in millions)
Poorest class	175	326	309	326
Middle class	655	174	718	256
Relatively wealthy class	1380	82	1380	0

The other solution is that of *economic development*. This involves creating a situation in which, without anything being taken from the rich – indeed they might even be further enriched – enough new wealth is created to improve the lot of the poor. This naturally assumes that the activities which are undertaken are designed to encourage the development of the poor.

To that end, two conditions must be fulfilled:

- (1) First of all, the specific goods and services which can satisfy the needs of the poor must be available in sufficient quantity. This is where the fight against poverty assumes a special technical dimension. It may be, for example, that a country possesses the technical skills and resources to produce works of art or masterpieces of craftsmanship. But such techniques are of no real use in the fight against poverty, because the possession of such objects is not a priority for the poor. Conversely, anything that helps to promote the supply of food or health care at affordable prices will obviously be worth examining. We are faced here with the classic problem of scarcity, and that is the recurring theme of our document. We shall examine the main technical barriers to development and the ways in which these barriers can be lowered.
- (2) It is also essential that the poor should have the minimum resources to guarantee their access to these vital goods and services. That has been the area in which economists have made their main contribution in recent years, especially Amartya Sen⁷, winner of the 1998 Nobel Prize for Economics. It is possible that the necessary goods and services exist but that the poor have no means of access to them. Sen and Ravalion, for instance, have demonstrated that, when the most recent cases of famine occurred in the world, especially the 1974 famine in Bangladesh, adequate stocks of food were close at hand, but a large fraction of the population had no access to them.

⁵ Data on the incomes of the 'poor', 'average' and 'rich' in this region are taken from World Bank statistics published in the World Development Report 1998/99.

⁶ Gonzalez J-I, 1994, shows however that (in Colombia) action against poverty will be effective if it involves redistributing income and wealth.

⁷ Sen's academic work had its roots in the economic theory of technical choice and growth.

This type of consideration poses a new problem, that of the organisation of society, which is certainly a more political issue than the previous one. We shall merely mention it in passing, mainly in terms of its relationship to the economic issue. In fact, the two problems are linked. Many people believe that, if the market economies worked properly – as many economists consider that they do – the problem of poverty would disappear: the market in the factors of production would automatically give the poor the income that would enable them to acquire the products they need. There are two comments to be made on this argument:

- This line of argument is based on ideal markets, not the real market. This is where the responsibility of the State comes into play: it must correct the real market mechanisms without destroying them, and in that way it can make the real market more like an ideal market.
- Even if the markets did function perfectly, the eradication of poverty would also depend on the poor having a sufficient quantity of factors of production for which the market is likely to pay. This condition is not generally satisfied. In most cases, the only asset the poor can offer is their labour. Moreover, their labour often has a limited value because it is unskilled. And besides, there is an abundant supply of such labour, which minimises its price. The whole secret of economic policy is to find the means of mobilising this potential labour force even when the market is not initially able to provide it with satisfactory remuneration⁸.

In practice, it seems that the best way of eradicating poverty consists in a mix of policies which stimulates development and redistributes the fruits of economic expansion in favour of the poor, thereby making their lives easier. The fact is that poverty depends on both the level of a society's wealth and the distribution of that wealth within the society in question. But it is not an easy concept to define, and many ideas have been tried out with a view to finding the ideal definition.

A brief history of political ideas on poverty in the Third World

The postcolonial history of the fight against poverty in the developing countries may be divided into two basic periods. Until the 1930s the question of poverty did not arise in these countries which were generally under the guardianship of the developed countries. The economic policies adopted at the time were usually imposed and inspired by those of western countries. At the end of the colonial period the numbers of poor people were considerable and the disparities in income enormous. The independent states therefore actively engaged in global development policies. The new approaches encompassed agriculture, health and education. Taken together these policies were marked by a very interventionist and therefore strong position for the state. The adoption of these policies generated uncontrolled bureaucracy and this continued until the economic shocks of the seventies and early eighties. The planning bodies became private companies which functioned using government money. All this led to the failure of these policies.

The need to re-establish macroeconomic balances called the role of the public authorities into question. As a result at the beginning of the 1980s the gradual disengagement of the State made way for private enterprise. Liberalism was adopted to create growth and eradicate poverty.

However, in the late eighties, new forms of poverty began to appear in the developed countries of Europe. That was when we began to hear people talk of the concept of human development, which was to become the main theme of the nineties. In combination with other concerns, it gave rise to the idea of sustainable development.⁹ This was the period (1990) when the UNDP introduced the indicator of human development, inspired by the propositions that Amartya Sen had been advancing.

Today, new sources of uncertainty are still appearing on the scene, and the fight against poverty remains the main concern of humanity. Demographic growth is still exponential, productive activities constantly add to the pollution of the environment, while decision-makers and researchers have yet to arrive at a consensus on the pros and cons of globalisation.

⁸ See A. Sen 1972 and the theory of the assessment of projects in developing countries.

⁹ This alternative conception of development was opposed to the use of GDP as the sole criterion of a country's development level in the manner of the Bretton Woods institutions (the World Bank and the International Monetary Fund).

Nevertheless, it is certain that the links between nutrition, health, education and the environment and the way they interact to create poverty are better understood now than ever before. This understanding will undoubtedly serve to create a better political strategy for the fight against poverty. In general terms, however, such action must focus essentially on agriculture within an integral strategic framework which also covers health, education and respect for the environment. Agriculture, after all, is the only source of food, which is the chief problem for the poor, and promoting it can have a twofold effect: it can help to fight poverty, and it can boost the economy while redistributing wealth through direct and indirect assistance (as in the common agricultural policy of the EU). This is all the truer if we accept the hypothesis that poverty tends to be concentrated in rural areas. In addition, it must be said that a country's food security depends on the prosperity of its farmers, which derives first and foremost from their incomes from agricultural production and secondly from their quality of life (health, education and living conditions).

Purpose of this document

The purpose of this document is to identify the types of interaction that occur between the techniques, the effects and the limitations of anti-poverty strategies with a view to developing a general catalogue of resources for the elimination of poverty and the conservation of the environment. But before dealing with the heart of this question, we need to have a general picture of the main factors that limit the production of the goods which are most necessary to the poor.

A – FOOD SECURITY

Food security is the ability of an individual or group of individuals to secure the daily nutritional intake that will save them from starvation. It not only helps to guarantee the welfare of the individual but also serves to improve the productivity of the labour force and reduce social expenditure and hence to safeguard political stability.

The concept of food security first came to the fore at the 1974 International Food Conference. One of the first definitions of food security was 'having access at all times to an adequate quantity of basic products to satisfy increasing consumption requirements and minimising fluctuations in production and prices'. The concept was subsequently broadened to take account of interactions between the individual, the family, the community, the nation and the global economy. Food security became 'access for each individual at all times to food resources enabling him or her to live a healthy and active life'. Following the famine that afflicted Africa in 1984-85, the concept was broadened still further: a society enjoyed food security if it had not only satisfied the nutritional needs of its members but had also developed internal structures which would enable it to maintain the supply of food rations during a crisis. Nowadays, food security has assumed a more subjective aspect, which takes account of quality, the diversity of needs from one individual to another and eating habits: 'A country enjoys food security when people's fear of not having enough to eat is dispelled and when the most vulnerable, namely women, children in remote areas, have access to the food they desire'¹⁰.

From a political point of view, it is up to governments to guarantee the availability of food products and the access of their nationals to the foodstuffs market. A lack of food security induces the threatened population to overexploit natural resources and entails high social costs. A lack of food security will tend to manifest itself in malnutrition or undernourishment.

Malnutrition comes from consuming low-quality food.

Undernourishment comes from consuming too little food.

Concern with malnutrition is reflected in the definition of food security as guaranteed access to wholesome food supplying the full range of nutritional requirements (protein, vitamins, trace elements, etc.). But whatever its definition or manifestation, the absence of food security remains entirely correlated with the poverty which primarily affects the developing countries but is also to be found in parts of the population of the developed countries. The extent of the risks to food security is considerable. In the long term, the global balance between supply and demand is not automatically assured. The area of agricultural land is limited, whereas the population count is constantly rising.

In quantitative terms, an assessment of the capacity of agricultural producers to satisfy the need for food implies a comparison between the factors that shape supply and demand on a global scale.

¹⁰ Technical Centre for Agriculture and Rural Cooperation, 1997.

