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## DISCUSSION PAPER No. 10

### **Prioritization of Policies: A Prototype Model of a Flowchart Method**

Akifumi KUCHIKI\*

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#### **Abstract**

This paper builds a prototype model of how to prioritize policies by using a flowchart. We presented the following six steps to decide priorities of policies: Step 1 is to attain the social subsistence level (primary education, health care, and food sufficiency); Step 2 is to attain macroeconomic stability; Step 3 is to liberalize the economy by structural adjustment programs; Step 4 is capacity building specific to a growth strategy by facilitating sufficient infrastructure (physical infrastructure and institutions); Step 5 is to initiate a growth strategy; and Step 6 is to narrow income inequalities. We illustrated the effectiveness of our “flowchart method” in case studies of Morocco, Laos, Vietnam, and China. The first priority of reforms in Morocco was given to social sectors of primary education and health care, particularly in the rural areas at Step 1. Laos should not put much emphasis on growth strategy before educational reform, attainment of macroeconomic stability, and institutional capacity building at Steps 1, 2, and 3. Vietnam can focus on reforming the state-run enterprises and developing the stock markets at Step 5 of growth strategies. We found that we should apply our flowchart method to China not nation-wide but province-wide.

**Keywords:** prioritization, flowchart, policies

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\*Director-General, Research Planning Department, IDE (akifumi\_kuchiki@ide.go.jp)

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**INSTITUTE OF DEVELOPING ECONOMIES (IDE), JETRO**  
**3-2-2, WAKABA, MIHAMA-KU, CHIBA-SHI**  
**CHIBA 261-8545, JAPAN**

## 1. Introduction

Wolfensohn [1999] proposed a comprehensive development framework (CDF) that all the requirements within a holistic framework must be addressed if there is to be stable, equitable, and sustainable development. The CDF emphasizes the importance of prioritizing policies since it is holistic. PRSPs (Poverty Reduction Strategy Papers) (CDF [2001]) were initiated by the International Monetary Fund and the World Bank in 1999 and are to be lead by ownership of developing countries which receive official development assistance (ODA). The principles of the CDF are almost the same as those of PRSPs. One of the core principles of PRSPs is to prioritize policies.

Each recipient country of ODA has a number of choices in prioritizing policies. There are many approaches to determine a country's development strategy. Japan takes a "country approach" to its official development assistance policy (Nakano [1998]). The country approach will design the development strategy of recipient countries by determining projects and programs. The US, Canada, the UK, and Germany also take the country approach (see Appendix 1). So developing countries must select one of the policy priorities.

Each country has so many required reforms covering social sectors such as education and health care, physical infrastructure, institutional building, growth strategy and poverty reduction, though budgets of countries are limited. We have no other choice but to prioritize policies under budget constraints.

The Tinbergen [1952] principle told us that the number of policy measures should be equal to the number of policy objectives for policies to be successfully implemented. But it is usual that the numbers of policy measures and objectives are not so clear in reality. The World Development Report [1991] discussed shock therapy and sequencing policies when so many planned economies were in transition to market economies in the early 1990s. Some studies found criteria for sequencing reforms even though it is difficult. Collier [2000] found that

political stability is a precondition to economic reforms. The World Bank [1998] showed that aid is effective in developing countries with sound policies. That is, macroeconomic stabilization is the first priority in sequencing policies. The World Bank [2000] and [2001] emphasized institutional reforms. Social sectors such as education and health care play crucial roles in PRSPs. Stiglitz [1999] recommended control over short-term capital movements in developing countries whose financial markets are not developed sufficiently. We reached a tentative conclusion that developing economies with underdeveloped financial markets may strategize the sequencing of economic reforms.

But there are differences in budget allocation between sequencing and prioritization of policies (see Appendix 1). We propose that governments should allocate budgets according to the priorities of policies since both the shock therapy and the sequencing are not realistic. However, no paper has proposed how to decide prioritizing institutional reforms, social sector reforms, and other reforms.

The purpose of this paper is to propose a flowchart method of prioritizing policies of developing countries as objectively as possible by using data. We propose the following six steps for prioritizing policies; Step 1: Attaining the social subsistence level (education and health care, and agriculture); Step 2: Macroeconomic stabilization; Step 3: Structural adjustment programs; Step 4: Capacity building for economic growth (physical infrastructure and institutions); Step 5: Growth strategies; and Step 6: Narrowing income inequalities.

For example, education is the highest priority of policies in developing countries if their literacy rate less than 50 %. A country enters into the flowchart from Step 1 of primary education in Figure 1 to decide what its priorities are. The flowchart is helpful to decide prioritizing economic policies in developing countries.

Though this paper a priori gives values of criteria in deciding at each step whether we go to the next step, there are other values of criteria we can adopt. So this paper proposes a prototype

model to discuss other criteria. We will apply the flowchart method to Morocco, Laos, Vietnam, and China, finding objective policy proposals for the countries to make clear the effectiveness of the method.

The rest of the chapter is organized as follows. Section 2 proposes a prototype model of prioritizing policies and reforms according to a flowchart. Section 3 quantitatively examines which ordering is the best of all combinations of the six steps, that is, attaining the social subsistence level, macroeconomic stabilization, structural adjustment programs, capacity building for economic growth, growth strategies, or narrowing income inequalities. Section 4 clarifies the characteristics in each region of the world by using the flowchart. Section 5 applies the flowchart method of prioritizing reforms to Morocco, Laos, China and Vietnam. We present a summary in Section 6.

## **2. Prioritization of policies**

It is best to implement all reforms at once as a package if the budget is unlimited. But every government needs to prioritize its reforms since policies require change in the government's budget allocations due to budget constraints. This section will propose a prototype model of a way of prioritizing reforms. Here we assume political stability as a precondition to all policies and reforms. We will a priori give order of reforms to a flowchart in Figure 1 based on experiences of developing countries as a prototype model in the following six steps.

Step 1: to attain the social subsistence level of living: enhancement of the literacy rate (primary education and health care) and agricultural reform (increase of agricultural productivity),

Step 2: macroeconomic stabilization (stabilization of prices and stabilization of balance of international payments), stabilization of the financial system,

Step 3: structural adjustment programs (abolition of controlled prices, exchange rates

liberalization, and liberalization of interest rates), deregulation, and development of markets,

Step 4: capacity building for economic growth: improvement of physical infrastructure (road, port, airport, power, and communication) and institutions closely related to growth strategy,

Step 5: growth strategy,

Step 6: reducing income inequalities.

This paper claims the following two points concerning order of the steps in Figure 1. The first point is that Step 1, the reform of primary education and agriculture to attain the social subsistence level of living is required for some countries at the stage before both Step 2, macroeconomic stabilization and Step 3, structural adjustment programs. The second point is that Step 4, the improvement of physical infrastructure and institutional reforms are preconditions to Step 5, the economic growth strategies. The reasons why we propose to order the six following steps of these reforms are explained below.

Step 1: As is indicated in the United Nation Development Plan (UNDP), the ultimate purpose of economic growth is not growth itself, but human development. Independent variables that determine the standard of human development are an education standard and a health standard. UNDP [2002] insists that the objective of human beings is to maximize the welfare of life such as education and health care. Therefore, to achieve the social minimum standard of living, primary education is the bottom line. In a country with a literacy rate of less than 50 %, there will be no question in giving the first priority to primary education. So the social subsistence level comes on the top of our flowchart in Figure 1.

UNDP [2002] put a critical value of 50 % of human development index between the low and the high. Here we a priori give a critical value of 50 % of the literacy rate at Step 1. In deciding whether we take a route to yes or no at Step 1, we may refer to values of life expectancy and per capita income since the critical value of literacy rate is groundless. It is noted that this paper will not discuss whether the critical value of 50 % is reasonable.

Two reasons why agricultural reform is necessary for a country with a low rate of self-sufficiency of food production are described in the following. First, a theory says that improvement in efficiency of agricultural production is necessary for a developing country to transform into the market economy from the dual economy where there is a gap in productivity between the agricultural sector and the industrial sector. Wages in a developing country cannot exceed the social subsistence level until its agricultural productivity exceeds the turning point of the theory. This is so called the “theory of the turning point” by Lewis [1955]. Second, Myint [1965] explained the need for agricultural reform in economic development to increase agricultural productivity. The three roles of agriculture are to supply food sufficiently, to supply labor to non-agricultural (industrial) labor, and to create demand for industrial products.

Governments should try to maximize food self-sufficiency to reduce constraints of both the fiscal account and the external current account of its international balance of payments. A desert country cannot produce agricultural products. A country like Japan, which earns foreign currency by exporting manufacturing goods and imports food, need not attain self-sufficiency of food. But most of the developing countries face both fiscal deficits and external current account deficits that will bring macroeconomic instability. We can skip this step if a country has no problem with its budget or foreign reserve without increasing self-sufficiency of food. Here we also take Myint's hypothesis and set the agricultural reform to Step 1 in the flowchart of prioritizing policies in Figure 1. It is noticed that we must justify the order and critical values of reforms in Figure 1 by further discussing whether they are reasonable.

