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UNIDO WORLD INDUSTRY CO-OPERATION MODEL *

The LIDO Scenario Generation Model

1. The LIDO Model Structure
2. An Economic Core Scenario

prepared by

the secretariat of UNIDO

This note represents a summary of experimental work in progress. The figures contained herein are preliminary results. They are not to be quoted.

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1. The LIDO Model Structure

The purpose of the work now being outlined has been to develop, for the year 2000, and for the intervening years, quantitative scenarios embodying the achievement of the Lima target (in terms of the developing regions' shares of the world industrial output). A scenario contains a summary of possible states of the world economy, in terms of major economic variables, regions and sectors. The principle purpose of generating such a scenario is to provide regional and global inputs into the inner layer of the UNIDO World Industry Co-operation Model.

A scenario is intended to show the possible implications, for regional and interregional economic relations, of the Lima targets. The result is not a prediction as to the manner in which the targets are to be achieved: it is rather a possible picture of the world economy, designed to be consistent with economic relationships observed in the past and those assumed for the future. It treats of a world divided into several regions, and their economies into a few major sectors.

However, such a scenario, as well as providing inputs to the UNIDO Model, is of interest in its own right, and can be of use in other ways. It can provide a framework for more detailed analyses, and can be used to examine many issues in connexion with world industrialization at an aggregated level. Among these, are the choices between consumption and investment, the linkage between manufacturing and the agriculture sector, and changes in the trade pattern, particularly with respect to the growth of trade between developing regions themselves, and the influence of flows of resources from the developed countries. It can thus be used as a source of illustrative data in the discussion of long-term development issues.

To date, the principle step taken has been the design of an economic model, to which the name of the LIDO Model (Lima Industrial Development

Objective) has been given. The first part of this section is given over to a description of this model, and it is followed by a presentation of an economic scenario, for the year 2000, derived from it.

1.1 The LIDO Model: A description

The underlying philosophy of the model is the importance of consistency in any attempt to delineate an economic picture for the year 2000, or any year for that matter. Problems of consistency can occur at several levels. If one independently estimates the exports and imports of each region, then there is no guarantee that the world totals of exports will equal those of imports. Similarly, if one independently estimates the different components of final demand, there is no guarantee that the total will be consistent with an overall estimate of GDP. A further problem arises with sectoral consistency. The Lima target is expressed in terms of value-added (GDP arising) in the manufacturing sector. But the manufacturing sector supplies its products to other sections, and is similarly supplied by them. So independent projection of sectoral value-added cannot be assumed to be consistent, since the sectors depend upon one another in this way.

Consistency is thus the principal concern of the model: its purpose is to produce scenarios in which the economic relationships are reconciled both with exogenous assumptions and with specific gials or targets. In its present form, for which some initial data is being incorporated, it distinguishes five regions of the world (Africa, Asia, Latin America, Middle East and Industrialized Countries). For each of the regions, economic accounts are kept in an input-output form. This had been dictated by the need to achieve the sectoral consistency referred to. The detail given in the input-output accounting divides the economy into four sectors: Agriculture, Mining, Manufacturing and Others.

The second and third quadrants of the input-output table refer to the demand and supply sides of GDP, respectively. The Final Demand is considered by the model under the headings of Consumption, Investment, Exports and Imports for each sector, while value-added is treated as a single row

The model is a single period model in that it finds a solution for a given year, which is the year 2000 in the case of the Lima target. However, it is not a strictly static model, in that it assumes an average path towards this terminal year, and the structural relationships within the system are assumed to change according to the levels being attained.

The present operation of the model consists of several steps, but it may be summarized as follows: given the growth rate for the GDP of the industrialized countries, the regional Lima targets, and specified trade gaps, the LIDO model calculates that economic configuration for all regions and sectors which is consistent with the supplied assumptions and with the economic relationships assumed to operate.

The reasons for treating the growth rate of the industrialized countries' GDP as exogenously supplied are that (i) forecasts of an average figure for this rate are available from different sources and thus form a useful basis for the compilation of alternative scenarios; (ii) the growth of the economy of the developed world is regarded as, in some sense, an autonomous activity. The other exogenous assumption, that of overall trade deficits for each of the regions, has provided a simple means of considering resource transfers in the form of deficit financing.

Given the somewhat disparate nature of the assumptions (growth rates, shares, and balances) no investigation of an analytical solution has been made. This is to say that the equations relating each of the variables to the exogenous assumptions have not been identified. Instead, an iterative process for the solution of the system has been followed, in which initial estimates are supplied and their effects examined. The initial estimates are then revised upwards or downwards as appropriate, until convergence is achieved, that is, that all the requirements specified have been satisfied and that all estimates of individual variables are consistent with estimates of their totals. The model system in fact depends on the computer not only for its solution, but also for its definition, since its structure is best

explained by describing each of the steps followed in arriving at a solution. Here the principal concern is to give an impression of the LIDO Model as a mechanism for scenario completion, rather than generation per se, in that it attempts to fill in the remainder of an economic configuration partially supplied for the target year. Moreover, because of the computational character of the model structure, it is easily modified to incorporate other constraints on regional or interregional values for particular variables. Beyond this, however, its usefulness may lie mainly in the aggregated and readily comprehensible level of detail that has been adopted.