1 - The role of demography

It is obvious that needs grow in direct proportion to the size of the population. This being the case, the difficulty lies in the relationship between the demographic situation and poverty. It is quite clear (see Table 3 below) that the poorest nations are those in countries where the population is growing fastest. There are many reasons for that, such as the difficulty for poor people to obtain modern contraceptives but also the fact that poor people regard children as a sort of insurance for their old age, and the more children a couple have, the more effectively they are insured. By contrast, in countries where social mobility is greater and where education can be the key to higher incomes, the birth rate is lower because couples invest in each child; if that investment is to be effective, a couple cannot afford to have too many children.

If such a diagnosis is correct, it is clear that an increase in social mobility is the best means of escape from the demographic poverty trap in which too many developing countries are caught. Moreover, if we examine the demographic forecasts (see Table 3), it emerges that the bulk of population growth will occur in the developing countries as a result of the slower decrease in the fertility rate.

Table 3: Global population and demographic trends

	Population (in billions)			Growth			
	1900	1950	1990	1950-90(%)	2025	2100	1990-2100 (%)
LDCs	1.07	1.68	4.08	143	7.07	10.2	150
DCs	0.56	0.84	1.21	44	1.4	1.5	24
World	1.63	2.52	5.3	140	8.47	11.7	121

Source: T. Merrick *World population in transition* in *Population Bulletin*, 1989, pp. 41-2, and Bos et al, 1992 (UN 1993).

2 - Changing needs

People's needs are undoubtedly tending to increase, but if we want to determine the extent of such increases, we must take other factors into account; we must define the nature of nutritional needs, which generally comprise a number of complex components, such as dietary styles (cultures and eating habits),¹¹ social categories and income levels. Another phenomenon that plays a key part in the increase in demand is that of the *switch to meat-based diets*. Consumption models involving a high percentage of animal protein are typical of the more prosperous strata of urban society (Engel's law¹²). This is liable to pose serious problems in terms of energy yield, because the production of one animal calorie requires an input of four to seven vegetable calories, depending on the animal in question. The problem is exacerbated by the fact that the consumption of processed products will increase as eating habits become more sophisticated and the range of catering services expands, thereby further increasing the consumption of energy.

3 - Urbanisation

¹¹ See Bricas N. 1996, CIRAD Montpellier: Urbanisation et évolution des styles alimentaires

¹² Law establishing the relationship between rising household incomes and trends in different types of household consumption.

One of the most surprising aspects of demographic development over the past 30 years is the level of urbanisation. This process has not yet peaked. The dimensions of this phenomenon are considerable, and it is predicted that the urban population will overtake the rural population, particularly in the southern hemisphere. In fact, it is likely that the urban population of the world will more than treble in the next 30 years.

This creates a new type of problem when it comes to feeding the urban poor. When the population was rural and lived near the production areas, the only food problem was that of agricultural production. If enough food was produced, nobody would be hungry. The same does not apply to the urban poor, who have no direct contact with agricultural production. In order to feed themselves, they must rely on the goodwill or the economic interest of an intermediary to transport produce from the place of production to the place of consumption. The role of these intermediaries is vital, but it is also misunderstood. Their legitimate response to market fluctuations, driven by fear for their own survival, may be to cut back on their activities. This can result in the coexistence of surpluses in the country and shortages in the city. In these terms, the role of public policies in the organisation of markets is crucial, and much of the success of food markets in developed countries can be ascribed to such policies.

B – THE MAIN NATURAL FACTORS LIMITING AGRICULTURAL PRODUCTION

Food supply is growing at a far slower rate than the world's population. A gap has opened up, and there is a pressing need for an increase in production and productivity levels, but it will also be necessary to seek greater efficiency in all the factors that help to determine the food supply (M. Griffon, 1996):

- the availability of land, which depends on the surface area with agricultural potential and the capacity to exploit it (labour force, capital, know-how);
- the productive capacity, which depends on the fertility of the soil and the way it is tended, on farming techniques, on the available labour force and on the availability of funds for routine expenditure;
- the reproductive and accumulative capacity, which depends on the suitability of the techniques employed and the institutions that have been created, the functioning of the market (price circulation and effectiveness of the information system), the effectiveness of the distribution system and of agricultural policies.

In global terms, agricultural production is growing faster than the world's population (see Figure 1). But a more detailed examination of this phenomenon reveals that the reverse is true in the developing countries. In fact, an analysis of the development of the global agricultural production index shows a 120% growth rate between 1961 and 1992, whereas the population increased by some 80% over the same period. On the other hand, a more detailed examination reveals that production growth was exceeded by population growth in developing countries, primarily in sub-Saharan Africa, North Africa and the Middle East (see Annex 2). Agricultural production remains blocked by a number of ecological constraints. The pressure on natural resources is increasing steadily, not only because of farming but also as a result of industrial activity and urbanisation.

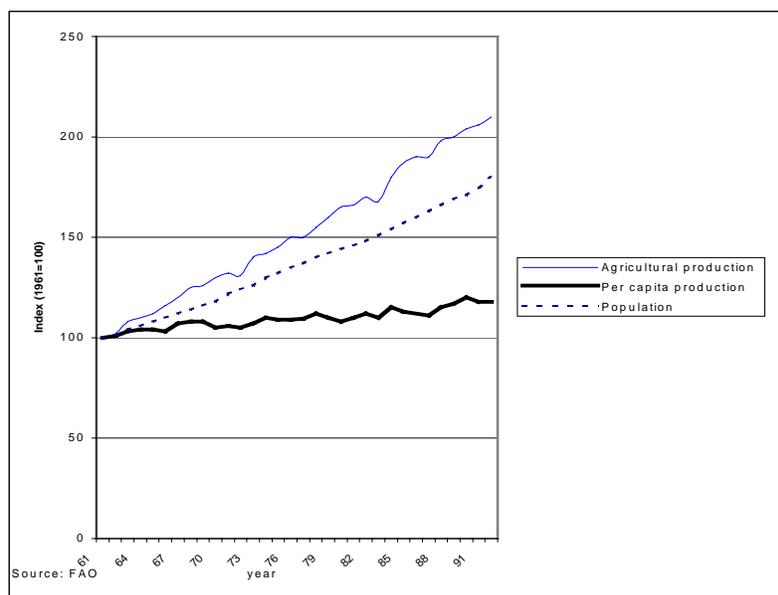


Figure 1: Cereal yields

1 - Soil (availability, erosion, loss of fertility and degradation):

The flat surfaces of valleys and deltas are in great demand for urbanisation, infrastructural facilities, industrial sites and dams. The most glaring case is that of China, where the total agricultural surface area is reduced by 0.3% per annum to make way for urban infrastructures. Elsewhere, erosion and loss of fertility are affecting increasingly large amounts of land. Penning de Vries and Van Keuton predict that there will be a shortage of phosphorus, an indispensable factor in soil fertility, by the year 2040. Moreover, two million hectares of land (17% of the world's arable land) suffer from lowering of the groundwater table, wind erosion, loss of nutritive elements, salinisation, compaction, waterlogging or structural breakdown. During the nineties, 180 million hectares of tropical rainforest have been cut down, the land being put to other uses. The acreage available in Asia is tending to diminish, while 44% of the land in Africa and 48% of Latin America are available for agricultural use.

A variety of policies have been proposed to combat soil degradation. The problem lies in persuading farmers to make risky long-term investments in soil-conservation operations, such as increased fertilisation, set-aside, etc., on which there is no guaranteed return. It has been suggested that property rights should be strengthened, so that farmers will at least be sure that they themselves or their children will reap the benefits on any improvements they make. This approach would certainly have a beneficial impact, but it would be expensive. It implies the existence of a land registry, courts for the settlement of dispute and policing to enforce the courts' decisions. Moreover, there is no guarantee that this will be an entirely effective remedy. Recipients of cast-iron and firmly established property rights have still been known to practise predatory exploitation of the land, even if it meant destroying the value of their property, because high interest rates ensured that the utility of the revenue their farms might have generated in the distant future would be completely wiped out by the 'discount factor'¹³. And smallholders, because of the high risk they incur, are charged particularly high interest rates. Consequently, if a 'liberal' approach is to be used to encourage farmers to conserve the production potential of their land, there must be a considerable reduction in the interest rates on the loans for which smallholders are eligible.

¹³ An asset which survived 25 years loses half its 'current' value with a discount rate of 10%.

