


**THE ECONOMIC DEVELOPMENT POLICY IN THE TRANSITION  
TOWARD A MARKET-ORIENTED ECONOMY  
IN  
THE SOCIALIST REPUBLIC OF VIET NAM**

**PHASE I  
FINAL REPORT**

**OPINIONS OF THE FIVE-YEAR PLAN FOR SOCIAL AND  
ECONOMIC DEVELOPMENT 1996-2000  
IN VIET NAM**

**VOL.2 MACROECONOMY**

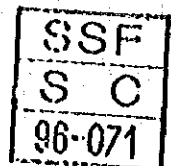
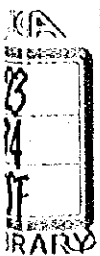
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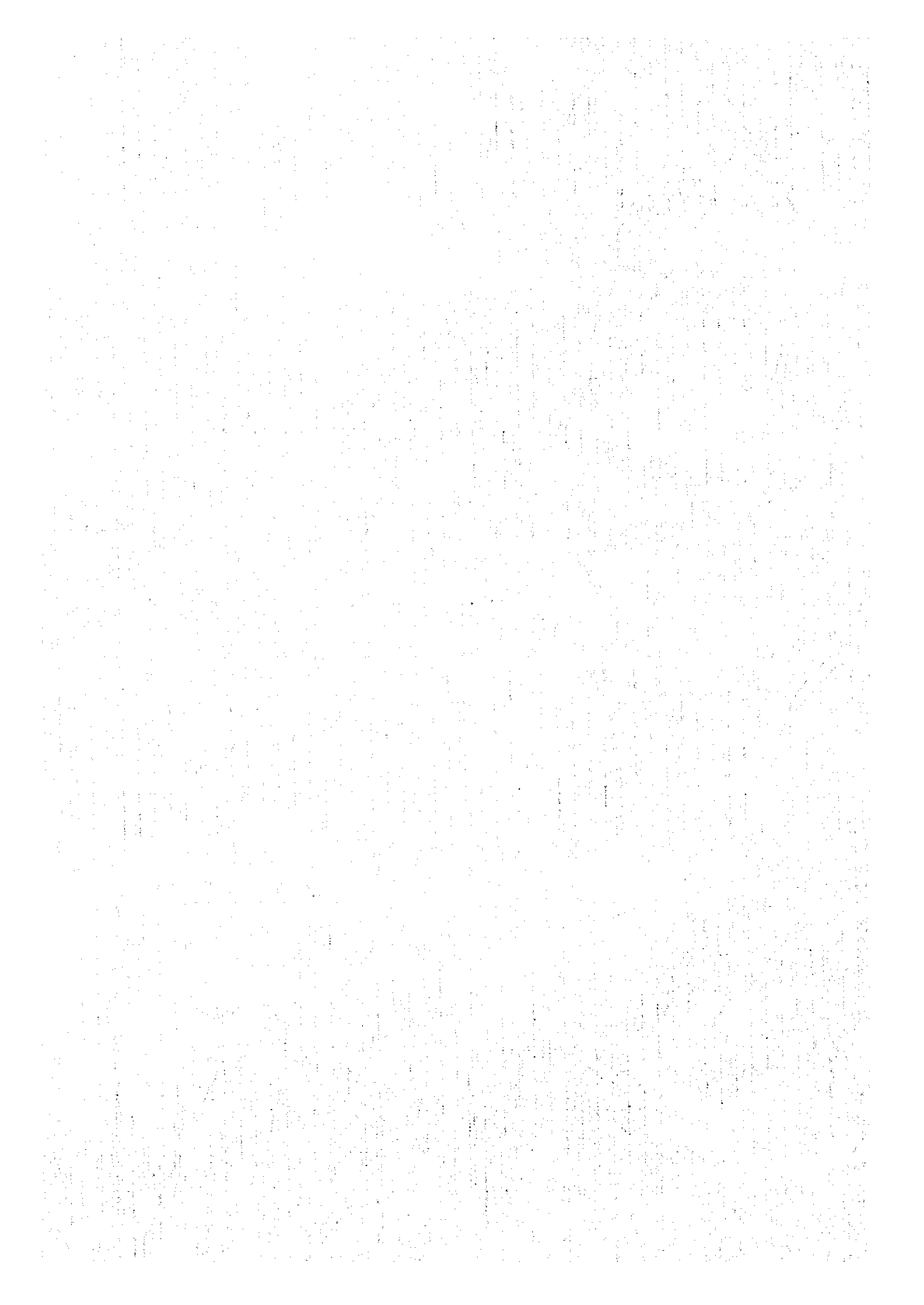
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**AUGUST 1996**