1.11 The Model System: Final Demand Estimation

The first step in the operation of the system is the supplying of estimated average GDP growth rates for the target year for each region. The value supplied for the industrialized countries' growth rate is fixed, as has been said: it is maintained in the solution. The other regions' rates are modified as necessary: estimates are supplied only to initiate the solution process. The rates are used to derive GDP totals for each region for the target year.

Final demand is examined under the four headings: Consumption, Investment, Exports and Imports. Each of these, for each region, is considered as a vector distinguishing Agriculture, Mining, Manufacturing and Others. The sum of the columns Consumption, Investment and Exports, less the total of Imports, gives GDP. The GDP value for each region thus acts as a control in the Final Demand estimation, which is carried out by estimating the separate component vectors.

(i) Imports: This is the first vector to be calculated. Each of the elements, imports of Agriculture, Mining, Manufacturing and Others can be calculated for instance using elasticities with respect to GDP growth. The elasticities may be derived from consideration of historical data.

(ii) Exports: It has already been mentioned that the model system allows the trade deficit (for goods and services) to be specified in advance. This permits the examination of alternative scenarios in which, for instance, the industrialized countries can be assumed to finance a trade deficit for the developing regions. The distribution of this deficit between the developing regions is flexible. As well as an overall deficit for the developing regions, (e.g. 1 per cent of industrialized countries' GDP) it is also possible to incorporate specific assumptions about the balance of trade for individual sectors. Thus, a particular constraint can be put on Agriculture, for instance that its exports and imports for each region are equal, and in this way self-sufficiency in agriculture can be incorporated in the scenario to be generated. This course has been followed in the scenario presented in this document.

In such a version, since the agriculture imports have been already calculated, the agriculture exports are thus known. The Mining and Others elements of the export vector are then estimated, using elasticities with respect to GDP. The total of Exports itself is of course derived from the previously calculated total imports and the exogenously given trade gap. This means that from the total and the three elements of the export vector one can derive the fourth, exports of Manufacturing, as a residual. Thus the Manufacturing exports for a region can be viewed as an implication of the overall assumptions of the model.

(iii) Investment: The Investment column considered here refers only to Gross Fixed Capital Formation, since changes in inventories are not considered. Given the four sector classifications into which it is divided, each of the elements has a fairly precise significance. The Agriculture element (very small in the developing regions, and zero in the industrialised countries) refers just to forestry activities. The Mining element is zero. The Manufacturing element can be taken as reflecting capital goods and the Others element of Investment can be taken as Construction. Observed proportions within that column are maintained, i.e. the different sectors deliver fixed shares of total investment. It is thus on the estimation of this total investment figure that particular concentration has been made.

The model allows for the determination of the investment share of GDP in several ways that relate it to the growth rate, including through the use of gross or net ICORS, at an aggregate or at the sectoral level, but in the scenario here presented, a gross ICOR for each region is assumed, according to the level of GDP per capita attained.

(iv) Consumption: This is the remaining component of Final Demand. The column total is derived as a residual. C=GDP+M-E-I. Thus the policy aspects of investment, that consumption must be correspondingly foregone, are brought sharply into focus. From this total the individual components of the consumption vector are found through the use of Engel curves to determine the share in total consumption of each of the sectoral outputs, according to the changes in per capita GDP.

1.12 Input-Output Coefficients Projection

Input-output accounting has been adopted in this model in order to ensure consistency in the sectoral projections. The inter industry approach takes into consideration the links between the different sectors and the degree to which they depend upon one another, so that, for instance, the production level of the Others sector associated with a particular level for Manufacturing can be determined. But these links, expressed as technical coefficients, are not constant, but change over time in response to many factors. It is clear that input-output coefficients derived from historic data for the year 1972 cannot be expected to remain applicable in the year 2000.

Even the derivation of this historic data raises problems, particularly for the developing regions. Nevertheless initial estimates of regional input-output coefficient tables have been formed from representative data, and are used as base year reference tables. The underlying assumption made in the model is that the production structure of the developing regions will tend towards the present structure of the industrialized countries, according as the level of development of these regions approaches the present level of the industrialised countries. Of course for the industrialized region itself different methods have to be used, based on available studies and analyses: the assumption is of a trend in the value

added component with the maintainance of constant time proportions among the intermediate input coefficients.

The estimation of the technical coefficients for the developing regions takes place as follows: given the GDP of the region, its GDP per capita is calculated using the population projections exogenously supplied. Thus GDP per capita serves once more as an indication of development, and is used to determine the positions for each technical coefficient on the path from its starting point to the technical coefficient of the industrialized countries. Once all the technical coefficients have been found, the value-added coefficients for the sector are then calculated as a residual from unity. (The value-added coefficient of the target table implicitly acts as limits in this case). The Leontief inverse matrices are then formed from the technical coefficient matrices for each region, and the means thus exist to carry out the standard input-output analysis, in which the final demand vector is multiplied by the $(I-A)^{-1}$ matrix in order to derive the corresponding total output levels associated with this pattern of final demand.

1.13 Feedback Adjustment

The value-added coefficients, together with the new total output levels, yield the absolute figure for value-added in each sector in each region. (The total of value added for each region will be GDP). Particular interest attaches to the Manufacturing value-added figures (MVA) for it is in these terms that the Lima target and its regional components are defined.