We can illustrate that developing countries took off by increasing its agricultural productivity (Kuchiki [1994]). The Asian countries such as China, Laos, and Vietnam after the 1980s implemented agricultural reform prior to structural adjustment programs of Step 2. For instance, the Chinese government introduced a farmer production contract system at almost the same time when its open door policies of liberalization were introduced in 1979 to give incentives

to farmers. As a result, food production was increased dramatically, and this reduced direct and indirect subsidies to agriculture, thereby contributing to achieving macroeconomic stabilization by restoring its fiscal discipline. The policy of the farmer production contract system was successfully applied to other Asian socialist countries during the transition period from the planned economy to the market economy. For instance, a similar incentive policy to farmers was implemented in Vietnam and Laos. We could find a counter example in Russia that the structural adjustment programs had an adverse effect at least in the 1990s because its agricultural reform might not be implemented sufficiently in advance of Step 2.

Thailand took agricultural policy in the 1950s and 1960s to increase its productivity of rice. Rice was important to Thailand in the post-WWII period to earn foreign currency since taxes on rice exports constituted 32% of budget revenue in 1953 (MacIntyre [2001]). Malaysia formulated a policy of shifting rubber production to oil palm production in the 1970s, and emphasized fostering natural resource-based industries such as petroleum, tin, and palm oil to improve the value-added in the 1980s. The Ministry of Primary Industries was established in 1972 to play an important role in the national economy in the 1970s by contributing some 70 per cent of total export (ESCAP [1999]). Japan developed an agricultural policy to increase foreign currency by exporting silk and tea in the 1890s (Kawamura [2002]). We assume that agricultural reform is a key to attain macroeconomic stability in many countries.

Step 2: From the 1980s, the World Bank and IMF started to implement structural adjustment programs as a package of reforms. Here we will explain the reasons why we have given the order of Steps 2 and 3 mentioned above. The IMF imposes the conditionality of macroeconomic stabilization to recipient countries as a pre-condition for World Bank's loans. Then, the World Bank imposed conditionality of implementing economic liberalization in both the 1980s and the 1990s through structural adjustment programs. We think that these two steps are pre-conditions to introduce economic growth strategy.



Step 3: Burnside and Dollar [2000] found the order successful in the cases of many developing countries in the latter half of the 1980s and former half of the 1990s by showing that aid is effective in developing countries with sound policies of macroeconomic stabilization. That is the reason why we adopt the order of Step 2 and Step3. We think that the order of reforms should be as objective as possible.

Structural adjustment programs include many reforms such as trade liberalization, abolition of controlled prices, and capital liberalization. The World Bank requested recipient countries to implement these reforms concurrently as one package particularly in the 1980s and in the former half of the 1990s. Based on experiences of the Asian currency crisis which occurred in 1997, some economists concluded that a rapid inflow of short-term capital to countries such as Thailand and Malaysia generated bubble economies due to liberalization of movements of short-term capital so that an outflow of the capital caused the Asian currency crisis (Stiglitz [1999]). They insisted that short-term capital liberalization should be restricted in developing countries at the early stage of development. It is noticed that, in the future, we need to reexamine whether we should prioritize liberalization of long-term capital at Step 3 of structural adjustment programs (Ito [2001]) in advance of liberalization of short-term capital.

Step 4: Physical infrastructure and institutions required for growth strategy should be facilitated at Step 4 before Step 5. For example, growth strategy in the manufacturing sector is closely related to how sufficiently the transport sector such as roads, ports and airports should be addressed at Step 4.

We divide physical infrastructure into the following two: what relates to basic human needs and what relates to growth strategy. The former example is water services for human life and the latter is ports and highways for growth strategy. We must prepare for the latter's physical infrastructure for growth strategy at Step 4. We can limit physical infrastructure related to growth strategies to facilitate at Step 4. In cases of the ASEAN countries in the 1980s, such

physical infrastructure as the construction of ports, electricity, and roads were limited to their industrial zones to invite foreign direct investment (Kuchiki [1997]). We can name the physical infrastructure, “ economic infrastructure”.

Each country has so many institutions to be reformed. We can illustrate an analysis on Morocco’s reforms in section 5. Research on institutions is crucial to implementing reforms successfully. It is usual that each step has its own institutional reforms. Here we limit our focus of institutional reforms at Step 4 on reducing corruption and preparing the investment climate for growth strategy at Step 5.

Step 5: There is an argument as to whether governments’ selective interventions are needed to implement economic growth (World Bank [1993]). We assume that we can proceed to take growth strategy if their preconditions mentioned above hold. In short, we give priorities next to Step 1 as follows: Step 2 the stabilization of macro economy, Step 3 the structural adjustment programs, Step 4 the improvement of infrastructure and institutions, and Step 5 economic growth strategy.

After completion of Step 4, the improvement of physical infrastructure and institutions, governments can play an important role in implementing Step 5 the economic growth strategy. We can illustrate the strategies by developing a private sector and promoting introduction of foreign direct investment.

It is especially difficult to make a plan of industrialization at Step 5, the growth strategy. The industrialization strategy will depend on the stage of economic development of a country. We will show that we must identify “economic agents” and establish “institutions” for the strategy in each developing country. The strategies of Morocco are illustrated in Figure 2. We will explain them below.

(1) Consider a country whose key products are primary commodities. Then its strategies may take forms of agro-based industrialization, resource-based industrialization, and export of primary

commodities. This strategy in cocoa, palm oil, and petroleum was successfully taken in Malaysia in the early 1980s, and succeeded by export-led growth in the electronics industry in the latter half of the 1980s.

(2) The following are candidates of economic agents to implement growth strategy: (i) traditional industries, (ii) state-owned enterprises, (iii) export industries of nontraditional goods, and (iv) small and medium-sized enterprises.

(3) Introduction of foreign direct investment (FDI) into East Asia was the most popular and successful strategy particularly after the 1980s all over the world. There are two types of industries of FDI, that is, industries of import substitution and industries of export-oriented. East Asian countries successfully introduced export-oriented industries in the latter half of the 1980s and former half of the 1990s.

(4) A regional development strategy is to establish export processing zones and/or industrial zones with preferential treatments such as tax reductions or exemptions to invite FDI. The export-led strategy by FDI was taken in East Asia. This was realized by a method of developing export processing zones (EPZ) contributing to economic growth in East Asia until the occurrence of the Asian crisis in 1997.

(5) The tourism industry can be useful to earn foreign currencies to import raw materials for the manufacturing industry if a country has the resources for tourism.

Step 6: We usually find income inequalities between the rich and the poor after a country has attained high rates of economic growth at Step 5, and must take policies to narrow the gap at Step 6.

On one hand, Kuznets [1955] found a hypothesis of inverted U-curve, that is, the conjecture that inequality would first rise and then fall with economic development. On the other hand, Deininger and Squire [1996] found no empirical support for the Kuznets hypothesis. Here we assume the Kuznets hypothesis, so that growth strategy is at Step 5 and narrowing the gap is

at Step 6. A country usually becomes unstable in politics as income inequalities become wider. The inequalities might bring social unrest. We cannot avoid this step when a country faces political instability due to this gap.

### **3. Prioritization of Policies**

Positive analyses of this section support the order of the flowchart in the previous section. We illustrate how to prioritize policies in the case of Appendix Table 1. Consider three countries of A, B, and C, and three policies of agriculture, macroeconomic stabilization, and electricity supply. Country A has a problem of electricity supply shortage, country B has problems of electricity supply shortage and macroeconomic instability, and country C has three problems of electricity supply shortage, macroeconomic instability, and low agricultural productivity. Economic growth rates of counties A, B, and C are 9%, 5%, and 2%, respectively.

This paper considers how to give weight to each of the three problems in order to maximize economic growth rates, and examines how to allocate our budget to each policy to raise economic growth rates. Here we illustrate three cases of giving weight to each policy: Plan 1 is to give a weight of 5 to agriculture, 3 to macroeconomic instability, and 1 to electricity supply; Plan 2 is to give a weight of 1 to agriculture, 3 to macroeconomic instability, and 5 to electricity supply; Plan 3 is to give a weight of 3 to agriculture, 5 to macroeconomic instability, and 1 to electricity supply. Plan 1 gives 1 point to country A due to electricity supply shortage, 4 points to country B due to electricity supply shortage and macroeconomic instability, and 9 points to country C due to electricity supply shortage, macroeconomic instability, and low agricultural productivity. Plan 2 gives 5 points to country A due to electricity supply shortage, 8 points to country B due to electricity supply shortage and macroeconomic instability, and 9 points to country C due to electricity supply shortage, macroeconomic instability, and low agricultural productivity. Plan 3

gives 1 point to country A due to electricity supply shortage, 6 points to country B due to electricity supply shortage and macroeconomic instability, and 9 points to country C due to electricity supply shortage, macroeconomic instability, and low agricultural productivity.

