

## **UNIT 3**

# **APPROACHES TO THE STUDY OF DEVELOPMENT AND STRATEGIES FOR DEVELOPMENT**

In this unit we will discuss different approaches to the study of development and strategies for development. Lesson –1 of this unit is about the process of Cumulative Causation. Lesson-2 explains Neo-Marxist’s approaches to the study of underdevelopment. In lesson-3, models of centre-periphery divergences are discussed. Lesson-4 is about Dual Gap Analysis. In lesson-5, structural Adjustment approaches are explained. Finally, lesson-6 explains the human development approach.

School of Business

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## Lesson 1: The process of Cumulative Causation<sup>1</sup>

### Objectives:

The theory of circular and cumulative causation, promoted by Gunnar Myrdal, explains the perpetuation of underdevelopment of countries (and regions within a country) with respect to inequalities between developed and the underdeveloped countries/regions. It postulates that between countries/regions equally placed those with initial lead in growth experience fast/cumulative growth, while the others suffer non-growth.

After studying this lesson you will be able to;

Understand the essence of the process of cumulative causation as hypothesis by Gunnar Myrdal.

- Explain how do the process of cumulative causation analyse backwardness of a developing country.
- Explain why did Myrdal advocates for state intervention.

### Introduction

Gunnar Myrdal (1957)<sup>2</sup> explains backwardness of developing nations through a hypothesis of geographic dualism. The process of cumulative causation is a challenge to static equilibrium theory as articulated by neo-classical school which predicts that working of economic forces will narrow spatial differences. According to Myrdal economic and social forces produce tendencies towards disequilibrium, and argued that the assumption in economic theory that disequilibrium situations tend towards equilibrium is false. Myrdal replaces the assumption of stable equilibrium with the hypothesis of circular and cumulative causation. He contends that this hypothesis can explain why inter-national differences in levels of development, and interregional differences in development within nations.

### The process of Cumulative Causation

Myrdal describes the process of circular and cumulative causation. Starting off with a country in which all regions have attained the same stage of development. Then assumes that an exogenous shock produces a disequilibrium situation with development proceeding more rapidly in one region than another. He argues that economic and social forces will tend to strengthen the disequilibrium situation by leading to cumulative expansion in the favoured region at the expense of other regions through the process of factor mobility which then become comparatively worse off, retarding their future development. This contrast with neoclassical

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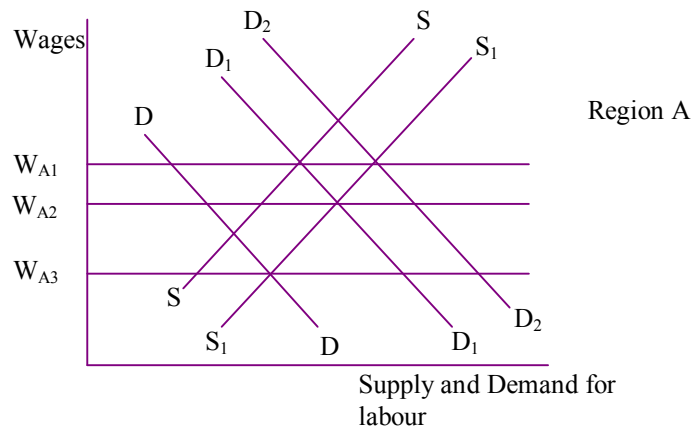
<sup>1</sup> Based on Thirlwall, A P, *Growth and Development*, Hampshire: Macmillan, 1994.

<sup>2</sup> Gunnar Myrdal, *Development and Underdevelopment*, National Bank of Egypt Fiftieth Anniversary Commemoration Lectures, Cairo, 1956, pp. 47-51.

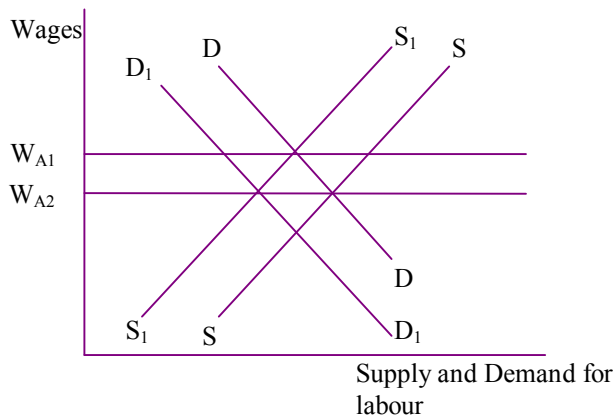
equilibrium theory which assumes that wage rates and the rate of profit will equalise across regions. By contrast, what Myrdal has in mind a type of multiplier-accelerator mechanism producing increasing returns in the favoured region opposed to the neo-classical assumption of diminishing marginal product. According to the neo classical theory, labour will flow out and capital will flow in less proportion region. This will raise wage and rate of profit.

Under these circumstances the forces in the markets will in a cumulative way tend to cause ever-greater international inequalities between countries as to their level of economic development and average national income per capita.

**Graphical Exposition**



**Figure: 1**



**Figure: 2**

Consider that wage levels are identical in the two regions,  $W_A = W_B$ . Assume that a stimulus of some sort causes the demand for labour, and therefore wages, to rise in region A relative to region B. The demand curve for labour in region A shifts to  $D_1D_1$ , causing wages to rise to  $OW_{A1}$ . The

wage discrepancy induce labour migration from region  $B$  to region  $A$ . According to neo-classical equilibrium theory, wage levels will be equalised through a reduction in labour supply in region  $B$  from  $SS$  to  $S_1S_1$  and an increase in labour supply in region  $A$  from  $SS$  to  $S_1S_1$ . The wage level in region  $A$   $W_{A2}$  will be equal to  $W_{B1}$  of region  $B$ . Myrdal says migration from region  $B$  denudes the area of human capital and entrepreneurs, and depresses the demand for goods and services and factors of production, while movements into region  $A$ , on the other hand, will tend to stimulate enterprise and the demand for products, adding to the demand for factors of production. In short, migration from region  $B$  will cause the demand curve for labour to shift to the left, say to  $D_1D_1$ , and migration into region  $A$  will cause the demand curve for labour to shift further to the right, say to  $D_2D_2$ , causing the initial wage discrepancy at least to persist, if not widen (if the shifts in demand are greater than those assumed). Once development differences appear its set in motion a chain of cumulative expansion in the favoured region 'backwash' effects on other regions, causing development differences in general to persist or even diverge.

According to Myrdal in a free market, capital, like labour, will tend to move to region where return is buoyant. Capital, labour and entrepreneurship will tend to migrate together.

Myrdal advocates of a policy design that reduce the 'polarisation' effects of interregional differences in development and to strengthen the 'spread down' effects. These 'spread' effects consist mainly of an increased demand for the backward areas' products and the diffusion of technology and knowledge. In Myrdal's view, the 'spread' effects are weaker than the 'backwash' effects, and if interregional differences are to be narrowed, nations must rely on state intervention. The alternative is to wait for a natural end to the process of cumulative causation, which may be a long time coming.

## Review Questions

### Multiple Choice Questions

1. Gunnar Myrdal (1957) explains backwardness of developing nations through a hypothesis of:
  - A. geographic dualism.
  - B. economic dualism.
  - C. political dualism.
  - D. technological dualism.
2. According to Myrdal economic and social forces produce tendencies towards:
  - A. stationary state.
  - B. disequilibrium.
  - C. equilibrium.
  - D. steady state.
3. Myrdal has in mind a type of multiplier-accelerator mechanism producing:
  - A. decreasing returns.
  - B. constant returns.
  - C. increasing returns.
  - D. static returns.
4. Myrdal advocates of a policy design to strengthen:
  - A. the backwash effects.
  - B. the effects
  - C. the 'spread down' effects
  - D. the 'spread down' effects

**Answers: 1. A; 2. B; 3. C and 4. D.**

### Short Questions

1. In what ways does the hypothesis of cumulative causation differ from neoclassical equilibrium theory?
2. How do the process of cumulative causation analyse backwardness of a developing country?
3. Why did Myrdal advocates for state intervention?

### Broad Questions

1. The theory of cumulative causation contends that development is a disequilibrating rather than an equilibrating process – discuss.

### Further readings

- Gerald M. Meier, *Leading Issues in Economic Development*, Oxford University Press, 1990.
- Myrdal, G., *Economic Theory and Underdevelopment Regions*: London, Duckworth, 1957.

## **Lesson 2: Neo-Marxist's Approaches to the Study of Underdevelopment**

### **Objectives**

Neo-Marxist approaches emerge in 1960s as an influential radical critique of contemporary development theories, formulated largely in the Marxian mould, which explain the emergence and perpetuation of underdevelopment as an inbuilt process of the development of capitalism. In contrast to the traditional Marxist concern for exploring the mode of production, the neo-Marxist emphasises on the economic and political relation between the developed and underdeveloped economies.

After studying this lesson, you will be able to:

- Evaluate Paul Baran's analysis of underdevelopment.
- Analyse Frank's interpretation of the 'development of underdevelopment.
- Explain Emmanuel's theory of unequal exchanges.

### **Introduction**

The Neo-Marxists explain underdevelopment in terms of the dependency relationship of underdeveloped countries with that of dominant developed countries. The dependence of these countries has taken on several forms. One form- colonial dependence – which according to the protagonists, has resulted in the exploitation of these countries through the transfer of natural resources in raw or semi-processed form as also via deterioration of terms of trade. Another form of dependence, the approaches say, is instituted through the use of foreign capital, invested in activities that suited the developed countries. Another form of dependency is the investment by multinational corporations in industries which cater to the need of these countries. Yet another explanation, with Marxian content, highlights the unequal exchanges between the rich and the poor countries.

### **Paul Baran's Analysis of Underdevelopment<sup>3</sup>**

Central to Baran's analysis of underdevelopment are four key concepts monopoly capitalism, imperialism, class and economic surplus. Baran adopts Marx's interpretation of the nature of capitalism and monopoly capitalism. He follows Lenin in perceiving imperialism Baran's use of class is more narrowly focused than in classical Marxism, being concentrated on its significance for the distribution of the surplus, rather than on social relations in the production process. Baran introduces two

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<sup>3</sup> Based on D Hunt. *Economic Theories of Development*, London: harvester Wheatsheaf, 1989.

new interpretations of the concept of economic surplus: the actual the potential surplus. The former represents 'the difference between society's actual current output and its actual current consumption'. The latter focuses on 'the difference between the output that could be produced in a given natural and technological environment with the help of employable productive resources. And what might be regarded as essential for consumption'. Baran uses the concept of the potential surplus to expose the waste and irrationality of monopoly capitalism.

Baran has been accused of 'fudging' the concept of the economic surplus, and of turning it into having no clear relationship with the rate of exploitation.

As regards underdevelopment Baran in the Political Economy of Growth divides his analysis into two sections: an historical account of the origins of underdevelopment and an analysis of the 'morphology' of contemporary underdevelopment. Baran views that underdevelopment can be traced to the era of Western imperialism in the 17<sup>th</sup> and 18<sup>th</sup> centuries, when mercantile capitalism accumulated wealth plunder and enforced trade with non-European world.

According to Baran, in underdevelopment countries actual surplus falls below the potential surplus and private or the state uses actual surplus in a way which contribute little to the accumulation of productive capital. The potential surplus in the underdeveloped countries are available in the form of land rent, interest or credit, and profit from trade and production based on wage-labour. Four main classes - domestic land owners, indigenous merchants, monopoly capitalists and foreign capitalists-appropriate surplus. Much of the surplus generated in agriculture is appropriated by moneylenders; leaving the peasantry unable to engage in significant accumulation. The feudal land-owning class spends much of the potential surplus luxury consumption while merchant class uses its reserves to reinvest in trade and commodity accumulation. The two remaining surplus disposing class- monopoly and foreign capitalists - contribute little to accumulation of productive capacity because, according to Baran, capitalist fail to generate a development dynamics due to the lack of motivation. While discussing whether the state can actively intervene to promote economic development in periphery, Baran classifies the government of 1950s into three categories: colonial, comprador(the majority of the post-colonial governments) and 'New Deal' orientation (e.g. India) and says that former two promotes foreign capitalists while the latter is destined to maintain the status quo. Baran thus concludes that any prospects for the emergence of an indigenous, dynamic and competitive capitalist class in the periphery have been eliminated by the past history and contemporary economic conditions. He proposes a path of development based on immediate collectivisation of agriculture and rapid expansion of capital accumulation in state - owned industries.