Converting land from forestry to crops is a means of extending the area of cultivated land, and it is calculated that 0.8% of forestry stocks, i.e. an area of 15 million hectares, disappears each year. The effects of this deforestation, which also includes timber operations, are felt not only at a regional level but also internationally: soil degradation, creeping desertification affecting ever more useful land, the greenhouse effect (CO₂ concentrations) and a natural imbalance, sometimes even the loss of food security and production shortfalls. These things can only be prevented if new ways can be found to halt deforestation.

Any increase in the food supply must come from better yields, which must be accompanied by respect for the environment and limitation of soil degradation - hence the importance attaching to research and development.

2 - Water

Water shortages are an increasingly frequent phenomenon, and competition for the use of fresh water is becoming ever more intense. Natural exploitation of freshwater resources raises difficult management problems. The fact that water is unevenly distributed both seasonally and geographically imperils food security and obstructs the economic growth of many developing countries.¹⁴

Serious seasonal shortages have been experienced in recent years, resulting in the depletion of groundwater resources and stored reserves, particularly for irrigation. Deforestation encourages run-off, which causes flooding and limits infiltration, thereby reducing the quantities of water that are available in dry periods. At the same time, there is also intense competition for water between agriculture, industry and urban populations, not only because of the constant increase in water consumption but also because pollution makes some water unsuitable for particular purposes:

- agricultural pollution (fertilisers and pesticides) limits the urban use of water;
- industrial pollution affects the use of water by industry and urban populations;
- urban pollution restricts the agricultural and industrial use of water.

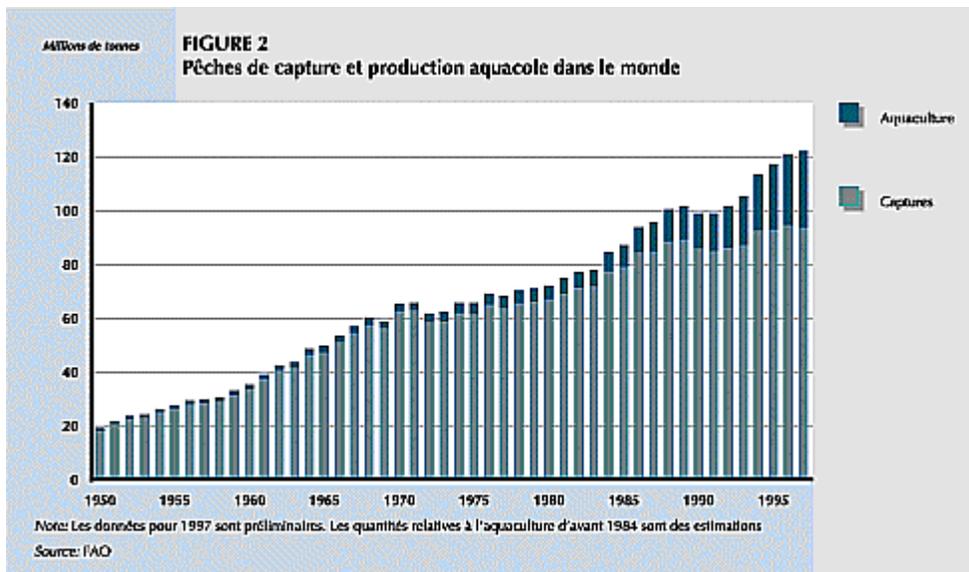
In general, the markets are incapable of solving water-shortage problems. The necessary powers are not yet firmly enough established; what is more, the technical measures that have to be taken if these problems are to be solved would disrupt the lives of very many people: owners of urban property would need to have connections installed to the main sewers, while farmers would be required to observe new restrictions, etc. Such measures cannot be taken unless they are supported and monitored by the public authority, even if day-to-day administration of the measures may (and probably should) be left to private companies.

3 - Fish stocks

Sea fishing, an important source of protein, has reached its limits (see Figure 2 below), and has even collapsed in some parts of the world. Overfishing is liable to exhaust marine fish stocks. The growth in catches was reversed in 1989, and the total catch has subsequently fallen by 100 million tonnes, just compensated for by the significant expansion of aquaculture.¹⁵ However, aquaculture involves delicate and costly techniques, geared towards the wealthy. The bulk of the fishing effort now takes place in the waters of the developing countries, accounting for 50% of world trade in fish. As fish become increasingly rare, overfishing and mismanagement continue. Improvement of catches and rational exploitation of this resource must take place all over the planet, not only in developed countries.

¹⁴ A. Revel, 1996.

¹⁵ See FAO, *The State of World Fisheries and Aquaculture*, 1998. (<http://www.fao.org/waicent/faoinfo/fishery/fishery.htm>).



The point here is that collective decision-making is imperative. Every fisher, individually, has an interest in maximising his catches. But if each operator were to achieve that aim, fish stocks would inevitably be overexploited, and that would lead to a collective disaster. There must therefore be an authority which establishes a system of fishing quotas based on the availability of the resource and polices the fishing fleet (the latter is the hardest part, because there is naturally a very strong incentive to breach these restrictions).

4 - Biodiversity

Monocultures, agricultural specialisation and deforestation have seriously jeopardised genetic biodiversity. It is, of course, natural enough that farmers everywhere will tend to cultivate plant varieties and breed animal species which are most productive and profitable and will abandon those which are insufficiently prolific. Similarly, it is natural that they will try to eliminate plant and animal life which they consider to be destructive because they compete with crops and livestock for the use of natural resources.

By doing that, however, the farmers are causing the disappearance of genetic resources. In France, for example, there were several hundred breeds of cattle at the start of the century. There are now only a few dozen. This creates at least two problems:

Firstly, from an ethical point of view, it may be said that one of the responsibilities of humanity is to conserve the widest possible genetic diversity, irrespective of usefulness to mankind. Ecological fundamentalists have even gone so far as to say that trees and wild animals have rights over human beings. The questions that have been raised on this issue are extremely interesting but go beyond the scope of our study (although one might well reflect on whether the survival of a tree should have priority over the life of a poor person).

Then, from a more practical point of view, this homogeneity of cultivated species poses the problem of their resilience to potential diseases as yet unknown. In recent years we have seen the entire global population of elm trees (*Ulmus*) suddenly falling prey to a strain of *Ceratocystis ulmi*, a fungus which had not hitherto been particularly virulent. The fungus, carried by the elm bark beetle, has destroyed almost all the elm trees in the world. This is undoubtedly a pity for those people who took pleasure in contemplating that fine tree, but it does not imperil human nutrition. What would happen, however, if the same sort of phenomenon as Dutch elm disease were to repeat itself in rice or wheat?

It is a widely held view among geneticists that the chances of resisting a disease of that nature would be considerably improved if we had a certain degree of genetic diversity (biodiversity) among our crops. In fact, most species contain individual strains with the necessary genes to ward off such forms of attack. That is one of the driving forces of evolution; when an assailant appears, the strains without the required type of resistance disappear, leaving only the strongest varieties. However, if human agents systematically select crop plants on the basis of other

criteria, there is a serious danger, unless great care is taken, of involuntarily eliminating some of these resistant genes. This can condemn entire species to destruction when a parasite comes along.

This is a worrying matter, because the stakes are high, but so are the odds against such an occurrence. If something like this is happening, its impact will only be felt in the long term. It is highly unlikely, in these circumstances, that the market will be able to provide decision-makers with the information they need. The market is short-sighted and encourages farmers to plant the most uniform and productive crops and to disregard any hypothetical long-term risks. It is therefore legitimate to try to correct the perverse effects of the market in this domain.

The following remedies could be considered:

- the maintenance of a 'gene bank', involving the collection of traditional crop varieties and wild plants in natural or artificial parks; it would be a costly venture but would represent an insurance policy for the future of mankind;
- premiums and grants for growing certain traditional crop varieties; since the cultivation of these crops is generally more labour-intensive, this would not be inconsistent with a policy of usefully employing the poor, whose only source of wealth, after all, is their labour;
- conservation of wild species and forests: this would pose many problems, because in practice rainforests are widely used by humans, most of whom are poor (the pygmies of the Ivory Coast, the Hmong people of South-East Asia, etc.), and an alternative would have to be provided in order to encourage them to leave their jungles; the solution lies in an intensification of largely non-forest-based agriculture and in settling nomadic populations, but here too the necessary capital would have to be provided to enable the peoples in question to adopt these intensive techniques.