We apply a regression method to find the relationship between economic growth rates and total points of countries A, B, and C. That is, the growth rates are 9%, 5%, and 2%, and the total points are 1, 4, and 9 of country A, B, and C, respectively. The total points are independent variables and the growth rates are dependent variables. The adjusted R-square is 0.899, and the T value of the coefficient is 8.35 in the case of Plan 1. Plan 3 is the best of three plans in both the coefficient of determination and T value. The prioritization of plan 3 is macroeconomic stability, agriculture, and electricity supply. We illustrated a simple case of how to prioritize policies.

We apply the method to Appendix Table 2 to consider the relationship between economic growth rates and policies of education, agriculture, macroeconomic instability, electricity supply, and income distribution. Plan gives points 5, 4, 3, 2, and 1 to education, agriculture, macroeconomic stability, electricity supply, and income distribution, respectively. We consider the following four cases of electricity supply shortage: [I] We suppose that a country has an electrical supply shortage with less than 300 kilowatt hours; [II] We suppose that a country has an electrical supply problem with more than 100 and less than 300 kilowatt hours; [III] We suppose that a country has a problem in the supply of electricity with less than 500 kilowatt hours; [IV] We suppose that a country has a problem in the supply of electricity with more than 100 and less than 500 kilowatt hours. We find that case [II] is the best among the four cases to relate the region of a country's electricity supply shortage to economic growth rates. The coefficient of determination in the case of [I] in plan is 0.237. Those values in the cases of [II], [III], and [IV] are 0.346, 0.096, and 0.153, respectively.

Appendix Table 2 considers 16 ways of prioritization of policies to show that correlation coefficients are higher in the cases of plans , , , and . Prioritization of plan is education, agriculture, electricity supply, income distribution, and macroeconomic instability in order. We find the following three characteristics in plans of , , , , : first, the macroeconomic instability is the lowest among the policies in priority; second, electricity supply is the highest in the cases of plans and ; third, the education is the highest in the cases of plans and (see the original data in Appendix Table 3).

Our statistical analyses in this section show that priorities of the policies are education, electricity supply, agriculture, income distribution and macroeconomic instability in order. We conclude that the statistical analyses do not contradict the order of priorities of the flowchart in Figure 1 of section 2 except electricity supply and macroeconomic instability. So we will use the order of the flowchart in the sections below.

#### **4. Region-wise characteristics**

This section applies our flowchart method of prioritizing policies to developing countries from 1993-95 and in 1999 to show that our method is effective in finding characteristics of regions of the world. We will find policies that governments should give the first priority to.

We will illustrate characteristics of each region of the world by using data of Tables 1-9. The characteristics could be classified in the following. The first priority of the Sub-Saharan African countries was given Step 1 of primary education. In South America, Step 1, improvement of food self-sufficiency, was emphasized. In East Europe and Central Asia, Step 2, stabilization of inflation, was necessary from 1990 to 1995. Countries with comparatively high incomes in Middle East must take Step 2 of the external balances of a current account. South America is under the pressure of Step 6, correction of income inequalities. These conclusions can be

derived by our flowchart method of prioritizing policies in Figure 1 together with data of Tables 1-9.

Step 1: Primary education is the first priority if there is a literacy rate of 50% or less. Improvement of literacy rates is needed in such countries that income per capita is 600 dollars or less and that the average life span is 50 years or less. These are the Sub-Saharan African countries such as Mozambique, Ethiopia, Burundi, Chad, Mali, Gambia, and Benin (Table 1). Though this paper a priori gives a 50 % value of a criterion for deciding at this step whether we go to the next step, there are other values of the criterion we can adopt. So this paper proposes a prototype model to be further discussed to determine whether the value of 50 % is reasonable.

Improvement of food self-sufficiency is a prerequisite for macroeconomic stabilization policy. In a country that can produce agricultural products with low productivity, its agricultural productivity must be improved. A country whose cereal yield per hectare is less than 1000 kilograms falls into this category. Countries in this category are Algeria, Morocco, and Libya in North Africa, and Botswana, Central Africa, Sudan in Sub-Saharan African countries. Many Sub-Saharan African countries were in this category in both 1995 and 2000 (Table 2).

Step 2: All of the countries must achieve macroeconomic stability as a prerequisite to introduce growth strategy. The macroeconomic stability means stabilization of inflation, an external balance of the current account of international balance of payments, and a balance of the fiscal account. Countries where stabilization of a balance of current account was required were Jordan, Lebanon, Oman, and Saudi Arabia in Middle Eastern countries (Table 3). Many East European and Central Asian countries must stabilize inflation in the former half of the 1990s. These countries included Albania, Azerbaijan, Belarus, Croatia, Estonia, Latvia, Lithuania, Macedonia, Poland, Rumania, Slovakia, and Ukraine (Table 4). Countries with relatively high incomes are required to stabilize a balance of the fiscal account. They were Finland, Greece, Italy, Russia, and Sweden (Table 5).

Step 4: One of prerequisites to growth strategy is the improvement of physical infrastructure and institutions. Improvement of power supply is the first priority among the prerequisites. Some Asian countries required an improvement of power supply. They were India, Indonesia, Pakistan, Philippines, Sri Lanka, and Vietnam (Table 6). It is noticed that power supply is provided by not the public sector, but the private sector if it is expected to be profitable. The role of governments is to prepare an investment climate for both domestic and foreign investors in the private sector to invest in electricity services.

Step 6: We illustrated countries with large income inequalities in South America such as Brazil, Chile, Colombia, Dominica, Guatemala, Honduras, Mexico, Nicaragua, Panama, and Venezuela (Table 7).

Here we will not discuss Steps 3 and 5 since we do not have data related to the steps.

## **5. An application of the prioritization method to Morocco, Laos, Vietnam, and China**

### **(1) Morocco**

Now we will apply our prioritization method to Morocco. At first we outlined the Moroccan economy by Tables 1-11. The income per capita exceeds 1,000 dollars and the average life is 67 span years old (Table 1). However, Morocco is an unusual country among the countries whose literacy rate did not exceed 50%. So an increase in the literacy rate is the highest priority.

Table 2 lists countries whose cereal yield per hectare is 1000 kg or less. Cereal yield per hectare in Morocco is 471 kg in 2000, which belongs to a group with a low production. It is said that food must be self-sufficiently supplied as much as possible to attain macroeconomic stability as we mentioned above; if much food is imported, then the balance of payments deteriorates, which means macroeconomic instability.



We will compare Morocco's economy with those of other countries. Its ratio of the external current account deficit to GDP is 3.3%, which is not relatively bad compared with those of other countries (Table 3). Table 4 lists countries whose inflation rate exceeded 30%, while Morocco's inflation rate is less than 10%. Table 5 lists countries whose ratio of fiscal deficit to GDP is 8% or more, while that of Morocco is only 1.4%. International comparison shows that Morocco attained its macroeconomic stability.

Countries whose energy production per capita is between 100 kilowatt-hours and 500 kilowatt-hours were listed in Table 6. Morocco's energy production is almost at the same level as that of Pakistan, which belongs to the group requiring an increase in energy production.

Table 7 illustrates countries with 50 and more of the Gini coefficient, which is one of the indexes that indicate income differentials. Morocco's Gini coefficient is 39.5, which means that its income inequalities are relatively low compared with countries with high Gini coefficients. Morocco belongs to a group of countries whose debt service ratio (ratio of debt payments to exports per year) exceeds 30%, which has a negative effect on the balance of payments. This is the cause of its macroeconomic instability (Table 8). Table 9 lists the countries whose saving rate exceeds 25%. Morocco's saving rate of less than 25% is lower than the value of our criterion for the saving rate.

We will illustrate the effectiveness of our flowchart by giving the order of priorities to Morocco's reforms according to the flowchart shown in Figure 1.

Step 1: The flowchart in Figure 1 made clear the problem of its low literacy rate. Its primary education is insufficient for human development to attain the social subsistence level of living. In a country whose literacy rate does not exceed 50%, there is no question in setting the first priority to primary education. Morocco falls into this category.

A country with low agricultural productivity must improve agricultural production to soften a constraint of both a fiscal balance of account and a balance of payments. Morocco's cereal

production is insufficient in the international standard. Therefore, the second priority is given to improvement of irrigation to increase its agricultural productivity by taking Morocco's deserts into consideration.

Step 2: Its macroeconomic stability is examined. We concluded that the Moroccan economic reform attained macroeconomic stability in 1997. The consumer price index rose by 1% and the ratio of the external current account to GDP was minus 1.7% in 1997. The ratio of the fiscal balance to GDP was reduced to minus 3.2%. The foreign reserves cover imports for 6.5 months, which was sufficiently higher than 3 months required by the IMF (International Monetary Fund). However, the debt service ratio exceeded the critical value of 30% suggested by the IMF.