### **Frank's interpretation of the 'development of underdevelopment'**

Frank (1969)<sup>4</sup> specifies three features of capitalism, which in his view jointly constitute the dominant causes of underdevelopment. These are:

1. The expropriation of surplus from the many and its appropriation by the few.
2. The polarisation of the capitalist system into metropolitan centres and peripheral satellites.
3. The continuity of the fundamental structure of the capitalist system, which ensures the perpetuation of 1 and 2 even while more superficial elements of this system are constantly changing.

Frank defines capitalism in terms of exchange relations rather than relations of production. According to him merchant capital has penetrated even the remotest corners of the periphery. In contrast with Baran, Frank states that capitalism itself permeated the whole of the periphery. Frank rejects dualist theories of development and underdevelopment saying that subsistence oriented feudal structure appear in absence of market opportunities and disappear again with the revival of the market. According to Frank, the latter underdeveloped countries comprises of two sectors-one modern, dynamic, integrated into the World economy, and the other traditional, stagnant, often feudal, supplying labour but little else to the former.

According to Frank, there is a continuity in change though the continuous achieved independence from colonial rule. Frank concludes that the predominantly merchant capitalist comprador bourgeoisie that dominates satellite, saving the interest of metropolis has to be replaced if equitable development is to occur.

### **Emmanuel's Theory of Unequal Exchanges**

Emmanuel(1972)<sup>5</sup> assumes a world in which capital is internationally mobile but labour is not. With capital being mobile, the rate of profit is assumed to be equalised in all countries. Emmanuel assumes that to a large degree the products exported from the periphery cannot also be exported from the centre, and vice versa. Under these conditions, he argues, the ratio in which products are exchanged is determined not by the forces of supply and demand ( i.e. by competition between centre and

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<sup>4</sup>Frank,A.G. *Capitalism and Underdevelopment in Latin America: Historical Studies of Chile and Brazil*, (Monthly Review Press, 1967, revised edition 1969)

<sup>5</sup> A. Emmanuel, *Unequal Exchange: A Study of the Imperialism of Trade*, 1972.

periphery in international markets), but by the domestic costs or production in the two contexts.

While capital costs are assumed uniform in the two regions, wage costs are not. Thus, 'prices depend on wages'. The rate at which goods are exchanged between the centre and the periphery depends primarily not on the amount of labour embodied in their production, but on the relative unit cost of labour. Underlying this relative money cost is of course the relative value of the real wage in the centre and the periphery. The higher standard of living enjoyed by labour at the centre is directly reflected in the price of the centre's exports relative to that of exports from the Periphery.

Emmanuel emphasises that his theory of unequal exchange is totally distinct from the arguments put forward by Nurkse and the structuralist school to explain the adverse trend in the barter terms of trade for underdeveloped Countries.

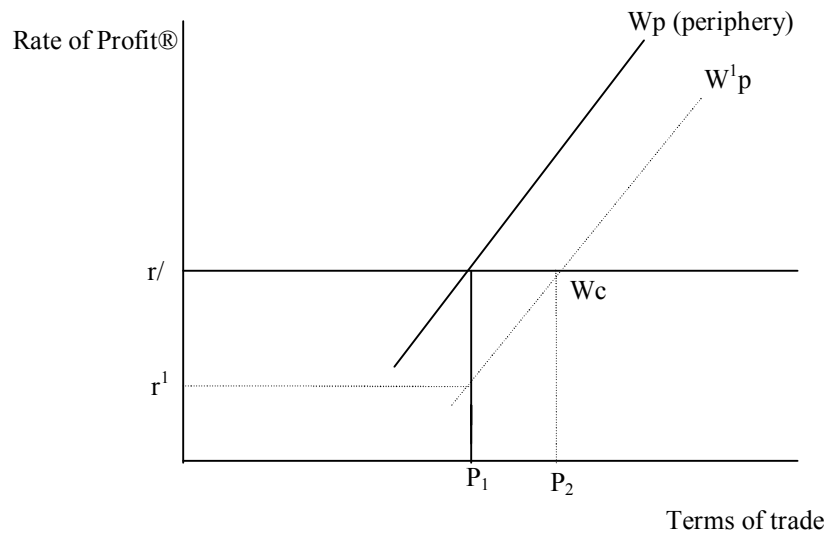
Let us illustrate the model diagrammatically. Consider two countries, and call them 'centre' (c) and 'periphery' (p). Assume that prices in the two countries are based on a percentage mark-up (r) on unit labour costs, so that:

$$P_c = w_c (L/O)_c (1 + r_c)$$

and

$$P_p = W_p (L/O)_p (1 + r_p)$$

where w is the money wage rate, and wL/O is wage costs per unit of output. Assume that for institutional reasons  $w_c > w_p$  and that the mark-up or rate of profit equalises between the two countries. The theory of unequal exchange then says that the terms of trade will be worse for the periphery than if wages in the periphery were higher and the rate of profit lower. Consider the price of the centre's goods as numeraire so that  $P_c = 1$ .



**Figure: Unequal Exchange**

See the following figure, in the centre, the given rate of profit ( $r$ ) and wage rate ( $w_c$ ) gives a constant price ( $P_c$ ) which acts as numeraire (hence the horizontal line,  $w_c$ ). In the periphery, at a given wage ( $W_p$ ), there is a positive relation between the rate of profit and terms of trade ( $P$ ) given by the upward-sloping line  $W_p$ . The equilibrium terms of trade is given at  $P_1$ . An increase in periphery wages shifts the periphery curve rightwards to  $w_p^1$  giving a new terms of trade  $P_2$  at the same rate of profit. Unequal exchange is measured as the difference between the actual terms of trade ( $P_1$ ) and what it would be if wages were higher in the periphery and the rate of profit was lower at  $r$ . The 'explanation' of unequal exchange is unequal wage rates.

### Dependency Theories: A Summary<sup>6</sup>

1. Economic underdevelopment is a process whose dominant feature is the persistent outflow of economic surplus generated in the periphery to the advanced capitalist economies. The surplus is defined as the difference between either actual or potential output and either actual or essential consumption.
2. Economically underdeveloped countries are, as a result characterised by low average per capita incomes and by slow rates of accumulation.
4. Economic development consists by implication, in national reinvestment of the surplus and the consequent expansion of national output, the latter being equitably distributed.
5. The prospects for economic development through capitalism in any one country are determined by its position in the international economy.
6. Two central elements in the neo-Marxist analytical method are the adoption of a historical perspective, and a focus on the class distribution or control over the surplus in underdeveloped countries.
7. In the past the now industrially advanced capitalist economies drew the countries of the periphery into a system of unequal exchange relations through which economic surplus was extracted from the periphery.
8. These unequal exchange relations initially often imposed by force persist to this day, and it is largely they which block capitalist development in the periphery.
9. International exchange with the centre has destroyed pre-capitalist artisan production in the periphery and has largely removed the incentive for indigenous capitalist industrial development there.

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<sup>6</sup> Source: D Hunt *Economic Theories of Development*, London: Harvester Wheatsheaf, 1989.

10. Competition from the manufactured exports or the centre continues to undercut the incentive for industrial development in the periphery.
11. The industrial development which has occurred consists predominantly or a limited range or industrial monopolies owned by nationals and /or foreign capitalists.
12. The dominant classes in the periphery (landlords, the commercial bourgeoisie, owners monopoly capital, and foreign capitalists) given their sources or income have no interest in the sustained development or producer capitalism there.
13. Thus contemporary underdeveloped economies cannot pass through the same phases or economic development as the new industrially advanced capitalist economies because the international conditions have changed irrevocably. The phase or national competitive capitalist development, when capitalism is at its most dynamic, has been undercut in the periphery by foreign competition.
14. Full economic development can only occur after radical political change.

### **Critique**

While these radical theories stand apart from the conventional theories, there are several criticisms. One failing, is the lack of interest among Marxian development-economists in testing theory against the facts. Another criticism of the dependency theories is one that treats their conceptual scheme as defective. Marxists criticise they dependency theory for departing the focus away from class relations. Some Marxists have dubbed them as mechanico-formal model which is no more than a set of equations of general equilibrium (static and ahistorical).

**Review questions**

**Multiple Choice Questions**

1. Baran introduces-----new interpretations of the concept of economic surplus.
  - A. two
  - B. three
  - C. four
  - D. one
  
15. Frank defines capitalism in terms of:
  - A. relations of production.
  - B. exchange relations.
  - C. class relations.
  - D. means of production.
  
16. Emmanuel's explanation' of unequal exchange is:
  - A. unequal demand.
  - B. unequal supply.
  - C. unequal wage rates.
  - D. unequal prices.
  
17. Economic underdevelopment is a process whose dominant feature is the persistent:
  - A. outflow of foreign capital.
  - B. outflow of domestic supply.
  - C. outflow of domestic demand.
  - D. outflow of economic surplus.

**Answers: 1. A; 2. B; 3. C; and 4. D.**

**Short Questions**

1. How do you evaluate Paul Baran's analysis of underdevelopment?
2. Analyse Frank's interpretation of the 'development of underdevelopment.'
3. Write a short note on Emmanuel's theory of unequal exchanges.

### **Broad Questions**

1. Economic underdevelopment is a process whose dominant feature is the persistent outflow of economic surplus generated in the periphery to the advanced capitalist economies - discuss.

### **Further Reading**

Baran, P. and Sweezy, P. *Monopoly Capital*. New York . Monthly Review Press.

Edmar L. Bacha, 'An Interpretation of Unequal Exchange from Prebisch-Singer to Emmanuel,' *Journal of Development Economics*, December 1978.

David Evans, 'Unequal Exchange and Economic Policies,' *Economic and Political Weekly*, February 1976.

Brewer, A., *Marxist Theories of Imperialism: A critical Survey*, (Routledge and Kegan Paul, 1980).

Chenery, H.. and Syrquin, M., *Patterns of Development: 1950-1970*, (Oxford, 1975).

Frank, A. G., *Dependent Accumulation and Underdevelopment*, (Macmillan, 1978).

Dos Santos, T, "The Structure of Dependence," *American Economic Review*, May, 1970.

Lall, S, "Is Dependence a Useful Concept in Analysing Underdevelopment?" *World Development*, Vol. 2, No. 2, 1975.

Palma G, "Dependency: A Formal Theory of Underdevelopment or a Methodology fro the Analysis of Concrete Situations of Underdevelopment," *World Development*, Vol. 6, 1978.

## **Lesson 3 : Models of Centre-Periphery Divergences: Prebisch and Seers Model**

### **Objectives:**

The neo-Marxists argue that underdevelopment is a consequence of and manifestation of world capitalist system. Myrdal emphasise that regional inequality is perpetuated through a process of cumulative causation channelised by increasing returns and competitiveness in favourite region. The structuralists ascribe the lack of growth to the deterioration of in the terms of trade and the deficit in the balance of payment.

After studying this lesson, you will be able to:

- Understand the models of centre periphery divergence – Prebisch and Seers – that explain the perpetuation of underdevelopment in terms of trade and balance of payments.
- Explain why the terms of trade deteriorate because of a generally lower level of the income elasticity of demand for the products of periphery.

### **Introduction**

The structuralist variants illustrating regional inequalities, of which the models of Prebisch and Seers are powerful, model on the basis of trade and balance payments disequilibrium. The structuralists consider external factors as important as internal factors in attributing to the growth prospects of periphery economies. Prebisch in his 1949 report prepared for the Economic Commission for Latin America (ECLA)<sup>7</sup> attacks the theory of comparative advantage. He linked the attack to the empirical observation that, contrary to the theory's prediction, the benefit of technological advance in primary exporting and manufacturing are not equitably distributed between the two trading partners. According to theory, the terms of trade of primary exporters should improve as the price of exports of the main manufacturing nation decline due to advances in productivity. But this has not resulted, as Prebisch, due to the downward rigidity of wages and prices in manufacturing nations.

While seeking determinants of centre-periphery divergence, Seers, like his Latin American predecessor argues that the terms of trade deteriorate because of a generally lower level of income elasticity of demand for the products of periphery, oligopolistic control of factor and community markets in the centre, coupled with increasing competitive sources of supply of exportable from periphery.

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<sup>7</sup> Prebisch. R., 'The Economic Development for Latin America and its Peripheral problem', *Economic Bulletins for Latin America* (Vol. VII, No.1, 1962), First Published in 1949.

### The Prebisch Model<sup>8</sup>

Raul Prebisch, like his fellow structuralists, focuses analysis on two important aspects of the external economic relations of peripheral countries- the long run trend in terms of the trade and the causes of balance of payments disequilibria. In ECLA study, Prebisch points out that productivity gains in developed countries have been appropriated within the economy in the form of higher real wages and profits, largely by due to success of trade unions. He thus argues that the conclusion of the theory of comparative advantage does not hold, though theory predicts that two countries can gain if they enter into trade, despite their differences in internal relative productivities. Prebisch, in his model, argues that low income elasticity of demand at the centre for the periphery's primary exports together with high income and low price elasticity of demand for imports in the periphery render the later increasingly susceptible to balance of payments crises as it attempts to develop.