The use of genetically modified organisms (GMOs) is vigorously opposed by some ecologists. Others regard them as an indispensable solution to the problems of food security. It is particularly important to defuse this whole GMO issue. The truth is that genetic manipulation covers an extremely wide range of techniques which could help to improve the quality of the food that is available to poor people. Some of these techniques are beneficial and involve no risk at all. Others, however, certainly are very dangerous. It is essential that no cross-fertilisation should be carried out without a firm scientific basis. On the other hand, it is also essential, in the interests of the promoters of these techniques, to create institutions that are able to monitor and control their use.

5 - Scientific and institutional limits

Despite the scientific development and support of agriculture, some questions still remain unanswered. The resolution of those questions would constitute a huge step on the way to overcoming the world's nutritional and environmental problems, including the salinisation of soil, the productivity of less fertile and climatically disadvantaged areas and the problem of diminishing yields. Moreover, knowledge is limited to some extent in the domains of human science and jurisprudence. Problems arising from the behaviour of the various players (producers, merchants, consumers, the public authorities) and from the economic and legal policies that have been adopted have played a large part in the exacerbation of poverty and the diminution of food security. Amartya Sen demonstrates in his work that famines can occur when barns are full and that the crux of the problem lies in distribution and in legal systems.¹⁶

Agricultural and administrative services are not very effective in the developing countries; procedures are ponderous and bureaucratic. Centralised bodies stifle local initiatives and distribute public funds badly. Furthermore, technical advances and research findings are disseminated through the traditional channels, which have never managed to ensure that enough information reaches farmers. New and more effective strategies (the participatory approach) which integrate farmers into the decision-making process must be developed.

C - ORGANISATION OF THE MARKET: market instability and its consequences

In the realm of food supply, urbanisation entails the establishment of a market between the producer and the consumer. That very fact, however, creates new difficulties, which are associated with the instability of markets, especially those markets on which poor people depend.

Indeed, it has been demonstrated that the more rigid demand is, the less stable a market will be, because not even substantial price variations will cause very much change in the level of demand. In such cases, instead of converging towards an equilibrium between supply and demand, as would happen in markets which respond to price rises with a

¹⁶ See also J. Drèze and A. Sen, *Hunger and Public Action*, 1997.

distinct fall in demand, a market where demand is rigid can fluctuate indefinitely, lurching between peaks and troughs without ever achieving stability.

Such a situation is socially unacceptable. Producers certainly benefit when prices are high, but they do so at the expense of consumers. The loss to consumers is demonstrably greater than the producers' gain. Conversely, when prices are low, consumers win and producers lose, but once again the gains are outweighed by the losses. Generally speaking, these gains and losses, as well as the overall harm to society, are in direct proportion to the rigidity of demand.

Foodstuffs, of course, are the very type of product for which a rigid demand exists. This is due to the fact that consumers depend on food products for their survival and are therefore prepared to endure any sacrifice in order to obtain them, even if prices are high. On the other side of the coin, overall food requirements being fairly stable, when the goods that are being produced to satisfy those requirements become available in abundance, lower prices will not tend to trigger a boom in demand. So the demand for food is relatively impervious to both rising and falling prices. Consequently, food products are extremely susceptible to price fluctuations in a free and uncontrolled market. Of all price fluctuations, however, the fluctuation in food prices can have the most devastating effects on the poor, who are most vulnerable to sudden and unexpected price increases. They do not have the means to stockpile food supplies when prices are low. They spend a high percentage of their incomes on foodstuffs, so that an increase in food prices translates into a proportionately greater loss of disposable income than is the case with higher earners. For that reason alone, the poor will invariably be the main beneficiaries of policies designed to stabilise the price of staple foodstuffs. But there is another reason to stabilise food prices, a reason that relates to producers.

We saw above that anti-poverty policies should focus on increasing production by harnessing the benefits of technological progress. But from a producer's point of view, price fluctuations have the same effect as technological regression. When selling their goods on the market, producers will tend to practise risk avoidance. Since producers are not sure of obtaining the prices they would hope for, when they calculate their target profit margins (and all producers, even the poorest of them, perform profitability calculations, implicitly or explicitly), they add a 'risk premium' on the expenditure side, which prompts them to restrict their output in relation to what they would have produced in the absence of a risk factor. Accordingly, a reduction in the price risk to which farmers are exposed will always have the same effect as technological progress, in that it enables them to increase production. And the strength of this effect will depend on the extent to which the risk to the producer is diminished.

Contrary to what many people believe, this effect is far from negligible, especially for poor farmers, who are prevented from borrowing investment funds because of uncertainty about their ability to repay their debt. The elimination of production and marketing risks, if that were possible, would suffice to increase global agricultural production by at least 100%, and probably by far more, at constant average prices. Governments that have given their farmers price guarantees have very frequently been rewarded by a substantial reduction of food shortages and often by surplus production. In truth, a minimum level of security is an essential prerequisite, if not the sole prerequisite, of any technological change.

In the current world context, the minimum security guaranteed at national level could well disappear. The liberalisation of trade at world level affects an ever greater number of activities.

The agricultural sector still remains within a partially protectionist system. But current trends, because of pressure from large holdings and international lobbies, are towards further restructuring of agricultural policies to facilitate entry into a 'liberal' regulatory environment, similar to that already practised, and the abandoned in the 19th century. Since the last discussions during the Uruguay Round the decision makers on agricultural policy have expressed a strong desire to reincorporate this sector into the market economy, on the grounds that only such a mechanism is capable of regulating production, as in other non-agricultural sectors.

However, many economists are afraid that this sector is not like the others. Its specific characteristics mean that in the long term there could be an adverse outcome if there is too mechanical an application of the theory of comparative advantages. The rigidity of demand for agricultural products makes the markets unstable. The impact of agriculture on the environment is considerable. According to the policies established, agriculture could conserve or destroy the environment. It is clear that the market is pushing strongly for action which is detrimental to the environment.

On the other hand, the rise in urbanisation and geographical distance transforms agricultural policies into food policies as the whole food chain has to be integrated, including monitoring of hygiene quality. Opinions are very divergent on this subject. For some (economic, financial and commercial pressure groups) the use of new production techniques is guaranteed in advance by industrialists and does not pose any risks. As a result, freedom of trade in foodstuffs does not endanger the health of consumers. For others, and for basically ethical reasons, protectionist measures are essential. Whichever the case, powerful monitoring mechanisms must be established by national governments to avoid fraud and to standardise the market.

If these specific factors are disregarded there could be a heavy burden on the treasuries of the European countries. But the consequences are even more worrying in the developing countries. Despite their comparative natural advantages, these countries do not even manage to cover their basic food requirements because of their food producing agricultural systems generally, or to produce industrial goods which can be sold on world markets to obtain food in exchange. As a result there is chronic under-nourishment and living conditions are precarious in these countries. If one adds to this the fact that in most of these countries the majority of the population is engaged in farming (because they do not know how to do anything else) it is clear that liberalisation of trade in agricultural goods, by crushing this traditional form of agriculture, will abolish all sources of income and the possibility for the poor farming populations to feed themselves.

This question of the effects of liberalisation on poverty is highly complex and varies according to the local situation. For example, in a country such as Morocco it is clear that liberalisation would impoverish the rural poor, by reducing the prices for cereals; it might however at least produce some benefit for the urban poor. In many countries in black Africa price movements in the opposite direction will also have converse effects. However, we should not concentrate on the immediate effects of liberalisation but on the long-term effects. From this point of view it is clear to many specialists that liberalisation will produce great price fluctuations and a marked decline in supply, compared with what would be possible.¹⁷ In the long term this would, in the last analysis, certainly be detrimental to the poor.

D - THE MAIN LINKS BETWEEN THE FIGHT AGAINST POVERTY AND FUTURE PROGRESS

The struggle against poverty has been the subject of various policies, programmes, studies and research activities. The global food situation has been steadily improving for several decades, but it is being outpaced by population growth, which has resulted in a considerable shortfall (see Table 6 below). The question is whether production will cover global food requirements in the long term.

The FAO and various international institutions have asked this question. It is now certain that despite degradation of land, yields, the environment and everything else that could run counter to this aim, there is now a whole range of techniques which are suitable to ensure the subsistence of a global population significantly higher than the current population – for example twice or three times the current population. But these techniques are not implemented because there is not an adequate social and economic environment.

Agricultural development can therefore play a double role by guaranteeing food security and by creating the basis for an upsurge in economic growth and socio-economic development. These aims can be achieved by a combination of the following measures:

- promoting the prosperity of rural areas (job creation, generation of incomes, improvement of living conditions and reduction of migration to the towns),
- reducing the demographic growth rate,

¹⁷ See Newbery D. (1989a): The theory of food price stabilisation, *Economic Journal*, 99, December, : 1065-1082.