It is noticed that the IMF also suggests that, to attain macroeconomic stability, a ratio of external debt to GDP had to be less than 50% (1997). For that purpose Morocco needs to reduce its outstanding debt. Two technical methods were available to reduce its debt. One method was the conversion of the external debt into investment and the other was the switchover of the debt from high-interest loans to low interest loans. The negotiations on the debt reduction with France and Spain played important roles in reducing the outstanding debt. The Central Bank and the Ministry of Finance, which were in charge of macroeconomic management, were cautious about increasing its external loans so as not to increase its outstanding debt.

Step 3: Structural adjustment programs had good performance in Morocco. Its institutional reforms of administration, management and legal improvements were behind schedule. For example, there is a transparency problem in administrative reform.

Step 4: The private sector developed infrastructure such as water services and electricity supply in this period.

Step 6: The Moroccan GDP per capita in 1995 was 1110 dollars. The GDP per capita of 1000 dollars was referred to as the turning point for an economy to take off. It is usual that

income inequalities become large when the economy keeps growing at high rates for several years at this stage of economic development. We can find Morocco's income inequalities between the urban region and the rural region. In particular its female literacy rate in the rural region is extremely low.

Table 10 summarizes the case of Morocco as follows. The first priority of reforms in Morocco was given to social sectors of primary education and health care particularly in the rural areas at Step 1. Primary education of the social sectors is the most serious. Development of electricity supply and water services to the rural regions is required to reduce the children's labor hours to bring water from rivers to their houses so that they can go to school.

## (2) Laos

Laos's government gave priority to improvement of infrastructure, state-run enterprises reform, introduction of foreign direct investment, development of small- and medium-sized enterprises, and development of the traditional industry, the tourism industry, the processing industry of primary goods, and the farming industry.

Now we apply the flowchart method to cases of Laos by using Tables 1–9 and a summary of Table 11. It is clear that Laos should give the first priority to primary education since its literacy rate is 48 % (that is, its illiteracy rate is 52 %). Laos' slash-and-burn farming is preventing the diffusion of education. Its children cannot go to school everyday since they are not staying in one place. So the farming method should be changed in advance of its educational reform. Construction of infrastructure such as roads is necessary for its growth strategy. Laos' cereal yield per hectare will satisfy the criterion on agricultural production of more than 1000 kilogram per hectare. But its economy should attain macroeconomic stability since its inflation rate is higher than our criterion of 30 %. It is noticed that the ratios of both its external current account and overall budget deficit to GDP are exceed our criteria at more than 8%. Institutional capacity building to improve transparency and reduce corruption is required at Step 4. Research on

problems of its institutional building is required as a first step under the current political system. We can conclude that Laos should not put much emphasis on growth strategy before educational reform, attainment of macroeconomic stability, and institutional capacity building at Steps 1, 2, and 3.

### (3) Vietnam

Vietnam can focus its policies on growth strategy different from Laos since it satisfies the criteria of the literacy rate, cereal yield, inflation rate, and external current account. Institutional improvement is required though structural adjustment programs are in progress. Vietnam took growth strategy of fostering three districts by establishing industrial zones in the 1990s (Kuchiki [1995]). The districts are the northern district of Hanoi, Haiphong, and Quang Ninh, the central district of Danang, Hue, and the southern district of Hochimin, Bien Hao, and Vung Tau. Some of the industrial zones changed into export processing zones, and succeeded in attracting foreign investors. But inflows of foreign direct investment into Vietnam stagnated in the middle of the 1990s partly because the government took social policy in addition to the policy of inviting foreign investors. The social policy emphasized more equity than efficiency to mitigate a gap between the rich in the urban areas and the poor in the rural areas. The government directed introducing the Korean way of fostering big business groups (Cheabols) as industrial policy before the Asian currency crisis in 1997 happened, but was forced to change the policy since it became clear that the Korean Cheabols had problems of management. Vietnam can focus on reforming the state-run enterprises and developing the stock markets at Step 5 of growth strategy.

### (4) China

China's government gave priority to two major reforms of the state-owned enterprises and banking sector. The Chinese tenth five year plan in 2001 proposed to resolve the development of core industries to lead the national economy, narrow the gap of income inequalities, and solve environment problems. The reforms were the most urgent in China in the 1990s. However, the

budget of each country was limited. So these reforms must be prioritized in order.

China is the best among the four nations analyzed in this section as Table 11 shows. China satisfies every criterion except that the Gini coefficient is nearly 50 % (see Table 11). It is well known that China is unequal in incomes between the coastal area and the inland area. So China can focus on growth strategy together with reducing poverty in the western region. The Chinese policies in the 2000s are consistent with our analysis. Then Table 11 tells us that China is recommended to emphasize policies of [F] institutional reforms, [H] environmental problems, and [G] growth strategy.

Table 12 is the result of the flowchart method to China not nation-wide but province-wide to show that there are such poor provinces in inland China as Xizang and Qinghai. Primary education is the first priority for their provinces. The table also makes clear that some provinces have a surplus in electricity supply while others have a deficit so that reallocation of electricity between the provinces is desirable. We can reconfirm China has no problem of grain production and energy production by the province-wide analysis of the flowchart method.

Now we focus our analysis on policies of [F] institutional reforms, [H] environmental problems, and [G] growth strategy. Indices of marketization in Table 12 represent levels of [F] institutional reforms. Three indices of wastewater, air pollution, and industrial solid waste represent levels of [H] environmental problems. The number of schools and graduates as indices of higher education in Table 12 represent levels of [G] growth strategy. Both the index of marketization and the index of market-intermediate organizations and laws in Table 12 represent levels of marketization of a country. Our criterion for provinces to be marketized is that each index is less than the average of each index. Three provinces of Guizhou, Gansu and Yunnan need to be marketized according to this criterion.

Table 12 illustrates provinces of which each index on environment is more than the average of each index of the three environmental indices mentioned above. The provinces of Gansu,

Ningxia and Liaoning are to be given priority for improving their environment. We picked out provinces that should emphasize higher education. One index of higher education is the number of schools and another is number of graduates in Table 12. The criterion for provinces to emphasize higher education is that we choose 11 provinces excluding both ten provinces from the top and ten provinces from the bottom from each index of the two indices. We chose provinces by applying the criterion of the two indices. Fujian, Shaanxi, Jiangxi, Heilongjiang, Shanghai, Jilin, Guangxi and Zhejiang need to emphasize higher education as growth strategy. It is noted that our criterion is not objective but arbitrary to be examined by further studies.

## **6. Summary and Conclusions**

This paper builds a prototype model of how to prioritize policies by using a flowchart. We presented the following six steps for deciding the priorities of policies: Step 1 is to attain the social subsistence level (primary education, health care, and food sufficiency); Step 2 is to attain macroeconomic stability; Step 3 is to liberalize the economy (trade, investment, and finance) by structural adjustment programs; Step 4 is capacity building specific to growth strategies by facilitating sufficient infrastructure (physical infrastructure and institutions); Step 5 is a growth strategy; and Step 6 is to narrow income inequalities.

We applied the flowchart method to Morocco's reforms and tried to illustrate the effectiveness of the flowchart in prioritizing reforms. The priorities of Morocco's policies are given to primary education at the first, the expansion of irrigation facility at the second, and its increase in energy production at the third. Its increase in electricity supply, water services and saving are also needed to enhance economic growth.

We illustrated the effectiveness of our flowchart method on case studies of Lao, Vietnam, and China. Lao should not put much emphasis on growth strategy before educational reform,

attainment of macroeconomic stability, and institutional capacity building of Steps 1, 2, and 3. Vietnam can focus on problems of reforming the state-run enterprises and developing the stock markets at Step 5 of growth strategy. We found that we should apply our flowchart method to China not nation-wide but province-wide.

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#### Appendix 1: Priorities of Policies of Donors and Recipient Countries

Each donor has its own order of priorities to a recipient country's policies according to the donor's preference. Each developing country cannot implement several reforms without prioritizing them at the same time within its limited budget. Here we will illustrate a Japanese case of a country approach to understand why prioritization of economic reforms is avoidable. The purpose of a “country approach” is to achieve the maximum effect of the aid for the growth of a particular recipient country. However, there may be other purposes for the Japanese aid. One purpose may be to secure natural resources of developing countries such as oil for the Japanese economy. It is expected that the Japanese aid should contribute to Japanese industries' profit. The other purpose may be to obtain support of developing countries for Japan in the United Nations. Each purpose can result in a different allocation of the Japanese aid. Therefore, a criterion for prioritizing reforms can decide aid allocation for reforms of recipient countries.