Assume an advanced centre produces and exports manufactured goods with an income elasticity of demand greater than unity, and the backward periphery produces and exports primary commodities with an income elasticity of demand less than unity. Suppose that the income elasticity of demand for manufactures ( $e_m$ ) is 1.3, and the income elasticity of demand for primary commodities ( $e_p$ ) is 0.8. Assume that the growth rates of income of both centre and periphery are equal to 3 per cent, i.e.  $g_c = g_p = 3.0$ , in first place, the growth of exports ( $x$ ) and imports ( $m$ ) in the centre will be:

$$x_c = g_p \times e_m = 3.0 \times 1.3 = 3.9 \text{ per cent}$$

$$m_c = g_c \times e_p = 3.0 \times 0.8 = 2.4 \text{ per cent}$$

The respective rates for the periphery are:

$$x_p = g_c \times e_p = 3.0 \times 0.8 = 2.4$$

$$m_p = g_p \times e_m = 3.0 \times 1.3 = 3.9$$

Imports in the periphery growing faster than exports are. This requires the periphery to finance an ever-growing balance-of-payments deficit on current account capital inflows. If it cannot, there must be some adjustment either through raising the rate of growth of exports or through reducing the rate of growth of imports in order to maintain current account equilibrium on balance of payment. If we rule out the possibility of changes relative prices measured in a common currency, the only adjustment mechanism left (barring protection) is a reduction in the periphery's growth rate to reduce the rate of growth of imports in line with the rate of growth of exports. As per the assumptions outlined, we have

$$m_p = x_p \text{ or } g_p e_m = x_p \text{ and therefore}$$

$$g_p = x_p / e_m = 2.4 / 1.3 = 1.846$$

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<sup>8</sup> The mathematical expression is drawn from A P Thirlwall, *Growth and Development*, Hampshire: Macmillan, 1994.



Thus the growth rate of the periphery is constrained to 1.846 per cent, compared to 3 per cent in the centre. In these circumstances both the relative and absolute gap in income between periphery and centre will widen. Notice, in fact, that since the growth of the periphery's exports is equal to  $g_c \times e_p$ , we can write the above equation as:

$$g_c = [g_c \times e_p] / e_m$$

and dividing through by  $g_c$ , we reach the interesting result that the relative growth rates of the periphery and centre will equal the ratio of the income elasticity of demand for the two countries' commodities:

$$g_p / g_c = e_p / e_m$$

This result will hold as long as current account equilibrium on the balance-of-payments is a requirement, and relative price adjustment in international trade is either ruled out as an adjustment mechanism to rectify balance-of-payments disequilibrium or does not work. To avoid the consequences of this model, Prebisch argued the case for protection which in effect is a policy to reduce  $e_m$ , which for the periphery is the propensity to import manufactured goods.

### Seers Model<sup>9</sup>

A similar model of centre-periphery divergence, has been developed by Seers in 1962<sup>10</sup>. Relative prices between centre and periphery has been assumed to remain unchanged and trade must be balanced. The import functions of the centre and periphery are:

$$M_c = A + BY_c \text{-----}(1)$$

$$M_p = a + bY_p \text{-----}(2)$$

where Y stands for the level of income and B and b are the marginal propensities to import in the centre and periphery, respectively. Balanced trade requires that:

$$a + bY_p = A + BY_c \text{-----}(3)$$

or

$$Y_p/Y_c = \{[A-a]/bY_c\} + B/b \text{-----}(4)$$

Assume that income in the centre grows exponentially through time at some rate, r, so that we can write  $Y_{ct} = Y_{co}e^{rt}$ , where  $Y_{co}$  is the base level of income. We can then rewrite (4) with time subscripts as:

<sup>9</sup> Seer D., 'A Model of Comparative Rates of Growth of the World Economy, *Economic Journal*, March, 1962.

<sup>10</sup> The mathematical expression is drawn from A P Thirlwall, *Growth and Development*, Hampshire: Macmillan, 1994.

$$Y_{pt}/Y_{ct} = \{(A-a)\}/(b Y_{co}e^{rt})\} + B/b \text{-----}(5)$$

Differentiating the above expression with respect to time gives:

$$d\{Y_{pt}/Y_{ct}\}/dt = -r(A-a)/ bY_{co}e^{rt} \text{-----}(6)$$

Since the denominator is positive we notice that the relative income gap will widen through time (i.e. the level of income in the periphery will fall relative to that in the centre) if  $(A - a) > 0$ . Now  $a$  is the constant term in the import demand function for the periphery, which will be negative if the income elasticity of demand for imports from the centre is greater than unity. The constant term,  $A$ , in the centre's import demand function will be positive if the income elasticity of demand for imports from the periphery is less than unity. Therefore  $(A - a) > 0$ . Seers notes that the growing disparity will be even greater as far as per capita income is concerned if population growth is faster in the periphery than the centre. This would be true, of course, in Prebisch's model too. For averting the process he prescribes for structural change to reduce the periphery's income elasticity of demand for manufactures and to raise the income elasticity of demand for the periphery's exports (to raise the centre's income elasticity of demand for imports).

A distinctive feature of the structuralist school of thought is the rejection of neo classical, monetarist solution to the problem of balance of payment problems in the periphery could be showed supply by applying 'sound rule of monetary behaviour'.

### Review Questions

1. What do Seers and Prebisch models have in common?
2. Explain why the terms of trade deteriorate because of a generally lower level of the income elasticity of demand for the products of periphery?
3. Why would there be growing disparity, according to Seers?

### Further Readings

Seers, D., 'What are we trying to measure?' *Journal of Development Studies*, (Vol. 8, No. 3, April 1972).

Seers, D., 'The birth, life and death of development economics', *Development and Change*, 10, 1979.

Seers, D., 'Development Options: The Strengths and Weakness of Dependency Theories in Explaining a Government's Room to Manoeuvre', IDS Sussex Discussion Paper 165, September, 1981.

Frank, A. G., 'Dependence is Dead, Long Live Dependence and The Class Struggle', *World Development*, Vol 5, No 4, April 1977.

Lall, S., 'Is Dependence is a Useful Concept in Analysing the Underdevelopment?' *World Development*, Vol 3, Nos 11& 12, November/December, 1975.

Futardo, C., 'Underdevelopment and Dependence : The fundamental Connections', Seminar Paper, Centre of Latin American Studies, Cambridge University, 1973.

Palma, G., 'Dependency and Development :A Critical Overview', in ed. Roxborough, I., *Theories of Development*, Macmillan, 1979.

## Lesson 4 : Dual Gap Analysis

### Objectives:

A greater foreign exchange availability can be used by a less developed economy to unshackle the low savings-low growth vicious cycle. Foreign exchange can be used to supplement savings, which are typically quite inadequate in developing countries. Foreign exchange can enable an LDC to acquire essential capital equipment which it is unable to produce indigenously. This received much attention in the 1960s which gave rise to “dual gap analysis” or “two-gap-models of growth.”

After studying this lesson, you will be able to:

- Learn about dual gap analysis and foreign borrowings.
- Explain the distinctive contributions of dual gap analysis to the theory of development.
- Provide an algebraic representation of Chenery model.

### Introduction

The concept of dual-gap analysis has been pioneered by Hollis Chenery and others. Chenery suggests that countries in the pre-take-off stage of development have a dominant savings-investment gap, followed by a foreign exchange gap. Foreign borrowings must fill the larger of the two gaps if the target growth rate is to be achieved. This may be illustrated in the following form:

From expenditure side, the national income equation stands as follows:

Income = Consumption + Investment + Exports - Imports.

Since savings is equal to income minus consumption, we get:

Savings = Investment + Exports - Imports

or

Investments - savings = Imports - Exports.

The above equation suggests that a surplus of imports over exports financed by foreign borrowings allows a country to spend more than it produces or to invest more than it saves.

### Algebraic Representation<sup>11</sup>

The dual gap analysis of Chenery can be presented in the following form:

$$C+I+X = Y+M \text{ -----(1)}$$

$$C+S = Y \text{ -----(2)}$$

$$S+FR = I \text{ -----(3)}$$

$$M = X+FR \text{ -----(4)}$$

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<sup>11</sup> Subrata Ghatak, *An Introduction to Development Economics*, Allen & Unwin Ltd., 1978.

Where  $C$ = consumption  
 $I$  = investment  
 $X$ = exports  
 $Y$  = gross domestic product  
 $M$ = imports  
 $S$ = savings  
 $FR$ = current account balance of payments or net inflow of foreign resources

The following five structural equations are suggested, of which only four work at any particular period of economic growth.

$$Y'_t = Y_0 (1 + g')^t \text{-----}(5)$$

Where  $Y'_t$  = target gross domestic product at the target year  $t$

$Y_0$  = gross domestic product at the initial year  $0$

$g'$  = target growth

Planned investment ( $I'_t$ ) is given by

$$I'_t = k g' Y'_t \text{-----}(6)$$

Exports in the year  $t$  given by

$$X = X_0 (1 + X)^t \text{-----}(7)$$

Where  $X$  = growth rate of exports which is regarded as exogenous or given

Planned savings would be equal to

$$S'_t = s_0 + s_1' Y'_t \text{-----}(8)$$

Where  $s_1'$  = planned marginal propensity to save

Similarly planned minimum imports ( $M'_t$ ) to sustain  $Y'_t$  would be given by

$$M'_t = m_0 + m_1' Y'_t \text{-----}(9)$$

Where  $m_1'$  = marginal necessity to import

When planned investment is greater than planned savings, i.e.  $I' - S'$  the saving gap exists; when planned imports are greater than planned exports, i.e.  $M' - X$  the trade gap exists. These two gaps need not be equal *ex ante* except by chance. Usually, one of the gaps would be greater than the other. Note that when trade gap exceeds the saving gap in the last equation, {i.e. equation (9) operates not (8)}; contrawise, when the saving gap exceeds the trade gap equation (8) operates not (9). The basic solution of the Chenery model in the absence of any skill constraint can be well summarised in the following way:

*Solution of the Chenery model without skill constraint*

Variables growth(b)	Trade limited growth (a)	Saving limited
$Y'_t$ (10)	$Y_0(1+g')_t$	$Y_0(1+g')_t$
$I'_t$ (11)	$kg'Y_t$	$kg'Y_t$
$S'_t$ (12)	$(kg' - m'_i)Y'_t + X'_t - m_0$	$s_0 + s'_1 Y'_t$
$X'_t$ (13)	$X_0(1+x)^t$	$X_0(1+x)^t$
$M'_t/M'_t$ $s_0$ (14)	$m_0 + m'_i Y'_t$	$(kg' - s'_1)Y'_t + X'_t - s_0$
$C_t$ (15)	$(1 - kg' + m'_i)Y'_t - X'_t + m_0$	$(1 - s'_1)Y'_t - s_0$
$FR_t$ (16)	$m'_i Y'_t + m_0 - X'_t$	$(kg' - s'_1)Y'_t - s_0$

**Evaluation of the dual gap model**

Dual-gap models have been criticised on two grounds. The model is criticised for its assumed adjustment mechanism and for because of its assumptions which have engendered the idea of two separate type of constraints, or both. It is attempted to meet the first criticism by relaxing the assumption regarding saving.

More serious criticism of the dual-gap analysis could be made on the grounds that such a model is based on the assumption that *FR* cannot be regarded as a substitute for domestic savings. Note that to the extent *FR* are substitutes for the domestic savings, only one gap exists. Next some of the assumptions about fixed savings and capital output ratios in the dual gap analysis cease to be valid if *FR* can alter the composition of output of the recipient country in a manner which would reduce the capital output ratios. But if the rate of transformation of *FR* in to domestic capital is zero or takes a long time then the two gaps exist.

### Review Questions

#### Broad Questions

1. What are the distinctive contributions of dual gap analysis to the theory of development?
2. Provide an algebraic representation of Chenery model?