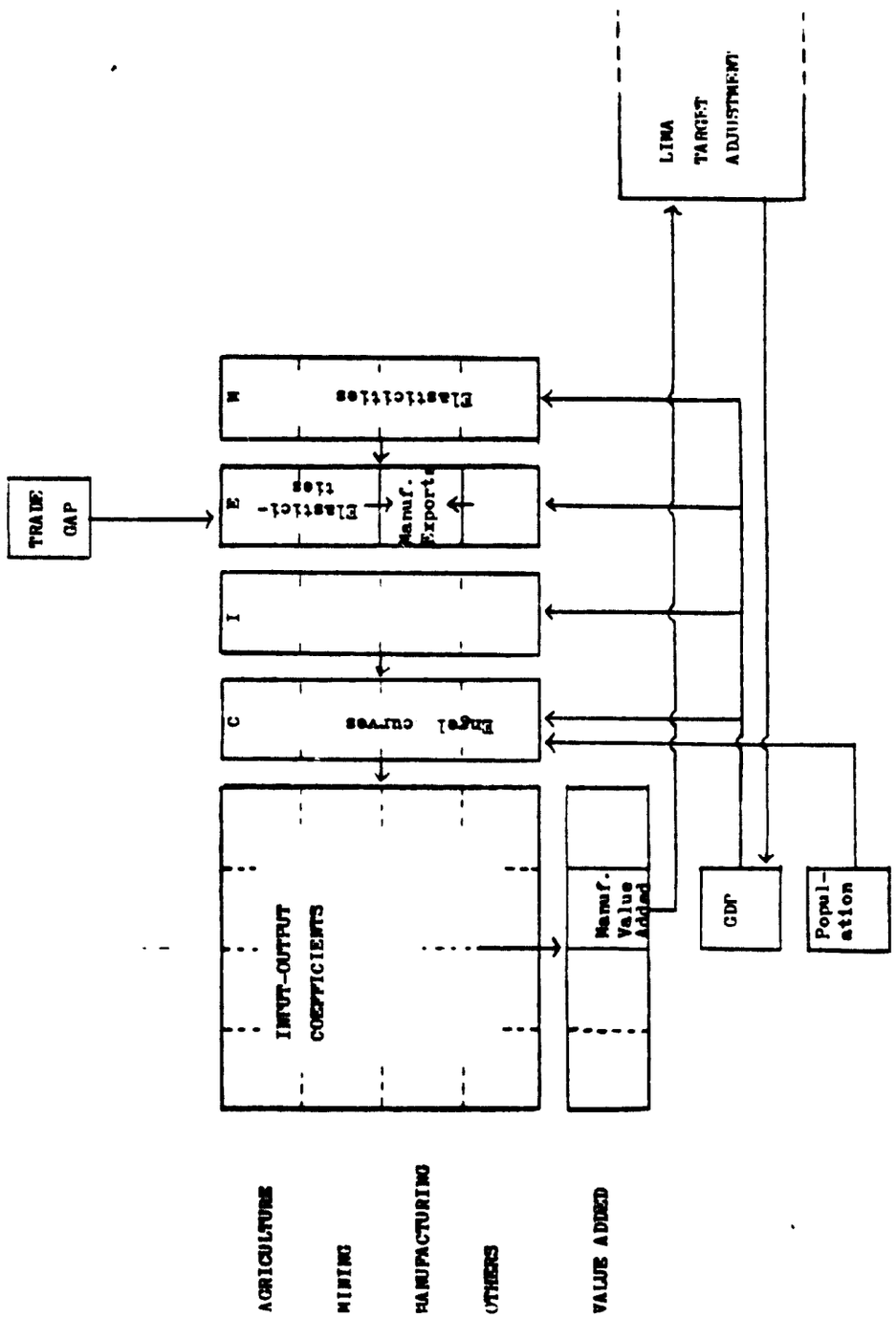
Since it has been the initial GDP estimates which have led the model to produce these first estimates of value added, the model now makes an appropriate adjustment to these estimates, scaling them up or down according as that region's Lima target has been exceeded or undershot. (The industrialized countries' GDP is not altered: its MVA therefore determines the absolute levels of MVA which the other regions have to achieve).

As a consequence of the GDP revision for the developing regions, the whole calculation begins once more, since the new GDP estimate will in turn yield new final demand components, new input-output coefficients, and so on. The cycle continued until the Lima targets are achieved for each region. The result is the final estimate for the Lima target scenario, with fully consistent values for all the variables.

It may be seen that the LIDO Model is somewhat different in its approach to that of other economic models in that it attempts to reconcile forecasts (such as GDP per capita), targets (such as the regional components of the Lima target), and economic relationships (including changes in these over levels of development). Moreover, almost the entire burden of this reconciliation is thrown upon the computational algorithm pursued by the model.

In the following section will be found figures for 1990, as well as 2000. The results for 1990 have been provided in order to obtain an indication of the intermediate position implied by the scenario for the year 2000, and thus of the path necessary to achieve it. They have been derived working backwards, that is, the consistent economic scenario for the year 2000 has been projected back to 1990 and the LIDO model again used to render it consistent.