If a developing country receiving ODA introduces a country approach, priorities vary greatly according to criteria determined by the purposes of the reforms. When we prioritize reforms, targeted sectors to reduce poverty and maximize growth are more diversified than before. It is usual that a developing country definitely emphasizes development to maximize its growth. However, since the 1990s, social sector has become more important than before. The social sector includes sectors of education and health care. The World Bank may collectively refer to this as investment in humanity. As an economy is industrialized and grows, environmental issues will become more and more serious. For instance, in India, air pollution was reported as a health hazard. The same problem was indicated in China, too. In addition, high priority is given to consideration to the disadvantaged, of which gender is a good example. There are so many

variations of prioritizing reforms. So we need an objective way of prioritizing policies.

## Appendix 2: Shock Therapy, Sequencing, and Prioritization

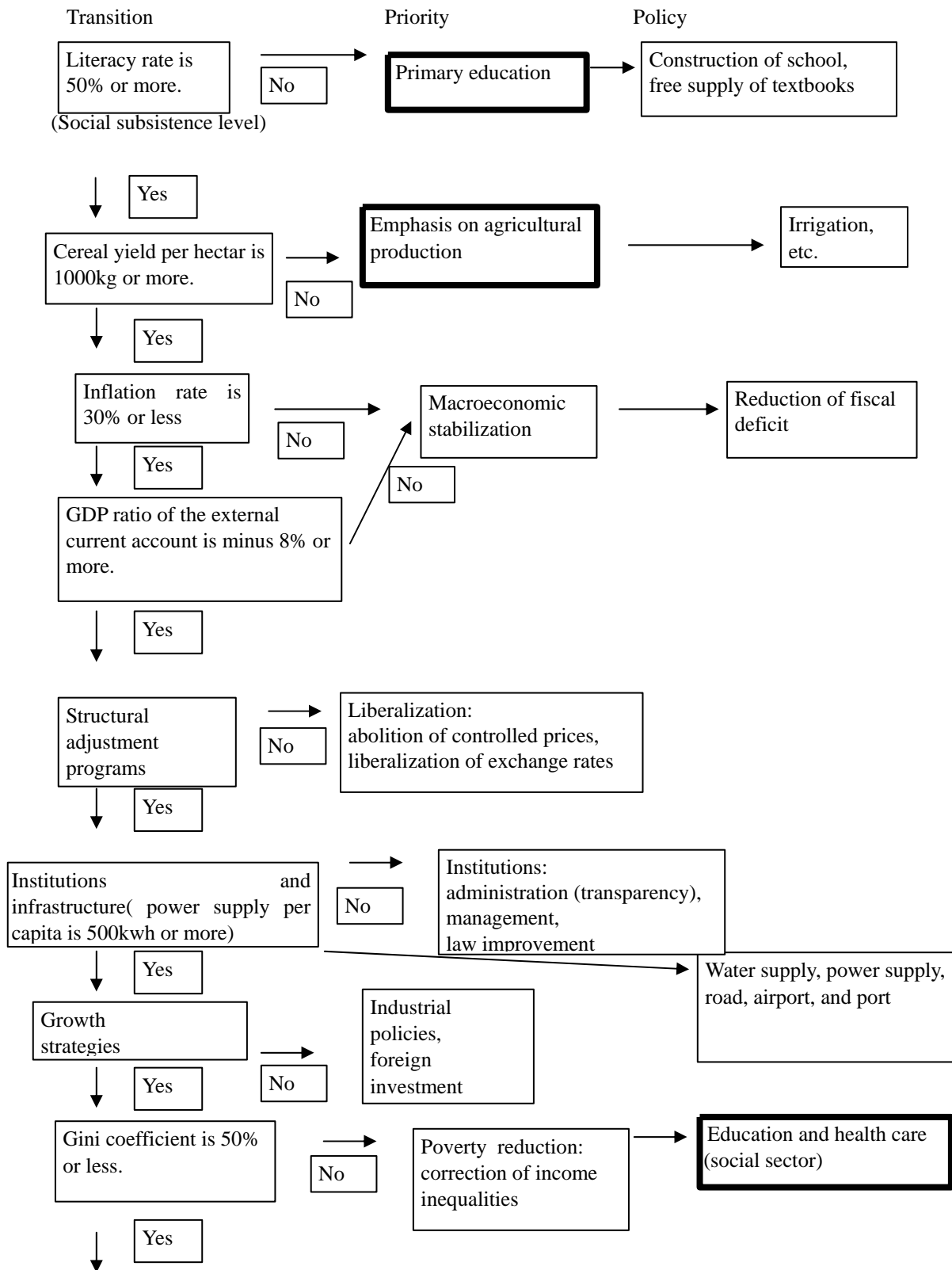
Governments may allocate budgets based on priorities decided by our flowchart method. We cannot build a general theory of how to decide the share of the budget for each policy, and will explain the differences between shock therapy, sequencing, and prioritization as a model case. Here we distinguish prioritization from sequencing and shock therapy by using Table 13. That is, the prioritization means that policies are implemented as a package by giving weight to each policy while the sequencing means that policies are implemented one by one based on their degrees of importance. Shock therapy gives the same weight to all policies. Priorities of policies are different from country to country and region to region. It is crucial for success in implementing policies to find how to prioritize policies instead of shock therapy and sequencing.

In the former half of the 1990s, economists discussed whether developing countries, particularly in transition from the planned economies to the market economies, should either implement a package of policies as shock therapy, or sequence economic reforms. On the one hand, China and Vietnam took the latter strategy of sequencing their economic policies, and succeeded in their economic reforms. On the other hand, Eastern European countries such as Poland and Hungary in the former half of the 1990s were confronted with macroeconomic instability so that both inflation and unemployment were high due to the shock therapy. But Eastern European countries also attained their macroeconomic stability in around 1995. Consequently, shock therapy was also justified as an acceptable approach of reforms.

When the Asian Currency Crisis occurred in 1997, some economists such as Furman and Stiglitz [1998] again questioned which approach is better, shock therapy or sequencing. Most Asian countries, such as Thailand and Malaysia excluding China and Vietnam, went into financial turmoil and economic recession in 1997 and 1998. Former Prime Minister Mahatir of Malaysia

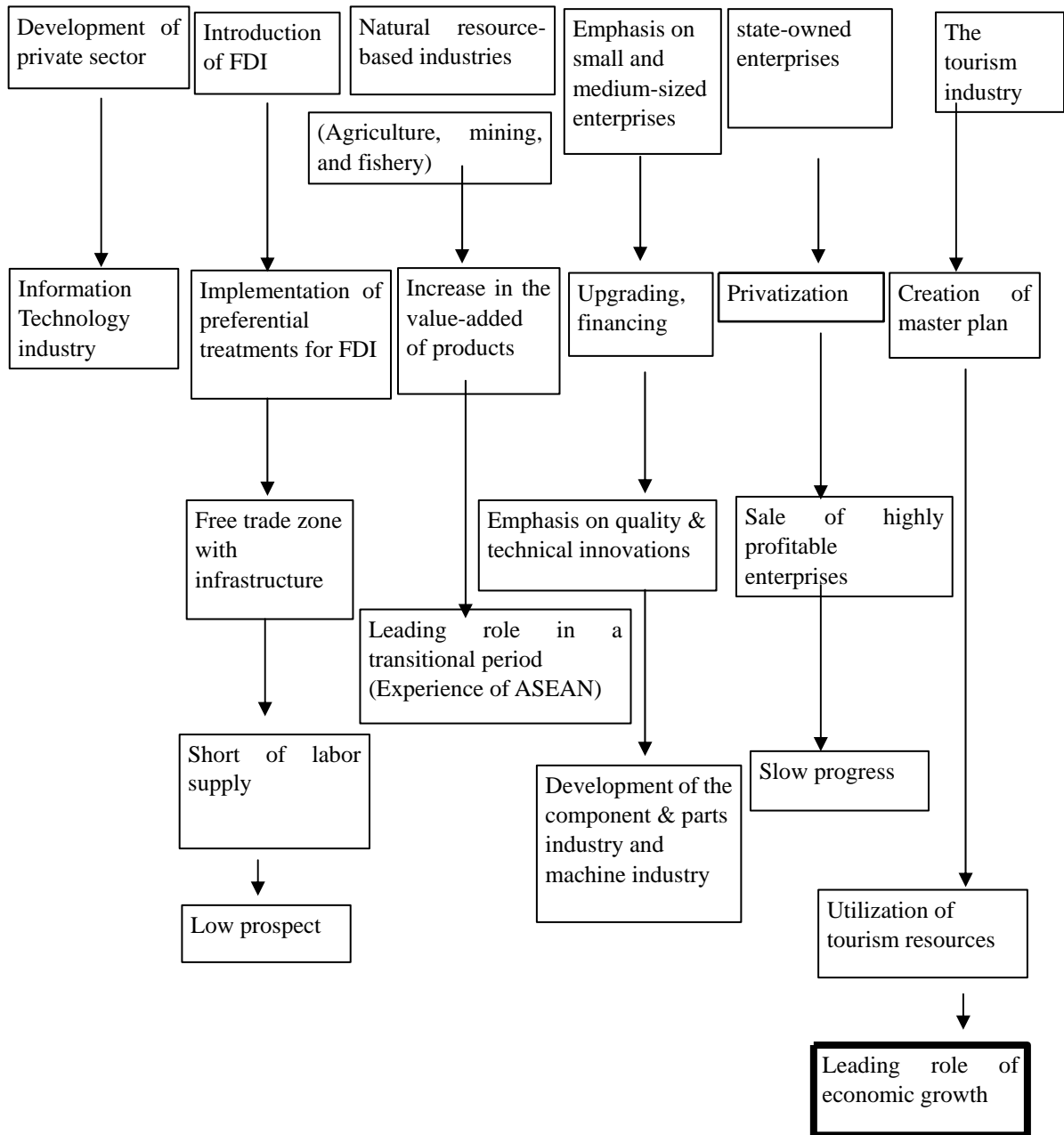
insisted that short-term capital should be restricted to move freely to avoid currency crises. China, which restricted movements of short-term capital, attained its target of the rate of economic growth of 8% in 1998, contributing to the economic recovery of the other Asian countries from the Asian Currency Crisis.