#### Further Readings

1. Boeke, J. H. (1953), *Economics and Economic Policy of Dual Societies*, Tjeenk Willink and Zoon, Haarlem.
2. Chenery, H B and Bruno M (1962), "Development Alternatives in an Open Economy: The Case of Israel, *Economic Journal*, 72, pp 79 – 103.
3. Chenery, H B and Strout, A M (1966), Foreign Assistance and Economic Development," *American Economic Review*, 56, pp 679-733.
4. Dixit, Avinash (1968), 'Theories of Dual Economy: A Survey', University of California, Berkley.
5. Dixit, Avinash (1971), 'Short Run Equilibrium and Shadow Prices in the Dual Economy', *Oxford Economic Papers*, 23, 3, 384-99.
6. Jorgenson, D. W. (1966), 'The Development of Dual Economy', *Economic Journal*,
7. Mckinnon R I (1964), "Foreign Exchange Constraints in Economic Development and Efficient Allocation," *Economic Journal*, 74, pp 388-409.

## Lesson 5: Structural Adjustment<sup>12</sup>

### Objectives:

The International Monetary Fund (IMF) and the World Bank devised a new policy package to rescue the indebted developing nations from the acute balance of payment crisis. Structural adjustment consists of two distinctive phases: short-term macro-economic stabilisation and structural reforms. The former generally implies devaluation, price liberalisation and budget austerity aimed at reducing short-term disequilibrium, especially current account and balance of payment deficits and inflation. The Bank's structural reforms concentrate on liberalisation of trade, divestiture and privatisation of state enterprise tax reform, reduction of economic role of state and private sector-led growth. In practice, however, these distinctions as well as their sequencing have often become blurred. The application of macroeconomic stabilisation is carried out through IMF's Structural Adjustment and Enhanced Structural Adjustment Facilities (SAF and ESAF). The structural reforms are supported by the World Bank's structural and sectoral adjustment loans (SALs and SECALs).

After studying this lesson, you will be able to

- Describe the salient features of structural adjustment policies.
- Explain the essences of structural adjustment.
- Enhance your understanding on policies advocated by the World Bank and IMF.
- Analyse the experience of adjustment in Bangladesh.

### Introduction

The macroeconomic approach to confronting the internal economic crisis and balance of payment problem of the developing nations witnessed a marked shift in the 1980s. The main creditors of the developing world – the International Monetary Fund (IMF) and the World Bank – devised a new therapy to rescue the indebted developing nations from the acute balance of payment crisis emanating from the world-wide economic turbulence mainly caused by the two major oil price shocks of the 1970s. According to their postulation, the conventional short-term macroeconomic stabilisation policies alone are not sufficient to address the macroeconomic disequilibria of these developing countries as the causes are rooted in the structure of the economy. Therefore, the Bretton Woods Institutions (BWIs) devised a new generation of stabilisation “Facility” and “policy based loans.” These loans coupled with macroeconomic and sector-level microeconomic policies were packaged

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<sup>12</sup> The section draws on D Bhattacharya and R A M Titumir *towards Demystifying a Process: The Structural Adjustment Policies in Bangladesh*, Dhaka: SAPRI, 1998



together by the Bank and the Fund under a neutral-sounding brand name of “structural adjustment.”

Structural adjustment consists of two distinctive phases: short-term macro-economic stabilisation to be followed by the implementation of a number of fundamental structural reforms. The former generally implies devaluation, price liberalisation and budget austerity aimed at reducing short-term disequilibrium, especially current account and balance of payment deficits and inflation. In practice, however, these distinctions as well as their sequencing have often become blurred. There is a division of tasks between the Bank and the Fund. The application of macroeconomic stabilisation is carried out through IMF’s Structural Adjustment and Enhanced Structural Adjustment Facilities (SAF and ESAF). The structural reforms are supported by the World Bank’s structural and sectoral adjustment loans (SALs and SECALs).

The process, which now goes by the phrase of “structural adjustment”, in effect, has now become a global drive in favour of market forces and private enterprises. The emphasis of the ‘new’ policy line was on restoring economic equilibrium through liberalisation of markets, reduction of state intervention in the economy, privatisation of a broad range of enterprises and reduction of government expenditure, including cuts in subsidies on consumer goods and in social services.

### **Major Features of the Adjustment**

***Trade Liberalisation*** – Trade liberalisation implies the elimination of import quotas and the reduction and unification of tariffs. According to the BWIs, the tariff structure includes an anti-export bias, which discourages the development of an export economy. The elimination of the quotas and reduction of protective barriers are intended, according to the BWIs, to make the domestic industry more competitive. The drastic lowering of trade barriers exposes local producers to foreign competition. The implementation of a flexible exchange rate policy is another integral part of trade liberalisation. The prescription is to make frequent downward adjustments of national currencies to maintain the competitive advantage of exports and discourage excessive imports.

***Divestiture and Privatisation of State Enterprise*** - Denationalisation and privatisation are major elements of institutional policies of the SAP, aimed at enhancing the efficiency of resource use by altering the composition of ownership of the means of production. It includes denationalisation, privatisation, closure, and down-sizing the capacity of the state-owned enterprises.

***Tax Reform*** - A number of fundamental changes are implemented in the fiscal structure. These include introduction of value added tax, changes in the structure of direct and corporate taxes. These changes influence domestic production both on the demand and supply sides and have direct bearings on individuals, especially those of low-income groups.

***Deregulation of Financial Sector*** – The restructuring of the banking sector is implemented in the context of financial sector adjustment programmes. It presses towards the divestiture of the state banking system. Interest rates are determined in the market by the commercial banks. The IMF insists on liberalisation of capital movements on the ground of transparency and free movement of foreign exchange.

***Price Liberalisation*** – The SAP asks for elimination and reduction of all subsidies and price controls on the ground of removing price distortions. The deregulation of domestic grain prices as well as the liberalisation of staple food imports is an important conditionality. The price liberalisation programme also asks for withdrawal of subsidies given to prices of inputs, privatisation of the distribution channel, and elimination of state-owned distributing channels.

***State Intervention*** – The centrepiece of the SAP is the minimisation of the role of the state, not only in the spheres of management of the economy, but also in the provision of social services.

***Demand Management Policies*** – The SAP emphasises the pruning of aggregate expenditure through implementing contractionary monetary and fiscal policies in order to abate ‘over-expansion’ and ‘excess demand.’ The regime follows a tight monetary policy through imposing ceilings on credit and controls to both private and public sectors. On the government’s budgetary front, it entails a rigid fiscal policy through lessening the government expenditure, aiming to overcome the fiscal deficit.

By the mid-1980s, the social problems associated with the standard adjustment measures led to widespread criticism. The critics also argued that the process of ‘belt-tightening’ imposed under SAP undermined economic recovery and the ability of countries to repay their debts. Even the IMF tacitly acknowledges the policy failure.

*“Although there have been a number of studies on the subject over the past decade, one cannot say with certainty whether programs have ‘worked’ or not. On the basis of existing studies, one certainly cannot say whether the adoption of programs supported by the Fund led to an improvement in inflation and growth performance. In fact it is often found that programs are associated with a rise in inflation and a fall in growth rate (Khan, 1990).”*

Following the widespread criticism, the Fund and the Bank expressed their willingness to work for adjustment “with a human face” by extending their attention to social issues. Nevertheless, the critics argue that the introduction of poverty, sustainable development and governance into the paradigm of Washington Consensus as add-ons, hardly bears any conceptual links with the model.

In a new turn, the World Bank's new President in the Bank's World Development Report 1997 states: *"Many have felt that the logical end point of all these reforms was a minimalist state. Such a state would do no harm, but neither could it do much good."* He went say: *"History and recent experience have also taught us that development is not just getting the right economic and technical inputs. It is also about the underlying, institutional environment: the rules and customs that determine how those input are used. .. Without an effective state, sustainable development, both economic and social, is impossible."* Recognising the ground reality, the Bank has now incorporated a second generation of reforms. The evolving pattern of structural reform propagated by them is summarised below:

**Table 1.1: The Evolution of SAP**

	<b>First Generation</b>	<b>Second Generation</b>
<b>Main Objectives</b>	Crisis management: reducing inflation and restoring growth	Improving social conditions and competitiveness, maintaining macroeconomic stability
<b>Instruments</b>	Drastic budget cuts, tax reform, price liberalisation, trade and foreign investment liberalisation, deregulation, social funds, autonomous contracting agencies, some privatisation	Civil service reform, labour reform, restructuring of social ministries, judicial reform, modernising of the legislature, upgrading of the regulatory capacity, improved tax collection, large-scale privatisation, restructuring of the central-local government relationships
<b>Main Challenge</b>	Macroeconomic management by an insulated technocratic elite	Institutional development highly dependent on middle management in the public sector

Source: World Development Report, 1997

### Appendix-1

#### STRUCTURAL ADJUSTMENT PROGRAMME IN BANGLADESH

In Bangladesh, the experience of policy reforms as part of aid conditionalities is not new. During the period 1972-1986, the Government of Bangladesh contracted 13 Import Programme Credits (IPC) amounting to a total of \$1165 million. According to the Bank (1986), the first three IPCs supported critical post-independence rehabilitation needs. All other credits had conditionalities addressing sectoral, microeconomic and institutional reforms.

According to the World Bank's Review of the Experience with Policy Reforms in the 1980s, the policy issues identified in the IPCs 'turned out

to require a more extended dialogue and in-depth sector work than the annual IPC framework allowed.' Thus, the Bank shifted its course from annual programme loans to sector adjustment loans and IPCs were phased out after the 13<sup>th</sup> IPC.

### **Introduction of Structural Adjustment**

As noted earlier, structural adjustment consists of two distinctive phases: short-term macro-economic stabilisation and implementation of a number of fundamental structural reforms. These distinctions as well as their sequencing in practice, however, have become indistinct. Notwithstanding, there is a division of tasks between the World Bank and the IMF. The application of macroeconomic stabilisation is carried out through IMF's Structural Adjustment and Enhanced Structural Adjustment Facilities (SAF and ESAF). The structural reforms are supported by the World Bank's Structural and Sectoral Adjustment Loans (SALs, and SECALs).

The government in 1986-87 adopted a medium-term adjustment programme administered under a three-year arrangement of the Fund's Structural Adjustment Facility (SAF) and by various sector adjustment and investment credits from the Bank. Bangladesh was one of the first 35 countries contracted to SAF, set up by IMF in March 1986 to provide highly concessional but extremely conditional loans in support of structural adjustment in low-income economies. The policies of the government for the three-year period were given in the Policy Framework Papers (PFP) prepared by the Fund and the Bank (with negligible input from the national agencies). Negotiations took place in August 1989, February 1990, and May 1990 on a further three-year programme under the Fund's Enhanced Structural Adjustment Facility (ESAF) and that became effective on July 1, 1990. Here, again, Bangladesh was among the first 29 countries having recourse to the ESAF, initiated by the Fund in December 1987.

Bangladesh, however, first signed a loan from the IMF under the Extended Fund Facility in December 1980. The loan agreement was, however, revoked in July 1980, barely six months after its initiation due to the inability on her part to adhere to the limits imposed on government borrowing (Matin, 1986). Only SDR 20 million out of a total commitment of SDR 800 million was disbursed at the time of suspension.

### **The Design of Structural Adjustment Programme**

The macroeconomic objectives of the adjustment programme during the SAF period were to raise the annual real GDP growth to 5 per cent, moderate the rate of inflation, and contain the central government budget and external current account deficits at 7 per cent of GDP. The structural policies were aimed at improving the efficiency of resource use, enhancing the role of the private sector, and realising higher rates of domestic savings and investment. The proposed reforms include changes in price incentives; simplification of investment regulations; strengthening of tax

policy and administration; improvements in financial management of public enterprises; greater reliance on market oriented monetary policy instruments; intensification of recovery programmes of non-performing bank loans; flexible exchange rate management; and trade and exchange liberalisation (PFP, 1990).

The objectives under the ESAF, noted from PFP (1991), were:

- Agricultural sector reform, including a greater role for the private sector in the distribution of inputs and the rationalisation of the operations of the Public Foodgrain Distribution System (PFDS) and the jute sector
- Improved industrial incentives, including the easing of private investment procedures
- Comprehensive tax reform to improve the elasticity, efficiency and progressivity of the tax system and raise revenue in relation to GDP
- Reorientation of public expenditure to support growth and poverty alleviation
- Strengthening of public enterprise finances through more flexible pricing policies, a vigorous effort to ensure that payment is received for goods and services, and measures to improve cost control and performance evaluation
- Financial sector reform aimed at improving the efficiency of intermediation through adoption of more market-oriented methods of monetary management
- Reform of trade policies to strengthen export growth and diversification, removal of export subsidies, import liberalisation and further rationalisation of the tariff structure
- Exchange rate policy that ensures competitiveness and contributes to a macroeconomic framework conducive to higher savings and investment, price stability, and external adjustment

### **Major Policy Thrusts under ESAF**

The IMF in its Policy Framework Papers under ESAF programme lists a host of priority measures. This, according to the IMF, would reduce obstacles to private sector initiatives, improve public resource management, rationalise the public enterprises, strengthen the effectiveness of the financial system, and liberalise the exchange and trade regime. Pursuance of these, as expounded in IMF's PFPs, would lead the country to achieve higher economic growth, with emphasis on poverty alleviation through human resource development and increased resource mobilisation.