- enhancing food security by supporting, intensifying and diversifying agricultural activity,
- improving public health, and
- promoting environmental protection.

This presupposes several conditions:

investment in agricultural research: the amount of investment in agricultural research and technology seems to be constantly diminishing in the developing countries; whereas such investment once accounted for 7% of public spending, it has now fallen to a 2.07%, a trend which has been most conspicuous in Africa and Latin America and which is liable to have serious consequences;

efficient marketing channels that are capable of guaranteeing food supplies to any region at any time;

sufficient purchasing power to guarantee public access to food supplies.

1 - a success story: the Green Revolution

The Green Revolution in Asia illustrates the above. Maximum efficiency in the deployment of available resources, including knowledge and information, have achieved extraordinary success. The Green Revolution began in Northern India and Pakistan. Every effort was made to increase the irrigated surface area and to introduce new production techniques which would make it possible to achieve higher productivity targets and improve everyday food supplies in order to stay ahead of demographic growth. Modern production methods in terms of new plant varieties, chemical inputs and new agricultural knowledge gleaned from an impressive array of research by scientists throughout the world were put into practice - but without recourse to mechanisation, because one of the aims of the scheme was to absorb the wealth of surplus labour. These measures were implemented with the aid of international non-profit organisations, public authorities, multilateral institutions, private businesses, banks, lenders, owners of large farms and landless peasants and were linked with schemes designed to achieve the following aims:

- sensitive development of the civil infrastructure and the electricity grid,
- more agricultural research and development of public agricultural research bodies with responsibility for developing second-generation varieties, based on successful first-generation crops and better adapted to local conditions, by making use of available phylogenetic knowledge; the number of new varieties of rice and maize doubled between 1966 and 1985;
- establishment of popularisation programmes which can provide a link between researchers and farmers; in their effort to provide a reliable supply of information to farmers, these bodies have attached due importance to the participative approach, listening to farmers in order to identify their concerns and needs and to benefit from their practical knowledge of particular techniques and varieties, knowledge which sometimes escapes researchers and decision-makers, and also to gain their trust to facilitate the adoption and adaptation of new technology;
- agrarian reform, encouraging the grouping of small farms into cooperatives in order to cut costs and make small farmers more competitive;
- effective intervention by the public authorities in the markets for agricultural inputs and products, including the provision of credit facilities and marketing guarantees for outputs.

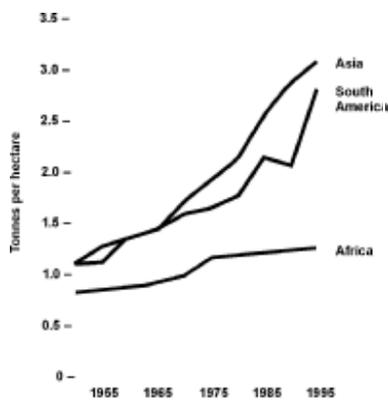


Figure 3: Increase yields

This, in fact, is both a technical and an economic revolution, which is helping to narrow the gap between developing and developed countries, particularly with regard to knowledge, but which has also served to increase agricultural yields spectacularly (see Figure 3) and thus to improve the incomes of poor farmers and landless peasants. A survey conducted in Southern India showed that the average income of small farmers had increased by 90% between 1973 and 1994, while that of the landless peasants - the poorest of the poor - had risen by 125%. The switch to high-yield crops has been accompanied by greater use of labour-intensive techniques, and the additional demand for labour has benefited the most impoverished sections of society. From a nutritional point of view, it is worth noting that the daily calorific intake of small farmers and landless peasants has risen from 58 to 81% of the FAO recommended minimum requirement, while their protein intake has increased from 103 to 115%.¹⁸

The success of this revolution in India has led to its adoption by other Asian countries (the Philippines, Indonesia, China and Vietnam). Similar revolutions have been noted in Southern Africa, where agricultural techniques have been modernised and new maize varieties introduced, and in Latin America. However, these have not enjoyed such spectacular success as the Asian model, but it should nevertheless be pointed out that the yield from basic crops in South America has more than doubled since the 1950s (see Figure 4 below).

In Africa, the Green Revolution came to grief (see Figure 4), because the best use was not made of available resources, the underlying principles were not properly applied, and the prevailing economic and social conditions were unfavourable. This failure was most conspicuous in the irrigated areas, where the high cost of irrigation led to budgetary deficits, but it was also due to the adoption of a non-participative approach, whereby farmers were excluded from the process of formulating action plans, and to the marginalisation of the problems posed by rainfed agriculture and small farming, the main focus of interest being irrigation farming, as in India. Elsewhere, however, in West and Central Africa, the introduction of potential new cotton varieties and the improvement of production methods did achieve considerable success; this came to be known as the 'White Revolution'.

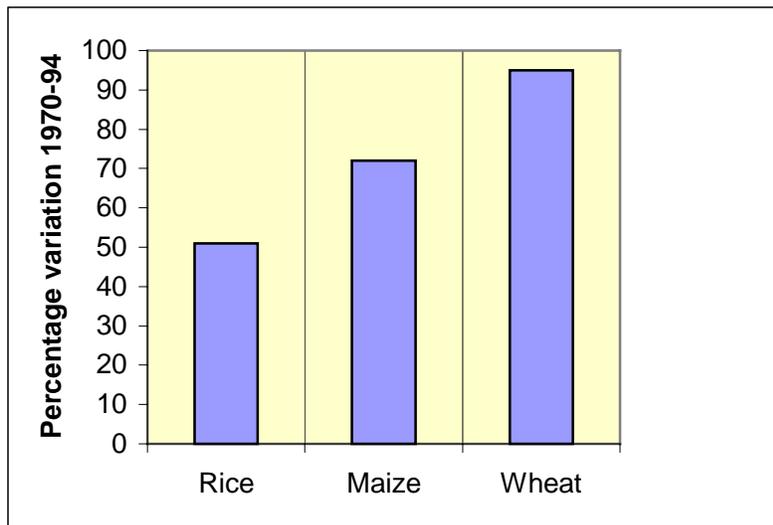


Figure 4: Increase in the yield of main cereal crops

In fact, it is no coincidence that the Green Revolution succeeded in particular countries. Its success was due to a combination of favourable conditions, of which Griffon¹⁹ lists five (International Cooperation Centre on Agrarian Research for Development (ICCARD), 1995):

- the existence of significant unsatisfied needs, partly reflected in satisfiable demand within a relatively efficient food market;
- the existence of geographical areas with potentially high agricultural productivity;

¹⁸ World Bank Report, 1998-99

¹⁹ Griffon M 1996: 'De la révolution verte à la révolution doublement verte'.

- the existence of agricultural production and communications infrastructures to facilitate the operation of agricultural markets, input markets and finance markets (road network, irrigated perimeters, price advertising, etc.);
- the existence of an effective administrative body and effective agricultural services (supply of inputs, credit facilities, information campaigns and advice for producers), be they public or private;
- lastly, a price policy that encourages producers to learn about technical progress and to invest in new methods without incurring excessive economic risks.

In short, the success of the Green Revolution depends on a combination of natural, social and economic advantages. It therefore remains a model for developing countries trying to satisfy their food requirements and to eliminate poverty. In the case of the ACP countries, particularly those in Africa, there are good reasons to be optimistic:

- The basic agricultural resources are very plentiful compared with those in Asia.
- The methods that have hitherto been employed remain traditional, which means that there is scope for the improvement of yields through intensification and hence for the improvement of the food situation and of socioeconomic conditions in general.

Direct or indirect anti-poverty policies must contribute to significant sustained growth and to the capacity of the poor to generate incomes. Moreover, these policies can only be effective if the objectives and the general strategy result from the participation of all the players concerned, if they are defined and established within a motivating framework and if they combine the following elements:

- sustainable agricultural development strategies, involving the promotion of sustainable and improved forms of technology for the production, processing and marketing of farm produce, encouragement of the independent sector, accessibility and availability of agricultural inputs and protection of the agricultural environment;²⁰
- development strategies based on the creation of activities that generate income for vulnerable sections of the population and on the improvement of the economic environment;
- human-development strategies, ensuring access to education, health care and family-planning services;

2 -The future

Considerable though the successes of the Green Revolution may have been, one question remains: is there still any scope for further productivity gains? Signs of saturation have already been observed, while the population, on the other hand, has not stopped growing. In fact, the salinisation of irrigated soils and the reduction of the use of fertilisers following the withdrawal of subsidies have put a ceiling on yields and on the available surface area, not to mention the environmental effects associated with the exhaustion of water reserves and the introduction of monocultures, the redoubtable enemies of biological diversity.