Figure 1 Flowchart of Prioritization Method



Return to the top = Feedback

Figure 2. Economic agents for “**growth strategies**” of Morocco



Note: FDI: foreign direct investment.

Source: Prepared by the author (Figures 1 and 2)

**Table 1. Life expectancy and adult illiteracy**

	GDP per capita	Life expectancy	Adult illiteracy(%)	
	1999	1999	1995	1999
Afghanistan	n.a.	46	67	64
Bangladesh PR	361	<b>60</b>	61	59
Benin R	402	53	66	61
Burundi R	142	42	57	53
Central Africa R	346	44	60	54
Kingdom of Cambodia	285	53	65	61
Chad R	220	48	59	59
Cote d'Ivoire R	787	46	67	54
Ethiopia FDR	112	42	69	62
Gambia R	365	53	66	64
Guinea-Bissau R	183	43	55	62
Haiti R	370	53	57	51
Mali R	281	42	66	60
Lao PRD	441	54	60	52
<b>Mauritania</b>	483	53	60	58
Kingdom of Morocco	<b>1359</b>	<b>67</b>	56	52
Mozambique R	190	43	61	56
Kingdom of Nepal	222	58	64	59
Niger R	209	45	86	84
Vietnam SR	341	68	8	7
China PR	840(2000)	70(2000)	19	16

Note: Data of countries with more than 50% of adult illiteracy.  
Tables 1-9 include data of Morocco, Lao, Vietnam, and China.  
Source: World Bank, SIMA Query, 2001.

**Table 2. Cereal yield (Kg per hectare)**

	1995	2000
Algeria PRD	397	619
Botswana R	206	203
Burkina Faso	782	887
Cape Verde R	262	312
Central Africa R	868	<b>1111</b>
Chad R	586	626
Congo DR	826	774
Congor R	826	686
State of Eritrea	516	703
Grenada	983	<b>1000</b>
Haiti	921	913
Iraq R	800	284
Jordan	997	891
Kazakhstan R	578	<b>1060</b>
Kingdom of Lesotho	774	988
Libya	677	727
Mali	806	<b>1170</b>
Mauritania	771	<b>1010</b>
Mongolia	737	956
Kingdom of Morocco	446	471
Mozambique R	652	948
Namibia R	194	473
Niger R	291	368
Senegal R	873	745
Somalia DR	471	488
Sudan R	424	529
Tajikistan R	961	<b>1290</b>
Togo R	790	953
Vanuatu R	538	538
Lao RPD	2492	3184
Vietnam SR	3569	4048
China PR	4663	4735

Note: Countries with less than 1000 Kg.

Source: The same as Table 1.

**Table 3. Current account balance( % of GDP)**

	1993-95
Congo	-30.9
Guinea-Biassau	-21.4
Honduras	-8
Hungary	-8.9
Jordan	-16
Lao PDR	-13.7
Lebanon	-44.7
Madagascar	-8.5
Malawi	-19.5
Mali	-8.6
Mauritania	-9.3
Nicaragua	-37.4
Omen	-9.2
Praguay	-14.9
Saudi Arabia	-9.9
Tanzania	-19.4
Togo	-9
Uganda	-9.1
Vietnam	-8.6
China	-0.4
Morocco	-3.3

	1999
Armenia	-16.6
Azerbaijan	-24.5
Bahamas	-14.8
Belize	-8.9
Bhutan	-19.7
Burkina Faso	-12.1
Cape Verde	-17.3
Chad	-10.2
Dominica	-9.4
Eritrea	-43.4
Gambia	-11.7
Ghana	-9.8
Kyrgyz	-14.8
Latvia	-9.7
Lebanon	-34.1
Lesotho	-23
Maldives	-17.8
Nicaragua	-26.5
Niger	-8.6
Panama	-14.3
Poland	-8
Portugal	-8.5
Seychelles	-16.8
St. Kitts	-36.4
St.Lucia	-10.8
St. Vincent	-16.2
Togo	-9
Turkmenistan	-17.2
Uganda	-11.6
Lao RPD	-6.1
China	2.1
Vietnam	-0.2

Note: more than -8%.

Source: the same as Table 1.



**Table 4. Inflation (Consumer prices:%)**

	1990-95
Albania	64.2
Azerbaijan	1005.5
Belarus	1247.2
Brazil	1044.8
Croatia	328
Ecuador	40
Estonia	52.8
Guinea-Bissau	45.1
Jamaica	39.9
Latvia	83.1
Lebanon	36.8
Lithuania	124.1
Macedonia, FYR	397.9
Mozambique	47.8
Nicaragua	85.2
Nigeria	49.1
Peru	69
Poland	41.5
Romania	151.5
Russian Federation	381.6
Sirra Leone	41.9
Slovenia	62.1
Sudan	114.3
Turkey	79.3
Ukraine	1180.4
Uruguay	59.3
Venezuela	43.8
Zaire	3558.3
Zambia	112.5
China	11.4
Morocco	5.8

	1999
Angola	559.7
Belarus	322
Ecuador	61.9
Equatorial	38.3
Kyrgyz	37.5
Lao PRD	126.3
Malawi	42.1
Russia	64.6
Suriname	180.1
Turkey	56.2
Uzbekistan	43.9
Zimbabwe	48.1
Morocco	0.9
China	-1.4
Vietnam	5.5

Note: more than 30%.

Source: the same as Table 1.

**Table 5. Overall budget deficit (including grants)**

	(% of GDP)
	1994
Ethiopia	-8.5
Finland	-13.5
Greece	-15.7
Italy	-10.5
Oman	-11.2
Russian Federation	-10.5
Sri Lanka	-8.5
Sweden	-12.8
Yemen, Rep	-17.3
China	-1.8
Morocco	-1.4

Note: less than -8.0%.

	1999
Columbia	-7
Guinea	-7.1
Lithuania	-7
Maldives	-9.3
Mongolia	-10.4
Sri Lanka	-7.4
St. Vincent	-7.3
Thailand	-11.1
Turkey	-13
Morocco	-1.4
China	-2.9
Lao RPD	-4
Vietnam	-2.8

Note: less than -7.0%.

Source: the same as Table 1.

Data of Lao RPD and Vietnam are from "Asian Development Outlook 2001" by Asian Development Bank.

**Table 6-1. Energy Production 1994**  
(kwh per capita)

	1994
Bolivia	390
Cameroon	212
Congo	172
Cote d'Ivoire	170
Ghana	368
Guatemala	306
Honduras	464
India	423
Indonesia	281
Kenya	136
Morocco	426
Nicaragua	398
Nigeria	144
Pakistan	463
Philippines	404
Senegal	121
Sri Lanka	246
Vietnam	170
Yemen, Rep.	146
China	778

Note: between 100 kwh and 500 kwh.

Source: the same as Table 1.

**Table 6-2. Energy Production 1998**

	1998
Bangladesh	102
Bolivia	466
Cameroon	229
Congo, Dem. Rep.	117
Congo, Rep.	123
Ghana	394
Guatemala	412
India	504
Indonesia	382
Kenya	166
Morocco	508
Mozambique	404
Myanmar	102
Nicaragua	472
Nigeria	130
Senegal	142
Sri Lanka	302
Vietnam	283
Yemen	151
Lao RPD	n.a.
China	938

**Table 7. Distribution of income or consumption**  
(Various years)

	Gini index	Year
Brazil	60	1996
Central African Republic	61.3	1993
Chile	56.5	1994
Colombia	57.1	1996
El Salvador	52.3	1996
Guatemala	59.6	1989
Honduras	52.7	1996
Lesotho	56	1986-87
Mali	50.5	1994
Mexico	53.7	1995
Nicaragua	50.3	1993
Niger	50.5	1995
Nigeria	50.6	1996-97
Papua New Guinea	50.9	1996
Paraguay	59.1	1995
Sierra Leone	62.9	1989
South Africa	59.3	1993-94
Morocco	39.5	1998-99
Lao RPD	30.4	1992
Vietnam	36.1	1998
China	40.3	1998

Note: more than 50.