The priority structural and macroeconomic policies prescribed by the IMF under ESAF are given below:

**Table 2.1: Priority Measures under the ESAF**

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**I. Agricultural Policy**

Maintain liberalisation of import and distribution of import and distribution of irrigation equipment and fertiliser.

Reduce subsidies on agricultural inputs.

Maintain adequate producer price incentives.

**II. Industrial and Trade Policy**

Further simplify investment regulations.

Eliminate quantitative restrictions on imports except for those required for reasons of religion, health, security and social considerations and a small number of highly sensitive items.

Rationalise the tariff structure and reduce maximum tariff levels.

Remove export subsidies.

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**III. Public Resource Mobilisation**

Expand the base of the value-added tax.

Reform personal and company direct taxes.

Strengthen the tax administration.

Adjust prices for public goods and services while improving their operational efficiency.

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**IV. Public Expenditure Policies**

Implement a three-year prioritised public investment programme.

Limit the growth of current expenditures to less than the growth of nominal GDP.

Reduce subsidies and administrative costs.

Improve project aid utilisation.

Reduce the operating deficit of Bangladesh railway

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**V. Public Enterprises**

Reduce excess labour.

Enforce payment of debt-service liabilities and eliminate inter-agency arrears.

Rationalise the jute mills.

Improve the operational performance and financial management of Bangladesh Power

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Development Board and other public entities.

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#### **VI. Privatisation**

- Privatised selected public manufacturing/ commercial enterprises already approved by government and expedite identification of additional enterprises for privatisation.
  - Announce a timetable for implementation.
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#### **VII. Financial Sector Reform**

Implement reforms aimed at a market-oriented system of monetary management.

Undertake further interest rate liberalisation.

Strengthen commercial bank loan recovery programmes.

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#### **VIII. External Sector Policy**

Manage the exchange rate to ensure competitiveness.

Export diversification.

Efficient import substitution.

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#### **IX. Human Resources and Poverty Alleviation**

Improve the access of women to education and income generating activities.

Provide adequate funding for primary education, health and family planning services.

Target food aid to poverty groups and reduce cash subsidies to monetised food distribution.

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#### **X. Environment**

The government will articulate a clear policy on environmental issues and prepare environmental assessments for major new projects.

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#### ***Source: Compiled from;***

1. International Monetary Fund, "Bangladesh: Enhanced Structural Adjustment Facility, Policy Framework Paper, 1990/91 – 1992/93," May 11, 1990.
2. International Monetary Fund, "Bangladesh: Enhanced Structural Adjustment Facility, Policy Framework Paper, 1991/92 – 1993/94," August 9, 1991.
3. International Monetary Fund, "Bangladesh: Enhanced Structural Adjustment Facility, Policy Framework Paper, 1992/93 – 1994/95," August 20, 1992.

#### **World Bank's Adjustment Lending**

The adjustment programme was supported by two three-year arrangements under the SAF and ESAF of the IMF and by various sector adjustment and investment credits from the International Development Association (IDA), soft-term lending window of the World Bank. These

highly concessional but extremely conditional loans go under the generic names of “structural and sectoral adjustment loans” (SALs and SECALs). This new generation of “policy-based loans” was devised to help countries to adjust. These World Bank loan agreements included tight conditionalities, under which money was disbursed only if the government complied with structural adjustment reforms as well as met the deadline for implementation with precision.

According to the WB’s Country Assistance Review (CAR), adjustment lending constituted a third of total commitments of IDA to Bangladesh during the period under CAR’s review (FY80 to FY96). IDA commitments to Bangladesh during that period amounted to \$5.965 billion, involving 93 projects. Disbursement during the said period totalled \$4.65 billion.

The scale of adjustment lending has declined in the nineties to about 15 per cent. The World Bank explicitly stated that the adjustment lending would decline in future. The CAR categorically states: “ [The adjustment lending] will undoubtedly decline further in the absence of key reform initiatives in certain sectors (e.g. finance).”

The following table shows the commitments of IDA loans to Bangladesh by sector and the amount of adjustment credit.

**Table : Share of Adjustment Loans in IDA’s Commitment to Bangladesh**

Sector	In millions of US dollars		In per cent of Total	
	All loans	Of which Adjustment	All loans	Of which Adjustment
Agriculture	1186.6	--	20	--
Education	411.6	--	7	--
Power	636.3	177.3	11	4
Industry and Finance	677.8	438.4	11	7
Multi-sector	1237.0	1141.0	21	19
Oil and Gas	453.0	--	8	--
Pop. Health and Nutrition	239.8	--	4	--
Telecommunications	35.0	--	1	--
Transportation	815.7	--	14	--
Urban Development	47.6	--	1	--
Water supply and sanitation	50.0	--	1	--
Other	173.0	--	3	--
Total	5965.4	1756.7	100	30

Source: Financial Database of the World Bank, quoted in Country Assistance Review, 1998

The following table provides summary statistics about the SALs and SECALs that Bangladesh contracted.



Out of six SALs and SECALs, three (i.e. Second Industrial Adjustment Credit, Jute Sector Adjustment Credit, Public Revenue Management Adjustment Credit) were cancelled because of the government's failure to adhere to the policy conditionalities attached with these credits. The policy conditionalities are given in Annexures 3, 4 and 5.

**Energy Sector Adjustment Credit:** The credit of an amount of SDR 137.0 million was approved by the Bank on April 11, 1989 and was supplemented by an amount of SDR 1.8 million by GOB. The credit was fully disbursed and closed on July 3, 1990.

**Industrial Sector Adjustment Credit:** The Bank approved the SDR 147.8 million (equivalent to US 190 million dollars) credit on June 6, 1987. The credit was fully disbursed and closed on May 11, 1989, seven months ahead of the original schedule.

**Financial Sector Adjustment Credit:** On June 5, 1990, the World Bank approved the credit amount of SDR 132.7 million (equivalent to 132.7 million) and made it effective on June 22, 1990. Two supplementary credits, amounting to a total of SDR 5.4 million were signed on January 16, 1991 and January 15, 1992 respectively. The first tranche of the credit was released by February 1992 and the second tranche was disbursed on August 26, 1992, after a delay of eighteen months from the targeted date and the third and final tranche was released on December 30, 1993, after a delay of 20 months. The credit was closed on February 22, 1994, much later than the original closing date of September 30, 1992.

**Second Industrial Sector Adjustment Credit:** The credit to the tune of SDR 72.2 million (US \$100 million) was approved by the Bank's Board on October 27, 1992 and was made effective on November 5, 1993, though the scheduled date was January 1993. The credit was cancelled after disbursing the first tranche, leaving a balance of US \$ 50 million.

**Jute Sector Adjustment Credit:** The largest ever credit to the country was approved on February 17, 1994 and made effective on April 5, 1994. Of the SDR 175 million, only the first tranche, amounting to SDR 35 million was released. The credit was closed on June 30, 1997, leaving the three other tranches – the second, third and floating-cancelled.

**Public Resource Management Adjustment Credit** To the tune of SDR 109.3 million was approved on May 5, 1992 and made effective on June 8, 1992. Out of three tranches, two were disbursed while the third tranche amounting SDR 36.9 million was cancelled.

### Review Question

1. Describe the salient features of structural adjustment policies.
2. What are the essences of structural adjustment?
3. Analyse the experience of adjustment in Bangladesh.

### Further Reading

1. Akerlof, George, William Dickens, and George Perry. 1996. "The Macroeconomics of Low Inflation." *Brookings Papers on Economic Activity* 1: 1-76.
2. Alesina, Alberto, and Larry Summers. 1993. "Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence." *Journal of Money Credit and Banking* 25(2), May.
3. Ashenfelter, Orley, and Alan Krueger. 1994. "Estimates of Economic Returns to Schooling from a New Sample of Twins." *American Economic Review* (December).
4. Barro, Robert. 1974. "Are Government Bonds Net Wealth?" *Journal of Political Economy* 81(6): 1095-1117.
5. Blanchard, Olivier and Larry Summers. 1986. "Hysteresis and the European Unemployment Problem." In Stanley Fischer, ed., *NBER Macroeconomics Annual*, Vol. 1. Cambridge: MIT Press.
6. Bruno, Michael. 1993. *Crisis, Stabilization, and Economic Reform: Therapy by Consensus*. Oxford: Clarendon Press.
7. Bruno, Michael and William Easterly. 1996. "Inflation and Growth: In Search of a Stable Relationship," *Federal Reserve Bank of St. Louis Review*; 78(3):139-46.
8. Caprio, Gerard. 1997. "Safe and Sound Banking in Developing Countries: We're Not in Kansas Anymore." *Research in Financial Services: Private and Public Policy* 9: 79-97.
9. Caprio, Gerard, and Daniela Klingebiel. 1996. "Bank Insolvencies: Cross-Country Experience." World Bank Policy Research Working Paper 1620. Washington, D.C.
10. ---. 1997. "Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?" In Michael Bruno and Boris Pleskovic, eds., *Annual World Bank Conference on Development Economics 1996*. Washington, D.C.: World Bank.
11. Caves, Douglas, and Laurits Christensen. 1980. "The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads." *Journal of Political Economy* 88(5): 958-76.
12. Demirgüç-Kunt, Asli, and Enrica Detragiache. 1997. "The Determinants of Banking Crises: Evidence from Industrial and

Developing Countries." World Bank Policy Research Working Paper 1828. Washington, D.C.

13. Easterly, William, Carlos Rodriguez, and Klaus Schmidt-Hebbel, eds. 1994. *Public Sector Deficits and Macroeconomic Performance*. Washington, D.C.: World Bank.
14. Easterly, William and Stanley Fischer. 1990. "The Economics of the Government Budget Constraint." *World Bank Research Observer* 5(2): 127-42.
15. Edlin, Aaron and Joseph E. Stiglitz. 1995. "Discouraging Rivals: Managerial Rent-Seeking and Economic Inefficiencies." *American Economic Review* 85(5): 1301-12.
16. Feldstein, Martin. 1996. "The Costs and Benefits of Going from Low Inflation to Price Stability." NBER Working Paper 5469. Cambridge, Mass.: National Bureau of Economic Research.
17. Fischer, Stanley. 1993. "The Role of Macroeconomic Factors in Growth." *Journal of Monetary Economics* 32: 485-512.
18. Greenwald, Bruce, and Joseph E. Stiglitz. 1986. "Externalities in Markets with Imperfect Information and Incomplete Markets." *Quarterly Journal of Economics* 101(May): 229-64.
19. ---. 1988. "Examining Alternative Macroeconomic Theories." *Brookings Papers on Economic Activity* 1: 207-70.
20. \_\_\_\_\_. 1992. "Information, Finance and Markets: The Architecture of Allocative Mechanisms," *Industrial and Corporate Change*, 1(1): 37-63.
21. ---. 1993a. "Financial Market Imperfections and Business Cycles." *Quarterly Journal of Economics* 108(1): 77-114.
22. ---. 1993b. "New and Old Keynesians." *Journal of Economic Perspectives* 7(1): 23-44.
23. Isham, Jonathan, Deepa Narayan, and Lant Pritchett. 1995. "Does Participation Improve Performance? Establishing Causality with Subjective Data," *World Bank Economic Review*, 9(2): 175-200.
24. Kane, Thomas, and Cecilia Rouse. 1995. "Labor Market Returns to Two- and Four-Year College: Is a Credit a Credit and Do Degrees Matter?" *American Economic Review* 85(3): 600-14.
25. Mankiw, N. Gregory, David Romer, and David N. Weil. 1992. "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, 107, 2 (May): 407-437.
26. Nadiri, Ishaq. 1993. "Innovations and Technological Spillovers." NBER Working Paper 4423. Cambridge, Mass.: National Bureau of Economic Research.