A Regional Component of the LIDO Model



2. An Economic Core Scenario

Here is presented the hypothesised economic condition of the world in the year 2000. In the next section the technical details of the model calculations are discussed: in this section we mention three fundamental exogenous assumptions i.e. three areas of postulated economic values for the target year by means of which the remainder of the scenario was derived.

(a) GDP growth rate of developed countries: This was taken as an average of 4% per annum between 1975, the base year of the calculations, and the year 2000. This value has been chosen because it appears to reflect informal opinion, particularly within the Economic Commission of Europe, on the rates likely to be achievable. But the reason why this figure, or any other value, is taken as exogenously given and used as the starting point of the calculations is that the growth of the economy of the developed world is regarded as, in some sense, acting as the driving force of the world economy as a whole.

(b) Lima target regional shares: These are taken as achieved in the year 2000, that is, it is built into the scenario that the share of each developing regions manufacturing value-added in the world total should be a given percentage, that distribution of the developing countries' total 25% which has been determined as follows (the 1975 values are given for comparative purposes) in Table 1.

Table 1 Regional Shares in World Total Manufacturing Value-Added

	1975	Lima Targets, year 2000
Africa	.8	2.0
Asia	2.3	7.0
Latin America	5.1	13.0
Middle East	0.8	3.0
Industrialized Countries	91.0	75.0

Though the shares for each of the developing regions add up to 25 per cent, there is in fact a contradiction between the regional shares adopted at regional conferences prior to the Second General Conference of UNIDO in Lima. The target share adopted for the ESCAP region, of 10 per cent, did not include the Middle East.[1/] The share adopted for Latin America was 13.5 per cent.[2/] It can be seen that this gives a total of 25.5, excluding the Middle East. In the absence of an accepted reconciliation of these targets, the present working definition of the goals has been used. The structure of the LIDO Model is such that alternative regional distributions of the 25 per cent total may be readily examined.

(c) Trade balances: These were supplied exogenously: the overall trade surplus of the industrialized countries for the year 2000 was given as 134 billion US 1975 dollars. This is balanced by deficits in Africa, Asia and Latin America of 44.8 billion dollars each. For the Middle East, a zero balance was postulated. These figures were not arbitrarily chosen, because the industrialized countries' surplus represents a 1 per cent share of its total GDP in the year 2000, given the 4 per cent annual average growth rate in this region which has been assumed. It can thus be seen as aid for the developing regions for deficit financing, and is divided equally between the non-oil regions. (It will be recalled that the Second Development Decade targets included one of one per cent of the developed world's GNP as total net flows to the developing countries).

Having sketched these assumptions, we can proceed to the results. The complete figures, in the form of input-output tables for the five regions, each containing four sectors Agriculture, Mining, Manufacturing and Others, as given in Tables 10-14. Here we can summarize them, in order readily to see the contrasts between the different regions, and between the present situation and the postulated future.

1/ Adopted by the Meeting of Ministers of Industry of Developing Countries in Asia and the Pacific Region, Bangkok, 30 October 1974

2/ Adopted by the Latin American Conference on Industrialization, Mexico, 25-29 November 1974.

Table 2 shows the structure composition of final demand in each region in terms of its major components: Consumption, Investment and Exports. The sum of these three, less Imports, gives the GDP for each region. But absolute figures (i.e. in billions of 1975 US dollars) are not easy to comprehend and to relate to the present position. Therefore the average growth rates for the variables are given in Table 3. If the variables were to grow at a constant annual rate between 1975 and the year 2000 to reach the scenario values, then these rates are the ones which must be adopted.

Table 2. Final Demand: Values for the years 1990 and 2000 (in billions of 1975 US dollars)

1990	GDP	Consumption	Investment	Exports	Imports
Africa	316.28	273.37	73.17	78.58	108.84
Asia	776.02	601.34	204.94	162.36	192.62
Latin America	1247.50	798.22	479.54	206.63	236.90
Middle East	483.30	322.59	160.60	231.94	231.83
Industrialized Countries	9083.59	6921.75	2071.06	1729.80	1639.01
2000					
Africa	635.75	533.43	147.09	175.58	220.36
Asia	1715.03	1306.89	452.93	397.05	441.84
Latin America	2831.63	1787.92	1088.49	486.93	531.72
Middle East	985.48	657.99	327.47	422.35	422.34
Industrialized Countries	13445.94	10245.91	3065.67	2726.1	2591.75

Table 3 Final Demand: Average annual percentage growth rates 1975 - 2000

Africa	7.2	7.3	6.8	7.2	7.1
Asia	8.3	7.9	9.2	9.4	8.9
Latin America	8.5	7.6	10.8	9.6	9.2
Middle East	7.4	8.3	8.5	6.2	8.1
Industrialized Countries	4.0	4.0	3.9	4.9	4.6

The most important are the growth rates of GDP. Here can be seen the overall progress which is implied for each of the economies. The Industrialized Countries rate is, of course, exogenously given. It is clear therefore by how much the developing regions growth rate must exceed the figure for the developed, i.e. by between about 3.2 and 4.6 percentage points.