Source: the same as Table 1.

**Table 8-1. External debt (% of GNI) and debt service (% of exports)**

	External debt 1995	Debt service 1995
Mozambique	443.6	35.3
Sirra Leone	159.7	60.3
Guinea-Bissau	353.7	66.9
Haiti	39.8	45.2
Nicaragua	589.7	38.7
Zambia	191.3	174.4
Pakistan	49.5	35.3
Honduras	124.6	31
Indonesia	56.9	30.9
Morocco	71	32.1
Algeria	83.1	38.7
Brazil	121.6	37.9
Hungary	72.8	39.1
Argentina	33.1	34.7
China	17.1(1996)	9.8

Note: more than 30 % of debt service.

**Table 8-2. External debt (% of GNI) and debt service (% of exports)**

	External debt 1999	Debt service 1999
Algeria	198	37.8
Argentina	436	75.9
Bolivia	399	32
Burundi	1791	45.6
Chile	184	25.4
Columbia	223	42.8
Cote d'Ivoire	238	26.2
Hungary	102	26.6
Indonesia	255	30.3
Lebanon	413	49.4
Macedonia	<b>93</b>	29.8
Mauritania	681	28.4
Mexico	105	25.1
Pakistan	342	28.2
Peru	358	32.6
Morocco	n.a.	24.3
Lao RPD	527	7.7
Vietnam	162	9.8
China	16	9

Note: more than 25% of debt service.

**Table 9. Gross domestic savings  
(% of GDP)**

	1993-95
Algeria	27.9
Angola	35.2
Austria	25.7
Chile	28
China	41.5
Gabon	43.7
Hong Kong	33.6
Indonesia	35.6
Iran	30.3
Ireland	27.6
Japan	31.1
Korea, Rep.	35.6
Malaysia	36.7
Morocco	14.9
Netherland	26.2
Oman	26.4
Papua New Guinea	33.8
Russian Federation	29.9
Saudi Arabia	28.5
Slovak Republic	26.9
Switzerland	27.4
Thailand	36.2
United Arab Emirates	32.6

	1999
<b>Algeria</b>	31.8
Belgium	25.1
China	40.1
<b>Congo, Rep.</b>	29.7
Czech	26.7
Equatorial	57.8
Finland	27.7
Gabon	34.8
Hong Kong	30.5
Hungary	26.3
Ireland	37
Japan	27.7
Korea, Rep.	33.6
Macao	45.1
Malaysia	46.8
Netherland	26.7
Norway	30.3
Russia	31.5
Singapore	51.7
Slovak	26.5
Taiwan	26.1
Thailand	32.5
Trinidad	26.6
Turkmenistan	26
Morocco	20
Lao RPD	13.3 (1998)
Vietnam	23.2

Note: more than 25%.

Source: the same as Table 1.

**Table 10. Economic problems in Morocco**

<p>1. Education:</p> <p>Is education sufficient to narrow income inequalities? <b><u>Primary education, female education in particular</u></b></p> <p><b><u>Should supply of power and water be improved prior to improvement of primary education?</u></b> It is necessary that children can attend school.</p> <p>Is higher education sufficient? Users' charge system for higher education is recommended.</p> <p>Are there income differences between urban regions and rural regions? <b><u>People in rural regions are poorer than people in urban regions.</u></b></p> <p>Is infrastructure constructed by not the public sector but the private sector? Yes. For example, build-operate-transfer (BOT).</p>
<p>2. Agriculture:</p> <p>Problems of economic fluctuations : Self-sufficiency in food is crucial to the problem. <b><u>Irrigation is needed:</u></b></p> <p>(Economic structure problem) Emphasize small-scale irrigation rather than large-scale irrigation.</p> <p>- Liberalization of agriculture</p> <p>(Price liberalization, abolition of subsidy, expense burden)</p> <p>Is users' charge system acceptable? Dam construction must be treated differently.</p> <p>Are only liberalization policies sufficient? No. <b><u>Agricultural education</u></b> is recommended.</p>
<p>3. Liberalization:</p> <p>Is Morocco behind schedule on <b><u>privatization</u></b>? Yes.</p> <p>Almost all the profitable state-owned enterprises have been privatized.</p> <p>Is bank reform progressing?</p> <p>Bank reform is progressing smoothly.</p> <p>Is there any incentive for raising the saving rate? The real interest rate is positive</p> <p>Is bank reform related to it? Yes. There is competition among banks.</p> <p>Is skilled labor available to foreign investors?</p> <p>University graduate, postgraduate, and traditional craftsmen.</p> <p>Are there any incentives? Preferential measures such as tax exemption.</p> <p>To which market the products are exported, EU, Middle East, MAGREV, and African markets?</p>
<p>4. Environmental problem:</p> <p>What is the most serious problem? Shortage in rubbish and sewage is.</p>

Source: Prepared by the author.

**Table 11. Data on Morocco, Laos, China, and Vietnam**

(Unit: %)

	Morocco	Laos	Vietnam	China	Step
Adult illiteracy(1999,%)	<b>52</b>	<b>52</b>	7	16	Step1
Cereal yield(2000,Kg)	<b>471</b>	3184	4048	4735	Step1
Current account balance of GDP(1999,% )	-3.3(note1)	-6.1	-0.2	2.1	Step2
Inflation(1999,%)	5.8(note2)	<b>126.3</b>	5.5	-1.4	Step2
Over all budget account of GDP(1999,%)	-1.4(note3)	-4	-2.8	-2.9	Step2
External debt service ratio(1999,%)	32.1(note4)	7.7	9.8	9	Step2
Energy Production(1998,kwh)	508	n.a.	<b>283</b>	938(note5)	Step5
Gross domestic saving(1999,%)	20	<b>13.3(note8)</b>	<b>23.2</b>	40.1	Step5
Distribution of income	39.5(note6)	30.4(note7)	36.1	<b>40.3</b>	Step6

Notes:(1)1993-95,(2)1990-95,(3)1994,(4)1995,(5)1998,(6)1998-99,(7)1992,(8)1998.

Source: Tables 1-9.