27. Pannier, Dominique, ed. 1996. *Corporate Governance of Public Enterprises in Transitional Economies*. World Bank Technical Paper 323. Washington, D.C.
28. Pritchett, Lant. 1997. "Patterns of Economic Growth: Hills, Plateaus, Mountains, Cliffs, and Plains." World Bank, Policy Research Department, Washington, D.C.
29. Psacharopoulos, George. 1994. "Returns to Investment in Education: A Global Update," *World Development* 22(9): 1325-1343.
30. Rey, Patrick, and Joseph E. Stiglitz. 1993. "Short-term Contracts as a Monitoring Device." NBER Working Paper 4514. Cambridge, Mass.: National Bureau of Economic Research.
31. Sappington, David, and Joseph E. Stiglitz. 1987. "Privatization, Information and Incentives." *Journal of Policy Analysis and Management* 6(4): 567-82.
32. Shleifer, Andrei, and Robert Vishny. 1989. "Management Entrenchment: The Case of Manager-Specific Investments." *Journal of Financial Economics* 25(1): 123-39.
33. Slovic, Paul, Mark Layman, and James Flynn. 1993. "Perceived Risk, Trust, and Nuclear Waste: Lessons from Yucca Mountain." In R. Dunlap, M. Kraft, and E. Rosa, eds., *Public Reactions to Nuclear Waste*. Durham, N.C.: Duke University Press.
34. Solow, Robert. 1957. "Technical Change and the Aggregate Production Function." *Review of Economics and Statistics* (August).
35. Stiglitz, Joseph E. 1989. "The Economic Role of the State: Efficiency and Effectiveness." In A. Heertje, ed. *The Economic Role of the State*. London: Basil Blackwell and Bank Insinger de Beaufort NV.
36. ---. 1993. "The Role of the State in Financial Markets." In *Proceedings of the World Bank Conference on Development Economics 1993*. Washington, D.C.: World Bank.
37. ---. 1994a. "Endogenous Growth and Cycles." In Y. Shionoya and M. Perlman, eds., *Innovation in Technology, Industries, and Institution*. Ann Arbor, Mich.: University of Michigan Press.
38. \_\_\_\_\_. 1994b. *Whither Socialism?* Cambridge, Mass.: MIT Press.
39. ---. 1996. "Some Lessons of the East Asian Miracle." *World Bank Research Observer* 11(2): 151-77.
40. ---. 1997a. "Central Banking in a Democratic Society." The Tinbergen Lecture.
41. ---. 1997b. "Dumping on Free Trade: The U.S. Import Trade Laws." *Southern Economic Journal* 64(2), 402-424.
42. ---. 1997c. "Reflections on the Natural Rate Hypothesis." *Journal of Economic Perspectives* 11(1): 3-10.

43. ---. 1998. "The Role of International Institutions in the Current Global Economy." Speech to the Council on Foreign Relations in Chicago, February 27, 1998.
44. Thurow, Lester. 1985. *The Zero-Sum Solution: Building a World-Class American Economy*. New York: Simon and Schuster.
45. United States Council of Economic Advisers. 1997. *Economic Report of the President 1997*. Washington, D.C.: Government Printing Office.
46. United States Environmental Protection Agency. 1987. *Unfinished Business: A Comparative Assessment of Environmental Problems*. Washington, D.C.: GPO.
47. Vickers, John, and George Yarrow. 1988. *Privatization: An Economic Analysis*. Cambridge: MIT Press.
48. Williamson, John. 1990. "What Washington Means by Policy Reform." In John Williamson, ed., *Latin American Adjustment: How Much Has Happened?* Washington, D.C.: Institute for International Economics.
49. Willis, Robert. 1986. "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions." In Orley Ashenfelter and Richard Layard, eds., *Handbook of Labor Economics Volume I*. Amsterdam: Elsevier Science Publishers/North-Holland.
50. World Bank. 1993. *The East Asian Miracle*. New York: Oxford University Press.
51. ---. 1997a. *China 2020*. Washington D.C.
52. ---. 1997b. *Global Economic Prospects and the Developing Countries*. Washington, D.C.
53. ---. 1997c. *World Development Report 1997: The State in a Changing World*. New York: Oxford University Press.
54. \_\_\_\_\_. 1997d. *World Development Indicators 1997*. Washington, D.C.
55. Young, Alwyn. 1994. "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience." *Quarterly Journal of Economics* 110 (August): 641-80.
56. Addison, T. and Demery, L. (1993) ' Labour Markets, Poverty and Adjustments', *Journal of International Development* 5(2), 135-43.
57. Cornia, A., Jolly, R. and Stewart , F. (1987) *Adjustment with a Human Face. Protecting the Vulnerable and Promoting Growth*, Oxford: Clarendon Press.

58. Lal, D. (1983) *The Poverty of 'Development Economics'*, London: Institute of Economic Affairs, Hobart Paperback No. 16.
59. Mosley, P. (ed.) (1992) *Development Finance and Policy Reform*, Basingstoke: Macmillan.
60. Toye, J. (1992a) 'Britain, the United States and the World Debt Crisis' in J. Michie (ed.) *The Economic Legacy 1979-1992*, London: Academy Press.
61. World Bank (1992) *World Bank Structural and Sectoral Adjustment Operations. The Second OED Overview*, Report No. 10870. Washington DC: World Bank.
62. World Bank (1990,1992b) *World Development Report*. New York: Oxford University Press.
63. World Bank (1990a) *Adjustment Lending Policies for Sustainable Growth*, Policy and Research Series No.14. Washington DC: World Bank.
64. World Bank (1990a) *Adjustment Lending Mobilization of Public and Private Resources for Growth*, Policy and Research Series No.22. Washington DC: World Bank.

## Lesson 6 : Human Development Approach

### Objectives:

The concept of human development pioneered by United Nations Development Programme(UNDP) is seen as a holistic one putting people at the centre of all aspects of the development process. Human Development Report 1990 introduces a new measure of development named Human Development Index (HDI) composed of three dimensions: longevity, educational attainment (a combination of adult literacy and combined primary, secondary & tertiary enrolment ratios) and standard of living (real GDP per capita). Four indicators are also taken to quantify these dimensions: 1) life expectancy at birth for longevity, 2) adult literacy, 3) combined enrolment ratio for educational attainment, and 4) real GDP per capita for standard of living though subsequent reports have incorporated several variables.

After studying this lesson, you will be able to:

- Comprehend the concept of human development; and
- Construct human development index.

### Introduction

#### Goals and Means of Development

*Human Development Report*, published by the UNDP, defines human development as the process of increasing people's options. It stipulates that the most critical choices that people should have include the options to lead a long and healthy life, to be knowledgeable and to find access to the assets, employment and income needed for a decent standard living.

According to Paul Streeten, human development is both ends in themselves and means of production. He thinks that there are six reasons why human development and poverty eradication should be promoted:

First, and above all, it is an end itself that needs no further justification.

Second, it is a means to higher productivity. A well-nourished, healthy, educated, skilled, alert labour force is the most important productive asset. This has been widely recognised, though it is odd that Hondas, beer and television sets are often accepted without questioning as final consumption goods, while nutrition, education., and health services have to be justified on grounds of productivity.

Third, it reduces human re-productivity, by lowering desired family size. This is generally regarded as desirable. It is paradoxical that a policy that reduces infant mortality and raises health standards generally should lead to lower population growth. One might think that more survivors mean more mouths to feed. But evidence shows that people try to over insure

themselves against infant deaths and that reduced child deaths lead to lower desired family size. It is true that there is a time lag of about two decades between falling child mortality and lower fertility rates. But other components of the human development strategy, such as better and longer education of girls, pay off sooner in smaller families.

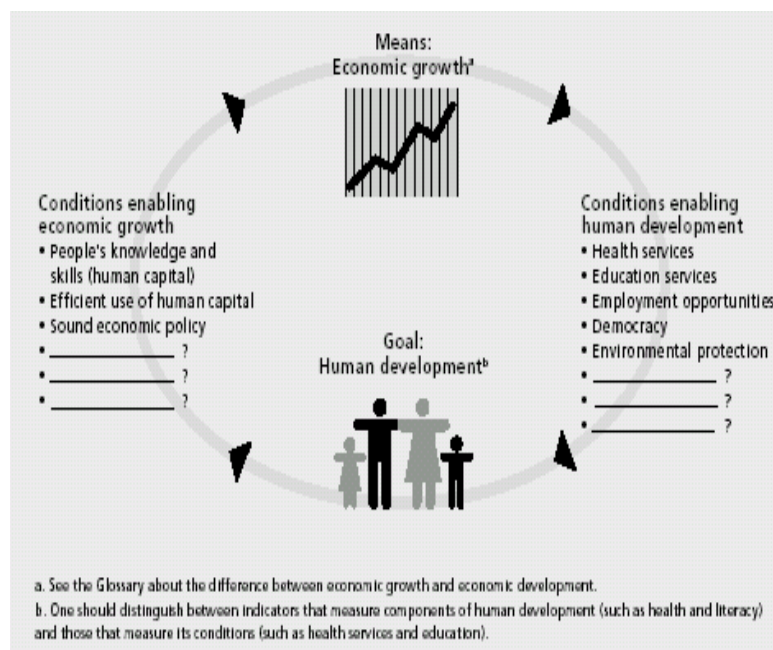
Fourth, human development is good for the physical environment. The poor are both a cause and the main victim of environmental degradation. Deforestation, desertification, and soil erosion are reduced with poverty reduction. The impact of population growth and population density on the environment is more controversial. The conventional view is that it is detrimental. However, recent research has shown that rapid population growth and high population density can be good for terracing, soil conservation, and forests. In Nepal increased erosion was the result of depopulation; terraces could not be maintained for lack of people.

Fifth, reduced poverty contributes to a healthy civil society, democracy, and greater social stability.

Sixth, it has political appeal, for it may reduce civil disturbances and increase political stability.

To be sustainable, economic growth must be constantly nourished by the fruits of human development such as improvements in workers' knowledge and skills along with opportunities for their efficient use: more and better jobs, better conditions for new businesses to grow, and greater democracy at all levels of decision-making.

### Economic Growth and Human Development



Source: Soubotina, Tatyana P. and Katherine A. Sheram, *Beyond Economic Growth*, Washington, D.C.: World Bank, 2000



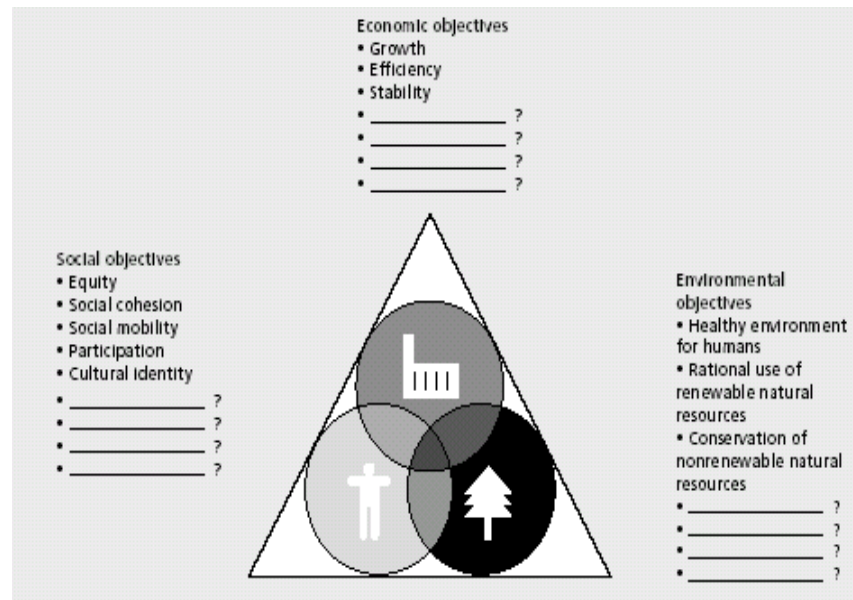
Conversely, slow human development can put an end to fast economic growth. According to Human Development Report 1996, "during 1960-1992 not a single country succeeded in moving from lopsided development with slow human development and rapid growth to a virtuous circle in which human development and growth can become mutually reinforcing." Since slower human development has invariably been followed by slower economic growth, this growth pattern was labeled a "dead end."

### **Sustainable Development**

Sustainable development is a term widely used by politicians all over the world even though the notion is still rather new and lacks a uniform interpretation. Important as it is, the concept of sustainable development is still being developed and the definition of the term is constantly being revised, extended, and refined. Using this book, you can try to improve the definition as you learn more about the relationships among its main components- the economic, social, and environmental factors of sustainable development- and as you decide on their relative significance based on your own system of values.

According to the classical definition, given by the United Nations World Commission on Environment and Development in 1987, development is sustainable if it "meets the needs of the present without compromising the ability of future generations to meet their own needs." It is usually understood that this "intergenerational" justice would be impossible to achieve in the absence of present-day social justice, if the economic activities of some groups of people continue to jeopardize the well-being of people belonging to other groups or living in other parts of the world. Imagine, for example, that continuing deforestation of the Amazon basin, known for its outstanding biodiversity, leads to the extinction of an unresearched plant species that could help cure acquired immune deficiency syndrome (AIDS), a lethal disease threatening people all over the world. Or consider emissions of greenhouse gases, generated mainly by industrial countries, which can lead to global warming and flooding of certain low-lying islands- resulting in the displacement and impoverishment of entire nations.