Ministry of Planning and Investment  
THE SOCIALIST REPUBLIC  
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## Preface to the Final Report, Phase 1

This study was proposed after consultation with Viet Nam's Prime Minister Vo Van Kiet and Vietnamese officials when a high level Mission of the Japanese government on Economic and Technical Cooperation visited Viet Nam in October 1994. A formal agreement was reached during Party Secretary-General Do Muoi's official visit to Japan in April 1995 to carry out the study as part of Japan's official development aid (ODA) to Viet Nam. It was agreed that the Study would be implemented under the Social Development Studies Program of the Japan International Cooperation Agency (JICA) and a Scope of Work Agreement defining the details of the Study was officially signed in August 1995 between Vice Minister Mr. Vo Hong Phuc of Viet Nam's Ministry of Planning and Investment and Councilor Mr. Norio Hattori of Japan's Ministry of Foreign Affairs Economic Cooperation Bureau.

The project was agreed to be conducted as a joint study between Japan and Viet Nam and the research groups for that study was organized on both sides with the participation of first rate scholars and experts. Professor Shigeru Ishikawa headed up the Japanese Research Group, Dr. Nguyen Quang Thai the Vietnamese project team. Under the Agreement, the project is to be pursued in two phases. During the first phase, the over-arching goal is to study the Five-year Plan for Social and Economic Development in Viet Nam (covering the years 1996 to 2000). This phase was planned to end in June 1996 with the submission of a Project Report to the leadership of Viet Nam via the Ministry of Planning and Investment. The research of the first phase includes, in addition to the study for the general commentary on the draft Five-year Plan, four specific studies relating to the following four selected topics respectively which are to be conducted at the four separate Sub-Research Groups as "in-depth" studies of the draft Five-year Plan.

- (1) Macro economic growth and its relationship with inflation and stability;
- (2) Capital mobilization in the fiscal and monetary domains;
- (3) Industrial development and industrialization policies; and
- (4) Policies on agriculture and rural development.

During the course of the research, both sides agreed to add the three topics below, though the research on them has not yet been organized:

- (5) Development gaps among domestic regions;
- (6) Unemployment and underemployment problems; and
- (7) Relieving starvation and mitigating poverty.

This research project has attracted the attention and interest of Viet Nam's leaders. Party Secretary-General Do Muoi and other senior officials have received reports on on-going research findings from the scholars involved in the project. Scholars on both sides have revised their reports in light of the leading opinions provided by Party Secretary-General Do Muoi in September 1995 and March 1996, and at his request they have prepared an Executive Summary Report (March 1996) earlier than the Final Report so that

their opinions may be incorporated in the document "Orientations and Tasks of the 1996-2000 Five-year Plan for Socio-Economic development in Viet Nam."

The Executive Summary Report was written solely, and the Final Report was written mainly, by the Japanese Research Group but it reflects the findings of joint research conducted by both sides of Japan and Viet Nam. This joint research was deepened through five seminars of various sizes, two in Hanoi (the Start-Up Seminar in August 1995 and the Seminar to hear opinions on the Draft of the Final Report in March 1996) and three in Tokyo in October and November 1995 and January 1996.

The method this research project desired at its planning stage to follow was a "joint study" of the Vietnamese and Japanese Research Groups by way of identification of research topics and determination of research methods and data on the basis of joint discussion, proceeding of the joint study with frequent contacts, meetings and field surveys, and writing (as much as possible jointly) of the research findings and derived policy options. We are pleased that this desire was achieved at least preliminarily, especially toward the end of the first phase.