This result has a certain generality: since the Lima target is expressed in share terms, and since the target shares for the developing regions are greater than the ones presently held, then it can be shown that the developing regions GDP growth rates must exceed those of the developed by a certain amount and it has been found, in preliminary analysis, that this gap is more or less independent of the developed regions rate exogenously supplied. Two other versions were also prepared, in which the growth rate of the GDP of the Industrialized Countries was given as 2 per cent and 3 per cent respectively. Table 4 shows the results, giving the excess of the required growth rate for each developing region over that of the Industrialized Countries, if the Lima targets are to be achieved.

Table 4 Required GDP growth rate excessess for the Developing Regions

Industrialized Countries Growth Rate	Africa	Asia	Latin America	Middle East
2 per cent	3.6	4.4	4.5	3.9
3 per cent	3.4	4.3	4.5	3.6
4 per cent	3.2	4.3	4_6	3.4

A picture of the changes wrought in the structure of final demand by those differing growth rates in its components is given in Table 2.5, which shows the percentage of shares of each component in total GDP in 1975 and in the year 2000. The investment share increases for all developing regions (except Africa), and most notably for Latin America, and this takes place with a correspondingly large fall in the consumption of this region's GDP.

Notable alterations occur in the trade components shares: though there is no uniformity as to the direction of the changes. The Middle East's share of exports in GDP actually falls, while Latin America's exports and imports both show an approximate fifty per cent increase in their GDP shares. It will be seen that exports and imports both form the same fraction of the Middle East's GDP: this is because of the imposed zero balance assumed for the region in the year 2000. However, the import share shows a substantial increase.

Table 5. Final Demand: Components percentage share of GDP years 1975, 1990 and 2000

1975	Consumption	Investment	Exports	Imports
Africa	82.6	25.05	27.7	35.8
Asia	83.2	21.3	17.8	22.3
Latin America	79.3	23.2	13.6	16.1
Middle East	54.2	25.4	56.3	36.0
Industrialised Countries	76.9	23.2	16.4	16.5
1990				
Africa	86.4	23.1	24.8	34.4
Asia	77.5	26.4	20.9	24.8
Latin America	64.0	38.4	16.6	19.0
Middle East	66.8	33.2	48.0	48.0
Industrialized Countries	76.2	22.8	19.0	18.0
2000				
Africa	83.9	23.1	27.6	34.7
Asia	76.2	26.4	23.2	25.8
Latin America	63.1	38.4	17.2	18.8
Middle East	66.8	33.2	42.9	42.9
Industrialized Countries	76.2	22.8	20.3	19.3

These figures can in turn be summarized with an aggregation of the developing regions into a single region: this yields final demand component shares of GDP as follows, for the developing world:

Year	Consumption	Investment	Exports	Imports
1975	76.0	23.4	24.6	24.0
1990	70.7	32.5	24.1	27.3
2000	69.5	32.7	24.0	26.2

Thus, it can be seen that the profound increase in the investment share for the developing region has a large effect on the consumption share and also affects the import share.

Having introduced the results from the demand side of the model, we can now turn to the supply side, and examine the implications for the value added in each sector of this pattern. It is already known that the manufacturing value added (which is used in the definition of the Lima target) will meet the regional shares criterion supplied. However, it is interesting also to see the absolute values, and consequently the implied annual average growth rates for value added in the other sectors, Agriculture, Mining (which in the Middle East includes oil) and Others, as well as for Manufacturing itself. The absolute values and the implied growth rates are given in Tables 6 and 7 respectively.

Table 6. Value Added by sector years 1990 and 2000 (in billions of US dollars)

1990	Agriculture	Mining	Manufacturing	Others
Africa	73.19	27.35	49.52	166.21
Asia	184.30	20.54	169.93	401.24
Latin America	94.36	58.03	333.89	761.21
Middle East	29.61	134.10	69.16	250.42
Industrialized Countries	414.86	176.26	3030.05	5462.41
2000				
Africa	119.6	47.2	120.0	348.9
Asia	321.4	39.8	419.7	934.2
Latin America	190.4	134.9	779.4	1726.9
Middle East	49.74	219.72	179.9	536.1
Industrialized Countries	574.4	257.2	4496.0	8118.3

Table 7 Value Added: Average annual percentage growth rate 1975 - 2000

	GDP	Agriculture	Mining	Manufacturing	Others
Africa	7.2	5.0	5.8	9.4	8.0
Asia	8.3	5.7	6.4	10.4	8.9
Latin America	8.5	6.0	8.5	9.4	8.6
Middle East	7.4	6.1	4.3	11.0	8.8
Industrialised Countries	4.0	2.0	2.3	4.6	3.9

As will be seen from the model description in section 3, the causes of production levels in each sector (and thus of value added in each sector) are such that the sectoral value added growth rates will change relative to one another, according to the overall GDP growth rate for the region. Since, however, the Lima targets call for a specific shift in the regional shares of world manufacturing value added, then, given the growth rate of manufacturing in the developed region, it is always possible to calculate the required corresponding rate for any of the other regions. This can be done quite independently of any model, since the relationship is straightforward. It will be seen that the gap in the present case, i.e. the amount by which the growth rate of MVA (Manufacturing Value Added) in a developing region must exceed that of the developed varies between 4.8 (for Africa and Latin America) and 6.4 (for the Middle East).