Table 12. Data on Provinces

	Condition of Higher Education (Year 2000)		Amount of Waste Water Discharge By Region	Amount of Waste Water Discharge By Region /GDP	Amount of Polluted Air Discharge By Region	Amount of Polluted Air Discharge By Region/GDP	Amount of Industrial Solid Waste By Region	Amount of Industrial Solid Waste By Region /GDP	Market Index: Total Index (1999)	Market Index: Market Broker And Law Preparation Index	Adult Illiteracy Rate	Amount of Grain Production per Unit Area	Energy Production
	Number of School	Number of Graduate	Unit (10 thousand ton)		Unit (100 million cubic		Unit (10 thousand ton)				(%)	(kg/Hectare)	(100 million kwh)
Xizang	4	764	1006	7.3	15	0.11	17.1	0.1	-	-	47.25	5,044	
Qinghai	7	2202	4661	15.5	607	2.02	336.7	1.12	2.00	2.37	25.44	3,361	111.90
Guizhou	23	13739	20598	19.0	3882	3.58	2271.8	2.09	3.86	1.59	19.85	4,236	335.19
Gansu	18	14255	23795	22.2	2800	2.61	1703.8	1.59	4.02	2.3	19.68	2,905	306.09
Ningxia	6	3154	10942	36.7	1445	4.84	478.7	1.60	2.69	3.24	15.72	4,044	151.81
Yunnan	24	18573	35117	16.9	2749	1.33	3187.4	1.54	3.39	2.16	15.44	3,923	320.75
Anhui	42	29830	63106	19.2	3945	1.20	2815.1	0.86	5.4	1.69	13.43	4,829	359.59
Neimenggu	18	12218	21844	14.1	4768	3.08	2375.6	1.54	6.45	2.74	11.59	3,854	280.89
Shandong	47	58355	110324	11.7	12179	1.29	5407.3	0.57	6.22	2.84	10.75	5,268	1,104.53
Sichuan	42	42672	116979	26.5	4779	1.08	4714.2	1.07	5.29	2.49	9.87	4,759	589.57
Shaanxi	39	36587	30903	16.8	2379	1.29	2625.0	1.42	4.48	3.4	9.82	3,095	321.54
Hainan	5	4021	7064	12.9	434	0.79	94.9	0.17	5.65	2.28	9.72	4,169	42.96
Fujian	28	24307	57617	13.5	2828	0.66	2190.5	0.51	7.28	2.7	9.68	5,089	439.19
Hubei	54	56566	106733	22.9	5674	1.22	2817.8	0.60	5.53	2.65	9.31	5,885	526.02
Chongqing	22	22187	84344	48.2	1908	1.09	1304.8	0.75	5.57	2.86	8.90	4,448	220.54
Hebei	51	43473	89600	15.5	9858	1.71	7027.9	1.22	6.7	1.96	8.59	4,025	867.55
Zhejiang	35	32477	136433	20.2	6509	0.96	1385.7	0.21	8.24	3.27	8.55	6,082	848.40
Henan	52	45709	109210	19.4	7436	1.32	3625.0	0.64	6.0	1.96	7.91	4,907	808.41
Jiangsu	69	75643	201923	21.2	9078	0.95	3038.2	0.32	7.04	2.78	7.88	6,302	1,078.44
Xinjiang	16	13774	15365	10.3	1944	1.31	718.2	0.48	2.9	3.74	7.72	5,771	197.92
Jiangxi	32	25903	41956	19.3	2220	1.02	4796.2	2.20	5.12	1.89	6.98	5,233	222.28
Tianjin	21	20112	17604	9.6	1749	0.95	469.8	0.26	6.58	5.33	6.47	4,820	247.94
Heilongjiang	35	35180	52644	14.8	4326	1.21	2693.7	0.76	3.97	3.53	6.33	4,512	456.86
Sanghai	37	40929	72446	14.6	5755	1.16	1354.7	0.27	6.59	6.25	6.21	7,320	592.98
Hunan	52	47426	112563	28.3	3569	0.90	2354.6	0.59	5.99	2.3	5.99	6,015	439.78
Liaoning	64	53353	109044	21.7	9432	1.87	7562.5	1.50	5.6	4.06	5.79	4,891	764.77
Jilin	34	30480	37386	18.4	3082	1.52	1604.4	0.79	4.51	3.22	5.74	5,125	295.08
Shanxi	24	20657	32406	18.2	6635	3.73	7694.5	4.32	4.57	3.72	5.68	2,806	557.58
Guangxi	30	21858	81571	36.6	4607	2.06	2108.1	0.94	5.28	2.32	5.30	4,656	331.92
Guangdong	52	51432	114055	10.7	8326	0.78	1694.3	0.16	8.33	4.93	5.17	5,360	1,458.42
Beijing	58	51931	23164	8.1	3227	1.13	1139.3	0.40	6.30	11.28	4.93	5,194	399.94
Total	1041	949767	1942405		138145		81607.7						

(Year 2001)

**Table 13. Differences between Shock Therapy, Sequencing, and Prioritization**

	Shock therapy	Sequencing	Prioritization
Policy 1	25%	one by one	40%
Policy 2	25%	one by one	30%
Policy 3	25%	one by one	20%
Policy 4	25%	one by one	10%

Source: Prepared by the author.

**Appendix Table 1-1. Correlation Between Weight of Budget Allocation and Growth Rates**

	Economic Growth Rate	Problem			Distribution Method 1	Distribution Method 2	<u>Distribution Method 3</u>
Country A	9			Energy	1	5	1
Country B	5		Economy	Energy	4	8	6
Country C	2	Agriculture	Economy	Energy	9	9	9
Adjusted R2					0.899	0.922	<i>0.993</i>
Coefficient of T-ratio					8.35	6.96	<i>29.6</i>

**Appendix Table. 1-2. Points by Differences of Distribution Method Under Problems**

Distribution Method	Economy	Agriculture	Energy
Distribution Method 1	3	5	1
Distribution Method 2	3	1	5
<u>Distribution Method 3</u>	<i>5</i>	<i>3</i>	<i>1</i>

Conclusion: Distribution method 3 is the best correlated with the economic growth. In this case, the order of priority is energy, agriculture and macroeconomics.

Note: Economy, Agriculture, and Energy denote macroeconomic instability, low agricultural productivity, and energy shortage, respectively.

Appendix Table 2. Results of prioritization of policies

	Edu.	Edu.	Edu.	Edu.	Edu.	Edu.	Economy	Distri.	Distri.	Edu.	Energy	Energy	Energy	Agri.	Agri.	
	Agri.	Agri.	Agri.	Agri.	Agri.	Energy	Edu.	Edu.	Energy	Economy	Edu.	Edu.	Edu.	Edu.	Edu.	
	Economy	Economy	Energy	Energy	Distri.	Distri.	Distri.	Agri.	Agri.	Edu.	Agri.	Distri.	Agri.	Agri.	Energy	Energy
	Energy	Distri.	Distri.	Economy	Energy	Economy	Agri.	Energy	Economy	Agri.	Energy	Agri.	Economy	Distri.	Distri.	Economy
	Distri.	Energy	Economy	Distri.	Economy	Energy	Economy	Distri.	Energy	Economy	Distri.	Economy	Distri.	Economy	Economy	Distri.
[ ]																
Energy	0.237	0.199	0.344	0.303	0.245	0.326	0.390	0.089	0.112	0.254	0.184	0.368	0.312	0.346	0.307	0.269
Under 300(kwh)	3.063	2.779	3.900	3.575	3.126	3.750	4.277	1.910	2.100	3.193	2.663	4.095	3.643	3.912	3.603	3.310
[ ]																
Energy	0.346	0.291	0.529	0.456	0.496	0.364	0.557	0.125	0.004	0.459	0.193	0.531	0.462	0.521	0.505	0.431
Under 100 to 300kwh	3.776	3.359	5.395	4.693	5.062	3.914	5.704	2.144	1.059	4.720	2.645	5.416	4.748	5.311	5.153	4.469
[ ]																
Energy	0.096	0.050	0.204	0.165	0.159	0.071	0.244	0.018	0.007	0.161	0.053	0.253	0.189	0.236	0.181	0.145
Under 500kwh	2.076	1.629	2.996	2.675	2.620	1.838	3.325	1.264	1.105	2.638	1.661	3.394	2.874	3.256	2.809	2.504
[ ]																
Energy	0.153	0.092	0.317	0.251	0.257	0.126	0.346	0.015	0.006	0.228	0.087	0.348	0.263	0.335	0.300	0.233
Under 100 to 500kwh	2.501	1.989	3.804	3.279	3.328	2.278	4.047	1.206	1.092	3.097	1.944	4.066	3.375	3.953	3.666	3.135

Note: Agri., Edu., Distri., Economy denote agricultural reform, educational reform, improving income inequalities, and macroeconomic stabilization, respectively.

Source: Author's.

Appendix Table 3. Data

	1999 illiteracy rate			1998-2000 cereal yield			1990-1999 consumer price current account			1998 energy/ population			1985-1999 gini coefficient			1998-99 %			
	education			agricultural production			Macroeconomic stabilization			energy			correction of income inequalities			total			GDP growth
Bangladesh	5	4	4	0	0	0	0	0	0	2	2	1	0	0	0	7	6	5	4.9
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	0.6
Brazil	0	0	0	0	0	0	3	5	2	0	0	0	1	1	5	4	6	7	0.8
Chile	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	-1.1
Colombia	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	-4.3
Croatia	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	-0.3
Ethiopia	5	4	4	0	0	0	0	0	0	2	2	1	0	0	0	7	6	5	6.2
Jamaica	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	2	2	1	-0.4
Jordan	0	0	0	4	3	3	0	0	0	2	2	1	0	0	0	6	5	4	3.1
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	3.5
Morocco	5	4	4	4	3	3	0	0	0	2	2	1	0	0	0	11	9	8	-0.7
Mozambique	5	4	4	4	3	3	3	5	2	0	0	0	0	0	0	12	12	9	7.3
Nepal	5	4	4	0	0	0	0	0	0	2	2	1	0	0	0	7	6	5	3.9
Nigeria	0	0	0	0	0	0	3	5	2	0	0	0	1	1	5	4	6	7	1
Pakistan	5	4	4	0	0	0	0	0	0	0	0	0	0	0	0	5	4	4	4
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	-0.8
Peru	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	1.4
Philippines	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	2	2	1	3.2
Senegal	5	4	4	4	3	3	0	0	0	2	2	1	0	0	0	11	9	8	5.1
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	1.2
Sri Lanka	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	2	2	1	4.3
Turkey	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	-5.1
Ukraine	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	-0.4
Uruguay	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	-3.2
Venezuela,RB	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	3	5	2	-7.2
Yemen,Rep.	5	4	4	0	0	0	3	5	2	0	0	0	0	0	0	8	9	6	3.8
Zambia	0	0	0	0	0	0	3	5	2	0	0	0	1	1	5	4	6	7	2.4
Zimbabwe	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	0.1

Source: Author's.