Increasing the present limits on yields is the challenge that currently faces policymakers, researchers and administrative bodies. There is talk in some quarters of a 'super-revolution', while others speak of a 'Doubly Green Revolution'.

The first step towards a green super-revolution would be to rationalise the functioning of the productive systems in the domain of water management and the functioning of the cultivation systems with a view to limiting losses and wastage of inputs and to pursue the process of intensification by means of genetic improvement, coupled with mastery of appropriate techniques.

The establishment of such a strategy implies the increased use of artificial aids and a good mastery of modern production systems, which necessitates lengthy training projects. Moreover, the demands of economic profitability make mechanisation necessary, which handicaps small farms and runs counter to the idea of absorbing the abundant pool of labour. On the other hand, the establishment of monocultures encourages infestation by pests and diseases and reduces genetic diversity. Lastly, an imperfect grasp of the revolution is liable to exacerbate the degradation of the environment. For all these reasons, people are more inclined to speak of a Doubly Green Revolution. Its objectives are (ICCARD, 1994):

- to increase production in order to ensure global food security; this increase should be achieved in a large number of regions and a wide diversity of locations, especially in areas with low production potential and areas where there is heavy pressure for the use of ecosystems,

²⁰ R.D. Cooke (1996), in *Seminar on Food Security*, Brussels, 1997.

- to respect the environment, and
- to reduce poverty.

It is essentially a matter of finding a so-called 'viable'²¹ situation *from an ecological point of view* (reduction of agricultural pollution, optimised management of resources in order to guarantee their long-term use), *from an economic point of view* (ensuring the solvency and profitability of farms and agribusinesses) and *from a social point of view* (ensuring that the poor have permanent access to services and resources that can help them to improve their situation).

3 -Agrarian rationale of the Doubly Green Revolution

Unlike the Green Revolution, in which part of the initial area was improved by entirely artificial means, the Doubly Green Revolution tries to derive benefits from the natural system, altering it partially and gradually and safeguarding its long-term potential. The contribution of scientific ecology, of the scope for model ventures, of genetics and of research and development will be of inestimable value. In the case of rainfed production systems, for example, the Doubly Green Revolution seeks to combine modern research with the advantages of the intensive systems used by peasant societies:²²

- promoting mixed plantings rather than single-crop plantings with a view to limiting the development of self-propagating organisms and pests and to afford protection against harsh climatic conditions;
- fighting erosion by limiting the cultivation of land;
- limiting evaporation and evapotranspiration by means of growing techniques and by maintaining ground cover;
- preserving soil fertility by recycling animal and plant residues and by establishing nitrogen- and phosphorus-fixing crops;
- using organic and integrated control methods to combat pests and diseases;
- make the best use of animals for food, trade, transport and agricultural work.

From a genetic point of view, the contribution of the Doubly Green Revolution is that it tends to preserve biodiversity, improve the performance of local varieties and promote the biotechnological selection of the characteristics that help to increase production (resistance to disease and to climatic and physiological shocks).

4 - Conditions for success

The Green Revolution took place in a context of total commitment on the part of the public authorities, whereas the Doubly Green Revolution will operate in a context of liberalisation, of diminishing intervention by the public authorities and of decentralisation; the satisfactory functioning of the market is a necessary condition. Moreover, if consumption is to be boosted, household expenditure must be reduced without reducing incomes. On the other hand, it must be possible to stabilise prices in order to guarantee production and reduce investment risks.

As has been the case with the Green Revolution, a participative approach must be taken to agricultural extension activities to ensure that local realities are properly understood and to guarantee the successful adoption of recommendations made in the context of the Doubly Green Revolution.

Lastly, it is essential to help the most deprived populations by pursuing more effective social and institutional policies in order to guarantee their access to the vital resources of land, credit, education and health care.

²¹ The concept of viability covers all the ideas derived from the concept of sustainable development (Aubin, 1994).

²² M. Griffon, *De la révolution verte à la révolution doublement verte*, 1996.

E – POVERTY AND HEALTH

Poverty, which is both a cause and effect of disease, is one of the main causes of premature death. In the absence of minimum health and hygiene standards and of preventive care, poor quarters are prime breeding grounds for infections and for the spread of epidemics such as malaria and Aids. The ubiquity of HIV has caused a spectacular downturn in the indicators of public health; at the present time, 30% of the population of Africa has a life expectancy of less than 40 years.²³ But poverty is also one of the main factors of demographic growth. In fact, the persistent high risk of infant mortality (most glaringly in sub-Saharan Africa, where the figure stands at 91 per thousand), linked to poor sanitary conditions (see Table 4 below) and the great difficulty in obtaining access to health services, especially advice on family planning, encourage fertility and hence demographic growth. Moreover, women in developing countries, and indeed families, depend on support from their children for their daily needs. The fertility rate remains very high in the developing countries; in 1996, it stood at 5.6 in sub-Saharan Africa, 4 in North Africa and 3.4 in Southern Asia. In Latin America and the Caribbean, it is in the order of 2.8.

Table 4: Infant mortality per 1000 births (1996)

Region	Infant mortality rate per 1000 births	Access to health services (in %)
- Far East and Pacific	39	29
- Europe and Central Asia	24	--
- Latin America and the Caribbean	33	57
- Middle East and North Africa	50	--
- Southern Asia	73	30
- Sub-Saharan Africa	91	37
World average	54	--

Source: World Bank, 1998

Anyone who subscribes to the **Malthusian** view would see epidemics as one of the natural checks on demographic growth; population, said Malthus 'increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio'. The difference is vast. The power of population, said Malthus, is indefinitely greater than the power in the earth to produce subsistence for man, so much so that to maintain the present level of subsistence, to ensure that the existing population finds an amount of food proportionate to its size, there is a constant need for a higher law to obstruct its progress, for harsh necessity to subject man to its dictates.²⁴

The underlying idea is that the value of labour, which is the only factor of production over which poor people have any control, depends on its scarcity. If labour, the supply of which is increased when the population rises, becomes overabundant, its price will fall until the poor die of starvation and the balance between supply and demand is restored. According to the Malthusian theory, it would be necessary to let these people die, because their elimination is the sole means of re-establishing the scarcity of labour and thus to give the surviving poor the opportunity to escape from their condition.

We saw the flaws in this logic above: on the one hand, technical progress provides a means of feeding ever-increasing numbers of people. On the other hand, we saw that poverty is the very thing which encourages population growth, whereas wealth, and particularly social mobility, actually tend to slow it down. Lastly, it remains to be proved that the price of labour is always determined by its scarcity. All of these things make the Malthusian propositions highly debatable.

It nevertheless remains true that there is a real need to harmonise efforts in the field of health care with the drive to improve food production.

²³ UNDP, *Vaincre la pauvreté humaine* ('Overcoming human poverty'), 1998.

²⁴ T-R. Malthus, 1798

In the developing countries, economic growth is still very fragile, whereas the benefits of medicine are already relatively widespread, which is reflected in plummeting mortality rates in Third World countries. The result of this is an alarming population explosion and a disastrous food situation.

The subject of health care in the developing countries calls to mind the problems of malnutrition and undernourishment (see Tables 5 and 6 below); according to the Director-General of the World Health Organisation²⁵, a large number of transmissible diseases are actually due to malnutrition having weakened the resistance of the human organism to infections. He adds that, because of the malnutrition that is a dominant factor in developing countries, 147 million children below the age of five are underweight and 230 suffer from stunted growth or other physical deficiencies. The suffering and the waste of human resources that these figures represent, he says, are unacceptable in every respect.

Table 5: Population (in millions) affected by micronutrient deficiencies

WHO region	Goitre and other conditions caused by iodine deficiency *	Xerophthalmia and other conditions caused by vitamin A deficiency	Anaemia	Iron-deficiency anaemia	Iron deficiency
Africa	136	1.05	233.7	210.3	420.7
The Americas	50	0.06	141.7	127.6	255.1
South-East Asia	213	1.45	765.2	688.6	1377.3
Europe	89	NA	79.8	71.8	143.6
Eastern Mediterranean	116	0.16	179.5	161.5	323.1
Western Pacific	156	0.13	587.4	528.7	1057.4
Total	760	2.85	1987.3	1788.5	3577.2

Source : WHO, 1995

* population affected by goitre in all its stages

Recent epidemiological data reveal that more than half the population of the world is affected by micronutrient deficiencies (WHO, 1995). Forty per cent of women suffer from iron-deficiency anaemia, which is one of the major causes of death in childbirth, iodine deficiency, which is responsible for retarded mental development, is also a large-scale problem. Cardiovascular conditions, certain types of cancer, metabolic disorders and dental caries seem to be more commonplace in poorer countries.