The growth rates of MVA are in all cases (even in the Industrialised Countries) greater than the growth rates of GDP as a whole. The most striking excess is for the Middle East, and here this is coupled with a relatively low expansion of the Mining Sector.

Just as the effects of the different growth rates of final demand components caused changes in these components share of GDP, so do the varying value added rates alter the relative sectoral composition of GDP. Table 8 shows the shares by each of the sectors in the years 1975 and 2000, and thus highlights the shifts which are to take place.

Table 8. Sectoral Percentage Shares in Total Value Added (GDP), 1975, 1990 and 2000

	Agriculture	Mining	Manufacturing	Others
1975				
Africa	31.8	10.5	11.4	46.3
Asia	34.3	3.6	15.7	46.4
Latin America	12.3	4.7	22.4	60.7
Middle East	6.8	46.1	7.9	39.2
Industrialized Countries	6.7	2.1	29.1	61.3
1990				
Africa	23.1	8.6	15.7	52.6
Asia	23.7	2.6	21.9	51.7
Latin America	7.6	4.7	26.8	61.0
Middle East	6.1	27.7	14.3	51.8
Industrialized Countries	4.6	1.9	33.4	60.1
2000				
Africa	18.8	7.4	18.9	54.9
Asia	18.7	2.3	24.5	54.5
Latin America	6.7	4.8	27.5	61.0
Middle East	5.0	22.3	18.3	54.4
Industrialized Countries	4.3	1.9	33.4	60.4

The shifts in the structure implied by the scenarios are quite extensive. Agriculture's share of total GDP decreases very sharply for Africa, Asia and Latin America. For the Manufacturing sector, the share will increase, but by no means to the same degree for all regions. In Africa and Asia it will increase by something over one half. On the other hand, there is a much smaller increase given for the MVA share in Latin America, and in the Middle East it more than doubles. For this last region, the Mining share of GDP is seen to decrease significantly, in contrast to the other regions, where the changes in this share are not dramatic. These large shifts in the composition of value added in the

Middle East can be taken as the result of a large investment of oil revenues in industrialization.

Once again we can summarize the position in the developing world as the sectoral percentage shares in total value added:

Year	Agriculture	Mining	Manufacturing	Others
1975	19.6	13.0	16.5	51.0
1990	13.5	8.5	22.1	55.9
2000	11.0	7.2	24.3	57.5

It is notable that the concentration on increasing Manufacturing has had a similar effect on the share of the fourth sector, Other activities which includes the service industries used by Manufacturing.

Finally we may attempt to summarize the changes in the structure of the world economy as a whole. The shifts in the regional shares of MVA have already been discussed, but it is also possible to look at the regional shares in world GDP and world exports, and this is done in Table 9.

Table 9. Regional percentage shares of world GDP and exports

	GDP		Exports	
	1975	2000	1975	2000
Africa	1.9	3.2	2.9	4.2
Asia	4.0	8.7	4.0	9.4
Latin America	6.2	14.4	4.8	11.6
Middle East	2.8	5.0	9.0	10.0
Industrialized Countries	85.2	68.6	79.3	64.8

Several conclusions emerge from consideration of these results. First of all, the effect of the Lima target shares has been to increase the GDP

share to a much greater degree. Thus, for example, Africa's MVA in the year 2000 is 2 per cent but its GDP share is 3.2. Overall, the developing region's total of 25 per cent of world MVA is accompanied by 31.4 per cent share of world GDP. The shares of world exports show even larger changes. Overall, the developing region's share world exports increases from 20.7 per cent to 35.2 per cent.

These figures conclude the summary of the economic core scenario, which is given in the input-output Tables 10 to 14.

Table 10: Input-Output Table for Africa year 2000

GDP-GROWTH RATE IN PERCENT 7.23

YEAR 2000 VALUES IN BILLION OF 1975 US-DOLLAR

AFRICA

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	21.38	0.00	23.97	0.00	124.51	1.47	17.38	-17.38	171.35
(2)MINING	0.00	0.00	15.27	8.89	2.88	0.00	48.14	-16.27	58.93
(3)MANUF.	18.35	4.12	53.23	46.11	139.89	58.83	61.28	-136.07	245.78
(4)OTHER	12.01	7.58	33.24	91.28	266.14	86.78	48.76	-50.63	495.19
VAL.ADDED	119.59	47.22	120.04	348.89	0.00	0.00	0.00	0.00	635.75
TOTAL	171.35	58.93	245.78	495.19	533.43	147.09	175.58	-220.36	1607.01

LIMA TARGET SHARE 2.00 COMPARED TO ACTUAL SHARE 2.00

Table 11: Input-Output Table for Asia year 2000

GDP-GROWTH RATE IN PERCENT 6.25

YEAR 2000 VALUES IN BILLION OF 1975 US-DOLLAR

ASIA

Z

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	61.23	0.00	99.36	0.00	306.56	4.52	52.65	-52.65	471.68
(2)MINING	0.00	0.00	51.43	21.45	7.50	0.00	44.60	-76.17	48.81
(3)MANUF.	51.04	2.19	242.98	150.27	340.64	181.17	222.78	-239.73	951.37
(4)OTHER	38.53	6.83	137.93	254.75	652.19	267.23	77.01	-73.27	1360.72
Z									
VAL.ADDED	321.36	39.78	419.65	934.23	0.00	0.00	0.00	0.00	1715.03
Z									
TOTAL	471.68	48.81	951.37	1360.72	1306.89	452.93	397.05	-441.84	4547.64