The Final Report consists of five parts, and is printed correspondingly in five volumes. Part One is on general commentary on the draft Five-year Plan\*, and the following Parts on in-depth studies of specific issues of the draft Five-year Plan conducted by the four Sub-Research Groups. In each of these Parts (or Volumes), that summary of the research results either for general commentary or at each Sub-Research Group which was written for the Executive Summary Report, is reproduced (with some revisions) and, together with the comments on it by the Chief Sub-Research Group of the Vietnamese side, constitute the Introductory Chapters. They are followed by papers and notes, each written by either Japanese or Vietnamese member, and joint field-survey reports.

The research tasks (or topics and sub-topics) selected for the five Parts are summarized as follows.

First, the research tasks of the General Comment Part (Volume I) are the interpretation and evaluation of the contents and outcomes of the Doi Moi policy, the leading strategy principles which was initiated in 1986 and is still effective and governing the new Five-year Plan (draft), and the analyses, from a more operational view-point, of the policy-systems contemplated in the new Five-year Plan (draft). The latter questions, firstly, from the aspect of economic system reform, what is the structure of blue-prints of marketization designed for the Vietnamese economy is, and, secondly, from the aspect of productive force restructuring, what type of the economic "development model" for industrialization or its variant available in development economics is suitable as a guideline for the Viet Nam economy taking into consideration the initial conditions of her economy. The answers to these questions should be useful as clues for exploring the policy options for Viet Nam.

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\* In this Final Report, the term "Draft Five-year Plan" refers to either one of the following documents which were sent to the Japanese Academic Group directly from the Ministry of Planning and Investment. Specific reference of either of these is made in our report only when it is necessary.

(1) *1996-2000 nen gokanen no keizai shakai kaihatsu keikaku no shuyou naiyo no shoki soan* (This is the Japanese translation version of the original in Viet Nam language which was sent to the Japanese Academic Group at the end of June 1995 so that opinions on it may be presented at the Start-Up Seminar in August 1995. In English, this is *Initial Draft of the Five Year Socio-Economic Development Plan in 1996-2000: Main Contents*. Later in August 1995, the document, *Some Issues on Industrialization and Socio-Economic Development in Viet Nam from Now Upto the Year 2000* was sent to the Japanese Academic Group. This appears to be a version with minor revisions of the "Initial Draft.")

(2) *Socio-Economic Development and Investment Requirements for the Five Years 1996-2000, Government Report of the Consultative Group Meeting, Paris, 30 November to 1 December 1995, Hanoi, October 1995.* (This was transmitted to the Japanese Academic Group on October 3, 1995 so that opinions on it may be presented at the Seminar in Tokyo in January 1996.)

In our earlier general comment on the "Initial Draft" of the Five-year Plan, four items of policy options were suggested, which in fact were made the research topics of the four Sub-Research Groups at its start. It is possible to locate these four policy options within the overall framework we have just shown for the analysis on the policy-systems of the Five-year Plan (draft).

The study task of the Part for Macroeconomy Sub-Research Group (Volume 2) is to attempt a simulation analysis of the issue in a hypothetical situation where the Viet Nam government wants to attain the degree of a high rate of growth of GDP which is enabled only by a considerably high rate of domestic investment, considering the fact that the present level of domestic saving ratio is still very low, not significantly higher than zero, and both the debt service payment obliged by the large accumulated external debts and the minimally required government social service expenditures amount large, how strong would be the pressure for domestic inflation and external balance of payment deficit. The statistical indicators used for simulation are taken from the figures in the Five-year Plan draft.

To this Part is added a study on the environmental issues: how important it is for such a country as Viet Nam where industrialization is at its initial stage to take measures to minimize the "environmental degradation" and "industrial contamination" as early as possible.

The research tasks of the Part for the Fiscal and Monetary Policy Sub-Research Group (Volume 3) are firstly, a systemic analysis to clarify the transformation of fiscal and monetary mechanism of the Vietnamese economy accordingly as the economy changes its resource allocation formula from the one in the planned economy of basing itself on the centralized material planning and, with it, material allocation to the one in the transitory economy where the government intervenes partly by material allocation and partly through the fiscal and monetary policy instruments that are conventional in the market economy. The research tasks are, in addition to it, to investigate the *modus-operandi* of the present fiscal and monetary system, from the point of view of the effectiveness of the domestic saving mobilization and to explore the measures to improve them. As priority items, the issue of how to adjust the fiscal relationship between the central and provincial governments so that the total government revenue could be raised and the regional income disparity be reduced and the issue of how to raise and enhance the financial system which may facilitate the preservation of the long-term and medium-term investment funds for industry, in particular, to the private sector are taken up.