Even today the situation remains desperate. It is now recognised that malnutrition accounts for more than 54% of the total number of deaths of children under the age of five, which represents an intolerable social burden. The percentage of children suffering from malnutrition is steadily growing; it is highest in Asia, followed by Africa and then Latin America. The industrialised countries are not exempt from the scourge of malnutrition, which has reappeared among certain sections of the population in those countries.²⁶

²⁵ World Health Organization, *The WHO and Nutrition*, 1996.

²⁶ F. Delpueu and B. Marie, *Situation nutritionnelle dans le monde – Changements et enjeux*, 1996.

Table 6: Chronic undernourishment in the developing countries

	Period	Food: daily calorific intake per head of population	Total population	Undernourished population	
				as a % of the total population	in millions
Sub-Saharan Africa	1969/71	2140	268	35	94
	1988/90	2100	473	37	175
Middle East and North Africa	1969/71	2380	178	24	42
	1988/90	3010	297	8	24
Far East	1969/71	2020	1147	44	506
	1988/90	2600	1598	16	258
Southern Asia	1969/71	2040	711	34	245
	1988/90	2220	1103	24	265
Latin America and the Caribbean	1969/71	2500	281	19	54
	1988/90	2690	433	13	59
Total	1969/71	2120	2585	36	941
	1988/90	2470	3905	20	781

source: FAO, 2010 Alexandratos

Other phenomena related to malnutrition are yet to be fully explored. One of these is the nutritional transition that is typical of countries in the lower-to-middle income bracket, where traditional vegetable-based diets are giving way to diets which are rich in animal fats. The result of this is the emergence of many chronic ailments (obesity and cardiovascular disease). This phenomenon is essentially characteristic of towns and cities and is a consequence of the way in which people change their eating habits when they move from rural to urban areas.

A preventive campaign against the chronic forms of malnutrition, promoting food which is rich in micronutrients such as iron, iodine and vitamins, seems to be the best course of action, provided it incorporates other initiatives designed to promote medical development, guaranteeing access to healthcare services, to promote education (especially universal primary education and education for girls and women), to strengthen the infrastructure, to improve access to drinking water and sanitation and to reduce demographic growth.

Public health expenditure in the developing countries more than doubled between 1960 and 1990, rising from 0.9% to 2.3% of GDP, but it must be said that this figure is still very low if we compare it with the development of the population, and the fact is that almost one billion people in the developing countries still have no access to health services. A large percentage of the total population of the developing countries, especially in rural areas, still have no drinking water. More than 55% of the population of sub-Saharan Africa drink non-drinking water. According to a report published by the UNDP in 1998, 80% of all diseases and more than a third of all deaths in developing countries are caused by the consumption of non-drinking water.

It seems that, besides the fight against famine and the campaign to increase incomes, the promotion of public health, including medical services and preventive care, is an indispensable component of any development policy or strategy.

F – EDUCATION

In this present age millions of people still live in ignorance. The poor are not only the people who are hungry but also those who are illiterate. Their ignorance limits their productivity, their opportunities to improve their standard of living and their participation in all areas of economic, social and political activity. As a result, they constitute an underused resource that could be available to promote accelerated economic growth. There is a tragic correlation between illiteracy, underdevelopment and poverty at every level – global, regional, national and even local. Is there a relationship of cause and effect between illiteracy and poverty?

If we cannot speak of causality, we can certainly say that poverty reinforces illiteracy by compelling parents and children to seek their survival in economic activities for which they need no qualifications and consequently to forego school and other forms of education.

Today it is estimated that one man in five and one woman in three are illiterate, and that 30 to 50% of children in developing countries are excluded from the formal education system. According to Unesco²⁷, the highest illiteracy rates are to be found in Africa and Asia. Of the 18 countries which had an illiteracy rate of 60% or above in 1995, 14 were in Africa and four were in Asia. It is true that the average illiteracy rate in the world is being steadily reduced; from 45% in 1950, it had fallen to 23% by 1995. But the total number of illiterate people increased continuously over the same period, from 700 million in 1950 to 885 million in 1995. At the present time, we are observing a slight downward trend, with the number of illiterate people expected to fall to 869 million by 2005. These are merely global averages and totals. The fact of the matter is that wide regional disparities still exist. The percentages of illiterate people in the total adult population, in descending order, are as follows:

- 49.8% in Southern Asia,
- 43.4% in the Arab countries,
- 43.2% in Africa,
- 16.4% in the Far East and Oceania, and
- 13.4% in Latin America and the Caribbean.

Illiteracy is an area in which women are particularly disadvantaged; this situation affects the entire global development process. Statistical data for 1995 indicate that 64% of illiterate people in the developing countries are women, which roughly equates to a ratio of two illiterate women to one illiterate man. This figure even reaches 71% in the Far East and Oceania.

Although the literacy rate for women has improved, the gap between women and men remains wide and is even tending to widen considerably as the years go past, especially in the developing regions of Africa, the Arab States and Asia, which is reflected in the global figure. On the other hand, we have to say that the trend is being reversed in Latin American and the Caribbean, which is very encouraging.

It is clear that literacy is primarily a matter for national governments to address, and success can only be achieved if education is made available to sufficiently large numbers of the population, if the populations concerned are involved in the decision-making process and if the promotion of literacy is an integral part of the development effort. Nevertheless, the international community still has a major role to play by lending its indispensable support to the national effort.

Public expenditure on education in the developing countries has doubled since 1960 and now represents 4% of total public spending. At the same time, however, it must be emphasised that there has been no reduction in the number of children who leave school before completing their education.

The last World Bank report on development (1998-99)²⁸ focused mainly on knowledge in the service of development, especially technological know-how and socioeconomic information. It emphasised the disparities highlighted by various indicators that measure the capacity to create know-how. It stressed the importance of reducing inequalities between the developing and the developed countries and of solving information problems. With a view to overcoming these obstacles, the World Bank called on development organisations to help bridge the knowledge gap in three different ways:

- by providing public assets of an international nature,
- by serving as intermediaries in the transfer of knowledge, and
- by processing the ever-increasing mass of information on development.

It also presented several measures that governments can take to facilitate the acquisition, assimilation and transmission of knowledge. For example, it called on governments to

- open their doors to foreign investment,

²⁷ These data are available on the UNESCO website: <http://www.unesco.org/general/rre/>

²⁸ <http://www.worldbank.org/wdr/wdr98/english.pdf>

- encourage exchanges, the local creation of knowledge and potentially productive research,
- introduce compulsory schooling for all children – girls as well as boys – and encourage the development of adult education and training,
- mobilise private resources, and
- embrace new technology, not hesitating to bypass unnecessary or outdated stages on the road to progress.

G – POVERTY AND HOUSING

It is clear that urban poverty has increased over the last thirty years in the large cities of the developing countries. The effect of the stagnating economies in most developing countries (Africa and Latin America) during the 1980s, the high levels of indebtedness and the structural adjustment programmes have reduced urban salaries and increased the prices of basic products. Alongside the increasing growth in urban populations there has been an unprecedented increase in the poverty threshold.

1 – Situation and assessment

One author considers that the proportion of people living below the poverty line in cities has increased by 73% between 1970 and 1985²⁹, with at least 600 million people living in housing where life and health are very much at risk (UNCHS³⁰, 1996b). This amounts to about 50% of the world's poor (UNICEF, 1993). Also, the lack of effectiveness of the markets and the housing market investments, because of their low priority in the developing countries, means that the proportion of the population living in unsatisfactory housing is greater than the number of poor people (UNCHS, 1996b).

The forecasts for the future are even more striking. It is thought that by 2015 half the population of the world will live in urban areas. Serious problems will be exacerbated; initially there will be a lack of financial resources, unemployment, an increase in the number of homeless followed by an increase in misery, inequality, insecurity and crime. Africa is, relatively speaking, the worst affected by these problems as the highest rates of growth and of urbanisation are predicted for it. According to the African development bank, 42% of African households currently live in poverty with the majority concentrated in urban areas.