LIMA TARGET SHARE 7.00 COMPARED TO ACTUAL SHARE 7.00

Table 12: Input-Output Table for Latin America year 2000

GDP-GROWTH RATE IN PERCENT 8.54

YEAR 2000 VALUES IN BILLION OF 1975 US-DOLLAR

LATIN AMERICA

3

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	42.31	0.00	175.78	0.00	84.04	10.88	37.10	-37.10	313.03
(2)MINING	0.00	0.00	83.46	36.22	21.33	0.00	124.14	-96.52	168.65
(3)MANUF.	45.38	7.59	601.35	362.58	549.34	435.39	229.98	-295.68	1935.97
(4)OTHER	34.87	26.13	295.99	589.80	1133.20	642.21	95.70	-102.41	2715.52
3									
VAL.ADDED	190.44	134.92	779.35	1726.90	0.00	0.00	0.00	0.00	2831.63
3									
TOTAL	313.03	168.65	1935.97	2715.52	1787.92	1088.49	486.93	-531.72	7964.80

LIMA TARGET SHARE 13.00 COMPARED TO ACTUAL SHARE 13.00

Table 13: Input-Output Table for Middle East year 2000

GDP-GROWTH RATE IN PERCENT 7.38

YEAR 2000 VALUES IN BILLION OF 1975 US-DOLLAR

MIDDLE EAST

4

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	11.13	0.00	39.88	0.00	27.50	3.27	36.21	-36.21	81.80
(2)MINING	0.00	8.52	20.69	11.20	8.89	0.00	256.94	-22.08	284.17
(3)MANUF.	11.76	12.54	139.14	112.45	203.03	130.99	85.72	-246.92	448.73
(4)OTHER	9.15	43.38	69.10	184.45	418.55	193.21	43.47	-117.12	844.21
4									
VAL.ADDED	49.74	219.72	179.90	536.10	0.00	0.00	0.00	0.00	985.46
4									
TOTAL	81.80	284.17	448.73	844.21	657.99	327.47	422.35	-422.34	2644.42

LIMA TARGET SHARE 3.00 COMPARED TO ACTUAL SHARE 3.00

Table 14. Input-Output Table for Industrialised Countries year 2000

GDP-GROWTH RATE IN PERCENT 3.99

YEAR 2000 VALUES IN BILLION OF 1975 US-DOLLAR

INDUSTRIALIZED COUNTRIES

5

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	229.74	0.00	674.40	0.00	244.57	0.00	288.71	-288.71	1148.72
(2)MINING	0.00	0.00	337.20	128.86	139.68	0.00	157.20	-419.98	342.96
(3)MANUF.	206.77	17.14	4158.82	1932.93	3226.17	1379.55	1540.33	-1221.68	11240.05
(4)OTHER	137.84	68.59	1573.60	2706.11	6635.47	1686.12	739.85	-661.36	12886.25
5									
VAL.ADDED	574.36	257.22	4496.02	8118.34	0.00	0.00	0.00	0.00	13445.94
5									
TOTAL	1148.72	342.96	11240.05	12886.25	10245.91	3065.67	2726.10	-2591.75	39063.93

LIMA TARGET SHARE 75.00 COMPARED TO ACTUAL SHARE 74.99

Table 15. Input-Output Table for Africa year 1990

GDP-GROWTH RATE IN PERCENT 7.23

YEAR 1990 VALUES IN BILLION OF 1975 US-DOLLAR

AFRICA ———

1

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	11.49	0.00	9.58	0.00	76.50	0.73	10.89	-10.89	98.32
(2)MINING	0.00	0.00	6.99	4.66	1.90	0.00	28.48	-7.85	34.20
(3)MANUF.	8.60	2.93	16.01	16.39	68.28	29.27	17.37	-65.08	93.80
(4)OTHER	5.02	3.91	11.67	36.91	126.67	43.17	21.84	-25.01	224.20
1									
VAL.ADDED	73.19	27.35	49.52	166.21	0.00	0.00	0.00	0.00	316.28
1									
TOTAL	98.32	34.20	93.80	224.20	273.37	73.17	78.58	-108.84	766.81

LIMA TARGET SHARE 2.00 COMPARED TO ACTUAL SHARE 1.35

Table 16. Input-Output Table for Asia year 1990

GDP-GROWTH RATE IN PERCENT 8.25

YEAR 1990 VALUES IN BILLION OF 1975 US-DOLLAR

ASIA

2

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	31.01	0.00	41.75	0.00	176.61	2.04	26.20	-26.20	251.43
(2)MINING	0.00	0.00	22.78	9.70	3.35	0.00	22.58	-33.53	24.89
(3)MANUF.	21.03	1.13	78.65	51.81	147.39	81.97	82.08	-100.83	363.25
(4)OTHER	15.08	3.21	50.12	90.78	273.98	120.91	31.49	-32.06	553.55
2									
VAL.ADDED	184.30	20.54	169.93	401.24	0.00	0.00	0.00	0.00	776.02
2									
TOTAL	251.43	24.89	363.25	553.55	601.34	204.94	162.36	-192.63	1969.16