### Objectives of Sustainable Development



Source : Soubotina, Tatyana P. and Katherine A. Sheram, *Beyond Economic Growth*, Washington, D.C.: World Bank, 2000

Social justice defined as equality of opportunities for well-being, both within and among generations of people, can be seen as having at least three aspects: economic, social, and environmental. Only development that manages to balance these three groups of objectives can be sustained for long. Conversely, ignoring one of the aspects can threaten economic growth as well as the entire development process.

### Construction of a human development index<sup>13</sup> Measurement

As development is a multi-dimensional concept; so any single measure is arbitrary. Various measures can be used for evaluating performance and making comparison across time and countries. However, all measures are bound to have problems. Different biases are inherent in these measures. There are a great deal of approaches that measure a country's development.

Traditionally 'development' has been regarded as the capacity of a national economy, expressed through level of income. The critics argued that GDP is not enough to capture the improvement of an economy under the development economics. For example, when we use the growth of GNP as an index of performance, we implicitly assume that a dollar of

<sup>13</sup> Based on the *Human development Report*, UNDP, 1998.

additional income creates the same additional social welfare regardless of the income level of the recipient. This not the case in real life. According to Professor Seers, improvement of an economy depends on the three core values:

- *Life-sustenance: the ability to provide basic human needs*
- *Self esteem: to be a person*
- *Freedom from servitude: to be able to choose*

Against such criticism, there has been emergence of a good many indexes. Given the lack of institutional support and use by the policy makers some survived and others contribute to enrich the evolving indexes. Human development index, promoted by the United Nations Development Programme, is a composite of various indicators of development: life expectancy means years of schooling, adult literacy and per capita income. The HDI will be discussed in the proceeding section.

*A mathematical formulation of the human development index*

1. The human development index (HDI) is constructed in three steps. The *first* step is to define a measure of deprivation that a country suffers in each of the three basic variables – life expectancy ( $X1$ ), literacy ( $X2$ ), and (the log of) real GDP per capita ( $X3$ ). A maximum and a minimum value is determined for each of the three variables given the actual values. The deprivation measure then places a country in the range of zero to one as defined by the difference between the maximum and the minimum. Thus  $I_{ij}$  is the deprivation indicator for the  $j$ th country with respect to the  $i$ th variable and it is defined as:
2. The *second* step is to define an average deprivation indicator ( $I_j$ ). This is done by taking a simple average of the three indicators:
3. The *third* step is to measure the human development index (HDI) as one minus the average deprivation index:

*Fixed minimum and maximum values*

To construct the index, fixed minimum and maximum values have been established for each of these indicators:

- Life expectancy at birth: 25 years and 85 years.
- Adult literacy rate: 0% and 100%.
- Combined gross enrolment ratio: 0% and 100%.
- Real GDP per capita (PPP\$): \$100 and \$40,000 (PPP\$).

For any component of the HDI individual indices can be computed according to the general formula:

$$Index = \frac{\text{Actual } x_i \text{ value} - \text{minimum } x_i \text{ value}}{\text{Maximum } x_i \text{ value} - \text{minimum } x_i \text{ value}}$$

If, for example, the life expectancy at birth in a country is 65 years, the index of life expectancy for this country would be:

$$\text{Life expectancy index} = \frac{65 - 25}{85 - 25} = \frac{40}{60} = 0.667$$

### *Treatment of income*

Income enters into the HDI as a surrogate for all the dimensions of human development not reflected in a long and healthy life and in knowledge—in a nutshell, it is a proxy for a decent standard of living. The basic approach in the treatment of income has been driven by the fact that achieving a respectable level of human development does not require unlimited income. To reflect this, income has always been discounted in calculating the HDI. The issue is, how should it be discounted, and at what level?

Earlier the practice was to discount income above the threshold level of the world average income, using the following formula:

$$\begin{aligned} W(y) &= y^* \text{ for } 0 < y < y^* \\ &= y^* + 2[(y - y^*)^{1/2}] \text{ for } y^* < y < 2y^* \\ &= y^* + 2(y^*)^{1/2} + 3[(y - 2y^*)^{1/3}] \text{ for } 2y^* < y < 3y^* \end{aligned}$$

where  $y$  is the actual per capita income in PPP\$ and  $y^*$  is the threshold per capita income (PPP\$) at the world average income in the year for which the HDI is constructed. The world average income was taken as the threshold income on the premise that each person should have the income that the world on average enjoys. To calculate the discounted value of the maximum income of \$40,000 (PPP\$), the following formula was used:

$$W(y) = y^* + 2(y^{1/2} - y^{*1/2}) + 3(y^{1/3} - y^{*1/3}) + 4(y^{*1/4}) + 5(y^{*1/5}) + 6(y^{*1/6}) + 7[(40,000 - 6y^*)^{1/7}]$$

To summarize, in the construction of the HDI, income is treated using the following formula:

$$W(y) = \frac{\log y - \log y_{\min}}{\log y_{\max} - 2\log y_{\min}}$$

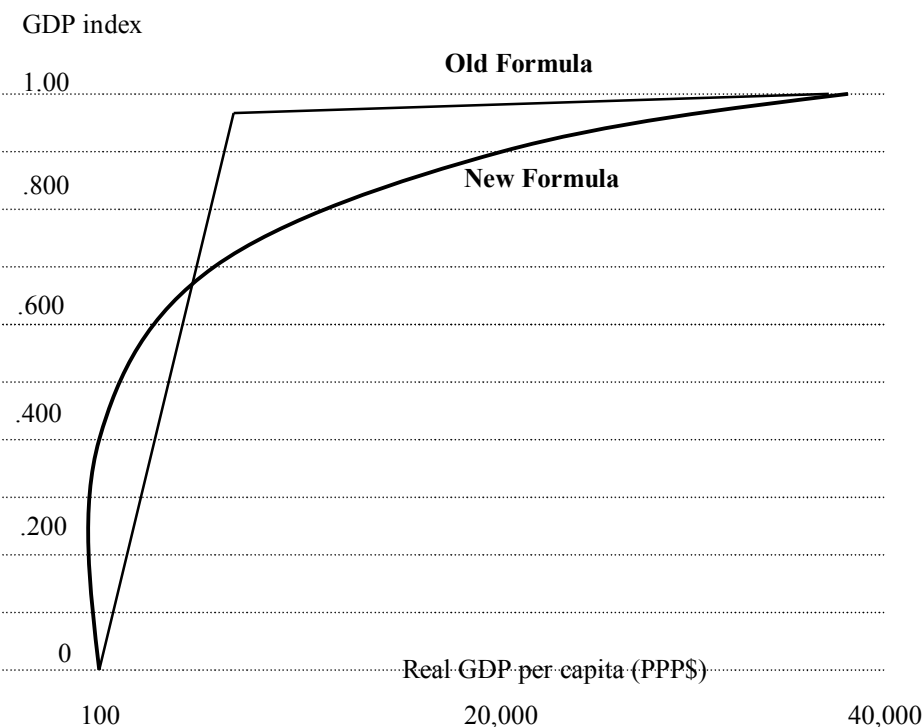
There are several advantages to this formula. First, it does not discount income as severely as the formula used earlier (technical note figure 1). Second, it discounts all income, not just the income above a certain level. Third, as the figure shows, the asymptote starts quite late, so middle-income countries are not penalized unduly; moreover, as income rises further in these countries, they will continue to receive recognition for their increasing income as a potential means for further human development.

*Illustration of the HDI methodology*

The construction of the HDI is illustrated with two examples—Germany and China, an industrialized and a developing country.

Life expectancy Country (PPP\$)	Adult literacy rate (years)	Combined gross enrolment ratio (%)	Real GDP per capita (%)
Germany	77.2	99.0	88.1
China	69.8	82.9	21,260

**Income Discounting under the old and new formula**



Source: Human Development Report Office.

*Life expectancy index*

$$\text{Germany} = \frac{77.2 - 25}{85 - 25} \cdot \frac{52.2}{60} = 0.870$$

$$\text{China} = \frac{69.8 - 25}{85 - 25} \cdot \frac{44.8}{60} = 0.747$$

*Adult literacy index*

$$\text{Germany} = \frac{99.0 - 0}{100 - 0} = 0.990$$

$$\text{China} = \frac{82.9 - 0}{100 - 0} = 0.829$$

*Combined gross enrolment index*

$$\text{Germany} = \frac{88.1 - 0}{100 - 0} = 0.881$$

$$\text{China} = \frac{68.9 - 0}{100 - 0} = 0.689$$

*Educational attainment index*

$$\text{Germany} = [2(0.990) + 1(0.881)]/3 = 0.954$$

$$\text{China} = [2(0.829) + 1(0.689)]/3 = 0.782$$

*Adjusted real GDP per capita (PPP\$) index*

$$\text{Germany} = \frac{\log(21,260) - \log(100)}{\log(40,000) - \log(100)} = 0.895$$

$$\text{China} = \frac{\log(3,130) - \log(100)}{\log(40,000) - \log(100)} = 0.575$$

**Human development index**

The HDI is a simple average of the life expectancy index, educational attainment index and adjusted real GDP per capita (PPP\$) index, and so is derived by dividing the sum of these three indices by 3.

Country	Life expectancy index	Educational attainment index	Adjusted real GDP (PPP\$)	Sum of the three indices	HDI index
Germany	0.870	0.954	0.895	2.719	0.906
China	0.747	0.782	0.575	2.104	0.701

### **Comparing HDI values across years**

The HDI values in this year's Report are not strictly comparable with those in last year's because of the change in the treatment of income in the HDI. Comparability is also affected by significant revision in the data series for some indicators, particularly the income data (PPP\$) from the World Bank. As a result of these changes, both HDI values and rankings for many countries this year differ considerably from those in last year's Report. Technical note table 1 shows the changes in countries' HDI rankings and the source of those changes—whether refinement of the treatment of income or revision of data.

The table makes two clear points. First, most of the changes in HDI rankings can be attributed to the changes in the treatment of income. Second, although a simple comparison of the HDI values in last year's Report with those in this year's shows an apparent deterioration, a comparison using the new treatment of income in both cases shows an improvement in the HDI value for every country.

### **The gender-related development index**

For comparisons among countries the GDI and the GEM are limited to data widely available in international data sets. For this year's Report we have endeavoured to use the most recent, reliable and internally consistent data. Collecting more extensive and more reliable gender-disaggregated data is a challenge that the international community should squarely face. We continue to publish results on the GDI and the GEM—based on the best available estimates—in the expectation that it will help increase the demand for such data.

### **The gender-related development index**

The GDI uses the same variables as the HDI. The difference is that the GDI adjusts the average achievement of each country in life expectancy, educational attainment and income in accordance with the disparity in achievement between women and men. (For a detailed explanation of the GDI methodology see technical note 1 in Human Development Report 1995.) For this gender-sensitive adjustment we use a weighting formula that expresses a moderate aversion to inequality, setting the weighting parameter,  $e$ , equal to 2. This is the harmonic mean of the male and female values.

The GDI also adjusts the maximum and minimum values for life expectancy, to account for the fact that women tend to live longer than men. For women the maximum value is 87.5 years and the minimum value 27.5 years; for men the corresponding values are 82.5 and 22.5 years.

Calculating the index for income is fairly complex. Values of real per capita GDP (PPP\$) for women and men are calculated from the female

share ( $s_f$ ) and male share ( $s_m$ ) of earned income. These shares, in turn, are estimated from the ratio of the female wage ( $w_f$ ) to the male wage ( $w_m$ ) and the percentage shares of women ( $ea_f$ ) and men ( $ea_m$ ) in the economically active population. When data on the wage ratio are not available, a value of 75%, the weighted mean of the wage ratios for all countries with wage data, is used. The estimates of female and male per capita income (PPP\$) are treated in the same way as income is treated in the HDI and then used to compute the equally distributed income index.

$$\text{Female share of the wage bill} = \frac{(w_f/w_m) \times ea_f}{[(w_f/w_m) \times ea_f] + ea_m}$$

Assuming that the female share of earned income is exactly equal to the female share of the wage bill,

$$s_f = \frac{(w_f/w_m) \times ea_f}{[(w_f/w_m) \times ea_f] + ea_m}$$

If it is now assumed that the total GDP (PPP\$) of a country ( $Y$ ) is also divided between women and men according to  $s_f$ , the total GDP (PPP\$) going to women is given by ( $s_f \times Y$ ) and the total GDP (PPP\$) to men by [ $Y - (s_f \times Y)$ ].