Poor housing and poverty are very closely linked. Urbanisation and economic growth are the two essential characteristics for national economic development.³¹ Impoverishment automatically generates a discrepancy in structural terms with regard to the thresholds for access to modern forms of housing production. The low incomes are not even sufficient to provide food and clothing. Resources set aside for housing are virtually non-existent. As a result the poor are denied access to capitalist production of housing.³² Only the old run-down areas of the town or makeshift housing (huts, shacks) generally built by the people themselves using recycled materials on land on which they are squatting are accessible to them. Living conditions in these areas are very poor. Other illegal forms of access to housing have become frequent, ranging from land takeover to the illegal purchase of plots. A whole informal housing chain has developed (construction, purchase and sales) with illegal dwellings spread over land which is unsuited for urban development (marshes, steep slopes, public areas around bridges, along rivers or major traffic arteries, etc.), creating shantytowns where the poor are crammed 6 to 8 people in rooms of 20 to 30 m², in discomfort and deprived of all basic sanitation (drinking water, sewers and refuse collection). Sometimes such housing has more highly developed forms (makeshift, and often unfinished, brick housing) once the land has been more or less 'acquired'. As a result, all third world cities show this characteristic feature of poverty in their urban landscapes, with a separation between the legal and illegal cities.

It is estimated that most of the cities of the south have between 30 and 60% illegal housing. The percentage of illegal housing correlates negatively with per capita income (see table below). The percentage of the population living in illegal housing falls in line with the increase in per capita

²⁹ Gilbert, 1992 in <http://habitat.unchc.org/unchcenglish/shelter/contents.htm>

³⁰ United Nations Centre for Human Settlements

³¹ UNDP, 1999.

³² Rochefort M. 1988.

income. Also, comparison of the trends in income and prices shows that, in overall terms, the price of land, of housing, of rents and of constructions costs has risen faster than real incomes, thus reducing access to housing for most low-income families. This gap is most obvious in subSaharan Africa where the construction costs are particularly high in relation to incomes. However, there are cities where there have been real falls in rent and housing prices, such as Nairobi and Mexico.³³

Table 7: General housing conditions

Region	area per person (m ²)	House with access to drinking water	Illegal housing	ratio of housing prices to annual income	house owned by the occupants
Low income country	6.1	56	64	4.8	33
average-low income country	15.1	74	36	4.2	52
average income country	22.0	94	20	5.0	59
average-high income country	22.0	99	3	4.1	55
high income country	35.0	100	0	4.4	51

Source: UNCHS 1995

In general, in the cities in developing countries the problems of accumulating savings and gaining access to land provide the first signs of a housing crisis, from which follow all subsequent production and management measures.

In view of the scale of this problem, repressive policies have proved ineffective. A certain degree of tolerance on the part of the authorities has become usual to alleviate the social struggle. In certain cases there has even been a move towards protection by regularising land occupancy.³⁴ Other more active policies which seek to settle the problems of saving and access to land have proved to be fairly effective. The municipal authorities take responsibility for creating less vulnerable housing areas and providing them with the basic infrastructure. These plots are then offered to the residents of shanty towns at participatory prices. Sometimes local authorities even take responsibility for construction and then move on to rehousing policies for the former residents of shanty towns, the aim being to have control over the urban landscape of the cities. However such activities are limited as they require the beneficiaries to make a relatively large contribution, which excludes the poorest population groups even more. Using loan policies, public authorities also try to take action as financial promoters. Access to such loans often requires that applicants have a regular income, which is sufficiently high, and a stable financial situation, which excludes a large proportion of this population group. The effects are contrary when the loan is designed not only for political purposes but also for banking purposes (to make a profit). Other state policies seek to support capitalist land and housing promotion, for example through urban land amenity and development policies (regulations on land use) which operate primarily in the legal part of the city. The vulnerable areas thus cannot benefit from these activities and the advantages deriving from the installations are claimed by the developers in the form of interest. The result is to create segregation and discrimination.³⁵

2 – Historical overview

Since 1948 and the adoption of the universal declaration of human rights, the right to housing has become a recognised right and a key component of government responsibilities. Thus, as with the policies for action against poverty, the history of government intervention on housing can be summarised as follows:

³³ Amis 1994 in <http://habitat.unch.org/unchs/english/shelter/contents.htm>.

³⁴ Rochefort M. 1998.

³⁵ Durand-Lasserre A. 1988, revue tiers monde, No. 116.

After a period without direct intervention, which lasted until the end of the 1950s, the public authorities became progressively more involved in major housing programmes. The state produced new housing for the poor and average income classes and also took responsibility for its management. The programmes established were generally adopted by developed countries with greater or lesser success. In the case of more liberally-oriented countries interests were sometimes subverted to benefit the dominant groups. On the other hand in the socialist countries the vulnerable population groups were targeted more effectively, but the benefits were limited because of the lack of resources and the inefficient centralised system³⁶. This stage lasted in certain countries until 1975-1980. There was then a gradual decline in state involvement, first by restricting access to these products to the classes with a secure financial situation and then by gradually abandoning the rented sector to the property owners. The establishment of structural adjustment plans forced the public authorities to call into question the subsidies for this sector favouring, rather, other types of operation which were through to provide economic impetus. This halted numerous housing programmes and meant a transfer of responsibilities to local authorities, without the corresponding transfer of resources. This policy thus led to a rapid development of illegal and irregular structures for housing production and for access to land. The 1990s were characterised by the development of operations to renovate, rehabilitate and restructure existing housing and by the increase in the number of projects involving cleared sites with basic infrastructure provided. This is taking place with the cooperation of the World Bank and/or the UNCHS with the emphasis on self-build projects³⁷. Once again these projects have been limited because the sectors of the population with little cash are rarely affected by them.

3 – Intervention techniques

Perusal of the various housing programmes implemented in the developing countries indicates many types of intervention. Around the 1980s the establishment of structural adjustment programmes meant that the role of the state was reduced to some extent in the housing sector. This reduction was replaced with public/private partnerships. Part of the responsibility for construction and implementation of housing programmes was taken over by the private sector. The results of this link proved disappointing as the poor were still excluded from the system. However, this partnership allowed certain countries to have self-financing programmes without having to use external aid and to resolve many housing problems which had previously been very sensitive. Here the restructuring programmes undertaken in Korea and Taiwan are examples which are worth describing in greater detail. In these countries the first stage was to consolidate plots. They were then upgraded, provided with basic infrastructure and redivided into plots. The project was financed by the sale of some of the redivided plots. The remainder of the plots were allocated to the original owners. On the one hand this made it possible to encourage land owners to enter the market for land prepared for housing and for the state to obtain the necessary plots with basic infrastructure. Other similar techniques integrating the state and private sectors have also proved to be of interest and are often considered to be the most effective.

- conventional land production projects: this involves adjustment financing within the redeveloped zone to provide housing for the low income and average income groups. The technique is of interest as it safeguards the land intended for the poor. However it seems to be difficult to implement.
- Land sharing: applies to land occupied by squatters or tenants and seeks to upgrade these plots to allow construction on them, for the occupants to be rehoused and for them to be provided with legal housing, with the resolution of conflicts between all the parties involved.
- innovative system of loans and access to housing funding for low income households: during the past ten years, and with the support of the public authorities, innovative loan systems have emerged in many countries. The public authorities play a major role in ensuring the necessary and favourable conditions: in Bangladesh the Grameen Bank is geared specifically to the poorest people in rural areas. In India the Sewa Bank is targeted at women and HUDCO seeks to extend informal saving and to implement new loan instruments³⁸. There are numerous examples in Asia.

Other types of intervention have been implemented in an increasing number of developing countries. There is some kind of recognition and legalisation of the clandestine housing production systems which developed at an earlier stage from the withdrawal of the public authorities : restructuring of shanty towns by rehousing in new peripheral areas or by in situ restructuring leading to the replacement of shanties with permanent housing³⁹.

³⁶ Fabre G., La chine redécouvre le marché foncier, in Etudes foncières No 39, June 1988, p. 11-13.

³⁷ Haumont N., Marie A., politiques pratiques des acteurs urbains dans les pays en voie de développement, L'Harmattan, 1987, 2t, 341p and 327p.

³⁸ Massiah Gustave, 1991: innovative community-based housing finance and credit for low-income households. Summary, ACT-Paris.

³⁹ Aneur M., revue du tiers monde 116.

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