LIMA TARGET SHARE 7.00 COMPARED TO ACTUAL SHARE 4.65

Table 17. Input-Output Table for Latin America year 1990

GDP-GROWTH RATE IN PERCENT 8.54

YEAR 1990 VALUES IN BILLION OF 1975 US-DOLLAR

LATIN AMERICA

3

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	18.35	0.00	75.70	0.00	50.14	4.79	18.48	-18.48	148.99
(2)MINING	0.00	0.00	37.04	15.67	5.05	0.00	56.15	-41.40	72.52
(3)MANUF.	20.86	3.34	247.55	149.71	240.69	191.81	91.65	-131.19	814.45
(4)OTHER	15.41	11.15	120.25	240.61	502.33	282.93	40.34	-45.83	1167.21
3									
VAL.ADDED	94.36	58.03	333.89	761.21	0.00	0.00	0.00	0.00	1247.50
3									
TOTAL	148.99	72.52	814.45	1167.21	798.22	479.54	206.63	-236.90	3450.70

LIMA TARGET SHARE 13.00 COMPARED TO ACTUAL SHARE 9.14

Table 18. Input-Output Table for Middle East year 1990

GDP-GROWTH RATE IN PERCENT 7.38

YEAR 1990 VALUES IN BILLION OF 1975 US-DOLLAR

MIDDLE EAST

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	5.44	0.00	14.39	0.00	23.91	1.60	17.76	-17.76	45.35
(2)MINING	0.00	5.10	8.91	5.04	2.91	0.00	158.75	-10.50	170.22
(3)MANUF.	5.68	7.30	50.19	47.04	100.97	64.24	31.92	-139.31	168.04
(4)OTHER	4.60	23.70	25.38	79.61	194.89	94.75	23.50	-64.34	382.13
VAL.ADDED	29.61	134.10	69.16	250.42	0.00	0.00	0.00	0.00	483.30
TOTAL	45.35	170.22	168.04	382.13	322.69	160.60	231.94	-231.93	1249.06

LIMA TARGET SHARE 3.00 COMPARED TO ACTUAL SHARE 1.89

Table 19. Input-Output Table for Industrialized Countries year 1990

GDP-GROWTH RATE IN PERCENT 3.99

YEAR 1990 VALUES IN BILLION OF 1975 US-DOLLAR

INDUSTRIALIZED COUNTRIES

5

	(1)	(2)	(3)	(4)	CON	INV	X	-M	TOTAL
(1)AGRIC.	165.94	0.00	454.50	0.00	209.27	0.00	195.04	-195.04	829.72
(2)MINING	0.00	0.00	227.25	86.70	93.74	0.00	114.14	-286.83	235.01
(3)MANUF.	149.35	11.75	2802.79	1300.57	2165.27	931.97	951.14	-737.74	7575.12
(4)OTHER	99.56	47.00	1060.51	1820.80	4453.45	1139.08	469.46	-419.39	8670.50
5									
VAL.ADDED	414.86	176.26	3030.05	5462.41	0.00	0.00	0.00	0.00	9083.59
5									
TOTAL	829.72	235.01	7575.12	8670.50	6921.75	2071.06	1729.80	-1639.01	26393.98

LIMA TARGET SHARE 75.00 COMPARED TO ACTUAL SHARE 82.95

INTERREGIONAL TRADE FROM THE LIDO SCENARIO

Percentage shares of total trade

Year 1975	Developed	Developing	Total exports
Developed countries to	63.5	15.7	79.3
Developing countries to	16.2	4.5	20.7
Total Imports	79.8	20.2	100.0

Year 1990	Developed	Developing	Total exports
Developed countries to	49.3	22.5	71.8
Developing countries to	18.7	9.5	28.2
Total Imports	68.0	32.0	100.0

Year 2000	Developed	Developing	Total exports
Developed countries to	40.5	24.3	64.8
Developing countries to	21.1	14.1	35.2
Total Imports	61.6	38.4	100.0

Growth rates, annual average percentage, of trade elements

1975-1990	Developed	Developing	Total exports
Developed countries to	4.0	8.3	5.0
Developing countries to	6.8	11.2	7.9
Total Imports	4.6	9.0	

1990-2000	Developed	Developing	Total exports
Developed countries to	3.7	6.6	4.7
Developing countries to	7.0	10.0	8.1
Total Imports	4.7	7.7	

Trade matrices in billions of 1975 US dollars

Year 1975	Developed	Developing	Total exports
Developed countries to	662.9	164.2	827.2
Developing countries to	169.2	46.6	215.8
Total Imports	832.2	210.8	

Year 1990	Developed	Developing	Total exports
Developed countries to	1,187.9	541.9	1,729.8
Developing countries to	451.1	228.4	679.5
Total Imports	1,639.0	770.3	

Year 2000	Developed	Developing	Total exports
Developed countries to	1,702.8	1,023.3	2,726.1
Developing countries to	888.9	593.0	1,481.9
Total Imports	2,591.7	1,616.3	

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