Per capita GDP (PPP\$) of women is  $y_f = s_f \times Y / N_f$ , where  $N_f$  is the total female population.

Per capita GDP (PPP\$) of men is  $y_m = [Y - (s_f \times Y)] / N_m$ , where  $N_m$  is the total male population.

Treating income the same way as in the construction of the HDI, the adjusted income for women,  $W(y_f)$ , is given by:

$$W(y_f) = \frac{\log y_f - \log y_{\min}}{\log y_{\max} - \log y_{\min}}$$

The adjusted income for men,  $W(y_m)$ , is given by:

$$W(y_m) = \frac{\log y_m - \log y_{\min}}{\log y_{\max} - \log y_{\min}}$$

The equally distributed income index is given by:

$$\frac{\{[ \text{female population share} \times (\text{adjusted female per capita PPP\$ GDP}) - 1 ] + [ \text{male population share} \times (\text{adjusted male per capita PPP\$ GDP}) - 1 ]\}}{2}$$



The indices for life expectancy, educational attainment and income are added together with equal weight to derive the final GDI value.

### Illustration of the GDI methodology

We choose Cameroon to illustrate the steps for calculating the gender-related development index. The parameter of inequality aversion  $\epsilon$  equals 2. (Any discrepancies in results are due to numbers' being rounded up.)

#### *Population (millions)*

Total	13.924
Females	7.009
Males	6.915

#### *Percentage share of population*

Females	50.3
Males	49.7

#### STEP ONE

*Computing the equally distributed life expectancy index*

#### *Life expectancy at birth (years)*

Females	56.0
Males	53.4

#### *Life expectancy index*

Females	$(56.0 - 27.5)/60 = 0.476$
Males	$(53.4 - 22.5)/60 = 0.516$

#### *Equally distributed life expectancy index*

$$\{[\text{female population share} \times (\text{female life expectancy index})^{-1}] + [\text{male population share} \times (\text{male life expectancy index})^{-1}]\}^{-1}$$

$$[0.503(0.476)^{-1} + 0.497(0.516)^{-1}]^{-1} = 0.495$$

#### STEP TWO

*Computing the equally distributed educational attainment index*

#### *Adult literacy rate (percent)*

Females	64.6
Males	79.0

#### *Adult literacy index*

Females	$(64.6 - 0)/100 = 0.646$
Males	$(79.0 - 0)/100 = 0.790$

#### *Combined gross enrolment ratio (percent)*

Females	39.2
Males	47.6

#### *Combined gross enrolment index*

Females	$(39.2 - 0)/100 = 0.392$
Males	$(47.6 - 0)/100 = 0.476$

#### *Educational attainment index*

$$2/3(\text{adult literacy index}) + 1/3(\text{combined gross enrolment index})$$

$$\text{Females} \quad 2/3(0.646) + 1/3(0.392) = 0.561$$

$$\text{Males} \quad 2/3(0.790) + 1/3(0.476) = 0.685$$

*Equally distributed educational attainment index*

$$\{[\text{female population share X (educational attainment index)}^{-1}] + [\text{male population share X (educational attainment index)}^{-1}]\}^{-1}$$

$$[0.503(0.561)^{-1} + 0.497(0.685)^{-1}]^{-1} = 0.616$$

### STEP THREE

*Computing the equally distributed income index*

*Percentage share of the economically active population*

$$\text{Females (ea}_f) \quad 38.3$$

$$\text{Males (ea}_m) \quad 61.7$$

*Ratio of female non-agricultural wage to male non-agricultural wage*

$$(w_f/w_m): 0.750$$

GDP per capita: \$1,890 (PPP\$)

Total GDP (PPP\$): \$1,890 X 13.924 million = \$26,316 million (PPP\$)

$$s_f = \frac{0.750 \times 0.383}{(0.750 \times 0.383) + 0.617}$$

$$= \frac{0.287}{0.287 + 0.617}$$

$$= 0.318$$

Female total GDP (PPP\$) = 0.318 X \$26,316 million (PPP\$) = \$8,368 million (PPP\$)

Male total GDP (PPP\$) = \$26,316 million (PPP\$) - \$8,368 million (PPP\$)  
= \$17,948 million (PPP\$)

Per capita female GDP (PPP\$) = \$8,368 million / 7.009 million = \$1,194 (PPP\$)

Per capita male GDP (PPP\$) = \$17,948 million / 6.915 million = \$2,596 (PPP\$)

$$W(y_f) = [\log(1,194) - \log(100)] / [\log(40,000) - \log(100)]$$

$$= (3.076 - 2.000) / (4.602 - 2.000)$$

$$= 1.076 / 2.602$$

$$= 0.414$$

$$W(y_m) = [\log(2,596) - \log(100)] / [\log(40,000) - \log(100)]$$

$$= (3.415 - 2.000) / (4.602 - 2.000)$$

$$= 1.415 / 2.602$$

$$= 0.544$$

*Equally distributed income index*

$$\{(\text{Female population share X } [W(y_f)]^{-1}) + (\text{male population share X } [W(y_m)]^{-1})\}^{-1}$$

$$\begin{aligned}
 & [0.503 \times (0.414)^{-1} + 0.497 \times (0.544)^{-1}]^{-1} \\
 & = [0.503 \times 2.415 + 0.497 \times 1.838]^{-1} \\
 & = [2.128]^{-1} \\
 & = 0.469
 \end{aligned}$$

**STEP FOUR**

*Computing the GDI*

$$1/3(0.495 + 0.616 + 0.469) = 0.527$$

**The human poverty index**

**Computing the human poverty index for developing countries**

The human poverty index for developing countries (HPI-1) concentrates on deprivations in three essential dimensions of human life already reflected in the HDI—longevity, knowledge and a decent standard of living. The first deprivation relates to survival—vulnerability to death at a relatively early age. The second relates to knowledge—being excluded from the world of reading and communication. The third relates to a decent living standard in terms of overall economic provisioning. In constructing the HPI-1, the deprivation in longevity is represented by the percentage of people not expected to survive to age 40 ( $P_1$ ), and the deprivation in knowledge by the percentage of adults who are illiterate ( $P_2$ ). The deprivation in living standard is represented by a composite ( $P_3$ ) of three variables—the percentage of people without access to safe water ( $P_{31}$ ), the percentage of people without access to health services ( $P_{32}$ ) and the percentage of moderately and severely underweight children under five ( $P_{33}$ ).

The composite variable  $P_3$  is constructed by taking a simple average of the three variables  $P_{31}$ ,  $P_{32}$  and  $P_{33}$ . Thus

$$P_3 = \frac{(P_{31} + P_{32} + P_{33})}{3}$$

the formula for the HPI-1 is given by:  $HPI-1 = [1/3(P_{13} + P_{23} + P_{33})]^{1/3}$

As an example, we compute the HPI-1 for Panama.

Country	$P_1$ $P_{32}$ (%) (%)	$P_2$ $P_{33}$ (%) (%)	$P_{31}$ (%)
Panama	6.4	8.9	7.0
	18.0	7.0	

**STEP ONE**

Calculating  $P_3$

$$P_3 = \frac{7 + 18 + 7}{3} = \frac{32}{3} = 10.7$$

*STEP TWO*

Constructing the HPI-1

$$\begin{aligned} \text{HPI-1} &= [1/3(6.4^3 + 8.9^3 + 10.7^3)]^{1/3} \\ &= [1/3 (262.144 + 704.97 + 1,225.04)]^{1/3} \\ &= [1/3 (2,192.15)]^{1/3} \\ &= 730.72^{1/3} \\ &= 9.0 \end{aligned}$$

**Computing the human poverty index for industrialized countries**

The human poverty index for industrialized countries (HPI-2) concentrates on deprivations in four dimensions of human life, quite similar to those reflected in the HDI—longevity, knowledge, a decent standard of living and social exclusion. The first deprivation relates to survival—vulnerability to death at a relatively early age. The second relates to knowledge—being deprived of the world of reading and communication. The third relates to a decent standard of living in terms of overall economic provisioning. And the fourth relates to non-participation or exclusion.

In constructing the HPI-2, the deprivation in longevity is represented by the percentage of people not expected to survive to age 60 ( $P_1$ ), and the deprivation in knowledge by the percentage of people who are functionally illiterate as defined by the OECD ( $P_2$ ). The deprivation in standard of living is represented by the percentage of people living below the income poverty line, set at 50% of the median disposable personal income ( $P_3$ ). And the fourth deprivation, in non-participation or exclusion, is measured by the rate of long-term (12 months or more) unemployment ( $P_4$ ) of the labour force.

The formula for the HPI-2 is given by:

$$\text{HPI-2} = [1/4(P_1^3 + P_2^3 + P_3^3 + P_4^3)]^{1/3}$$

As an example, we compute the HPI-2 for the United States.

$P_1$ Country	$P_2$ (%)	$P_3$ (%)	$P_4$ (%)	(%)
United States	12.6	20.7	19.1	0.5

Constructing the HPI-2

$$\begin{aligned} \text{HPI-2} &= [1/4(12.6^3 + 20.7^3 + 19.1^3 + 0.5^3)]^{1/3} \\ &= [1/4 (2,000.4 + 8,869.7 + 6,967.9 + 0.125)]^{1/3} \end{aligned}$$

$$\begin{aligned}
 &= [1/4(17,838.1)]^{1/3} \\
 &= 4,459.5^{1/3} \\
 &= 16.5
 \end{aligned}$$

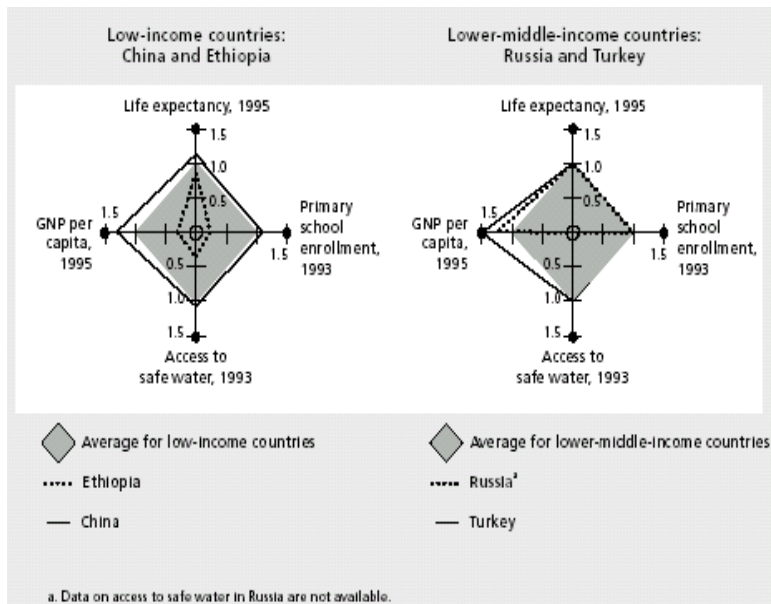
### Development Diamonds

Experts at the World Bank use so-called development diamonds to portray relationships among four socioeconomic indicators for a given country relative to the averages for that country's income group (low-income, lower-middle-income, upper-middle-income, or high-income). Life expectancy at birth, gross primary (or secondary) enrollment, access to safe water, and GNP per capita are presented, one on each axis, then connected with bold lines to form a polygon. The shape of this "diamond" can easily be compared to the reference diamond, which represents the average indicators for the country's income group, each indexed to 100 percent (see green and blue diamonds). Any point outside the reference diamond shows a value better than the group's average, while any point inside signals below-average achievement.

Russia's development diamond has a triangular shape because data on the percentage of its population with access to safe water are unavailable in the World Bank. Think of another indicator, possibly more important for former Soviet Union countries, that you would use to compare levels of development. Use an indicator from the Data Tables at the back of this book to complete the development diamonds for Russia and one or two other countries of your choice.

Note that the development diamonds for China and Ethiopia, and Russia and Turkey were constructed using indexes based on average indicators for two different groups of countries- low-income and lower-middle-income. This approach makes it impossible to visually compare the development achievements of these two pairs of countries. This is one of the main disadvantages of this methodology- that it cannot in practice be used to compare countries in different income groups.

**Development Diamonds for Selected Countries**



**Review Questions**

**Question for Discussion**

1. How do we determine which countries are more developed and which less?
2. What are the necessary conditions for sustainable development?
3. Construct human development of a country.
4. Can you suggest a better way to measure countries' development (than those described in this chapter)?