From the point of view of foreign saving mobilization, studies are made with respect to the sources from FDI, ODA and others and the issues involved in these source.

The research tasks of the Part for Industrial Policy (Volume 4) are firstly to make surveys not only on the existing production and export-import statistics of industry, but also on the not-yet well covered or organized statistical information and data on industry on the by firm or by establishment, by ownership, by size or by regional bases, and thereby to clarify the present situation and its characteristics as well as the issues to be

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(3) *Directions, Planning Tasks of Socio-Economic Development for 5-Year 1996-2000, Report of the Central Executive Committee of the Party, Section VII to be Submitted to the Eighth Congress of the Party, Viet Nam Communist Party Central Executive Committee, Hanoi, November 14, 1995.* (This was sent to the Japanese Academic Group in March 1996 so that opinions on it may be presented at the Final Seminar in Hanoi.)

(4) *Political Report of the Central Committee (VIIIth Tenure) to the VIIIth National Congress of the Communist Party of Viet Nam* (This was published in Viet Nam dated April 10, 1996. Comments for this was in time only for including them in Postscript to the Executive Summary Report.). The finally adopted version of this document at the Party National Congress is the following. Communist Party of Viet Nam VIIIth National Congress, *Orientations and Tasks of the 1996-2000 Five-year Plan for Socio-Economic Development, Report of the Central Committee, the VIIIth Tenure, to the VIIIth National Congress, Hanoi, 28th June-1st July, 1996.* It was sent to the Japanese Academic Group on July 12, 1995.

solved of the Vietnamese industry. Exploration should be made on that basis, and taking into consideration the experiences of East Asian economies as a predecessors of Vietnamese industrialization, with respect to the order of industry-by-industry development in terms of the dynamic shift of comparative advantage position. The use of FDI and the way of participation in the regional integration schemes of AFTA and APEC are also to be explored. Lessons must be learned also from the experiences in the East Asian countries with regard to the matter of establishing the oil refining, petro-chemical, iron and steel, cement and chemical industries, which are capital lumpy and intensive, yet the government was anxious to build earlier, capturing the advantage in rich resource endowment.

Finally, the research tasks of the Agriculture and Rural Development Sub-Research Group (Volume 5) are to identify the policy instruments for further increase in agricultural production for the sake of promoting economic development, on the basis of the analyses on the changes in the institutions and organizations of agricultural production as well as in the production incentives during the 1980s and in the first half of the 1990s. Among these research tasks, especially important are the clarification of the roles of the factors like the potentiality of increasing the area under rice planning, the production incentive effect of institutional changes and price increases, research and development and irrigation investments. Investigations are also to be made on the way to improve agricultural finance and farmers' organizations in the way consistent with the market-oriented economic reform.

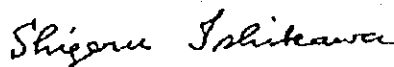
In pursuance from the Final Report, the joint research of the second phase will start on the basis of a new agreement between the two parties.

In addition to submitting this Final Report to the leadership of Viet Nam, we have sent it to you in hopes of soliciting your opinions for more effective start of the second phase joint study.

July 1996, Hanoi and Tokyo



Nguyen Quang Thai  
Vietnamese Cochair of the Research Group  
Doctor of Economics



Shigeru Ishikawa  
Japanese Cochair of the Research Group  
Doctor of Economics

## Summary of the Studies on Macroeconomy

### I. Growth and stability

#### 1. Macroeconomic conditions

Viet Nam's recent macroeconomic performance is truly remarkable. The country's economic growth rate has averaged more than 8% over the past five years, and is estimated to have reached 9.5% last year, in spite of the diverse difficulties that have accompanied the transition to a market economy. Inflation, which briefly reached triple digits in the latter half of the 1980s, has remained generally tame since 1992. Viet Nam's trade and current-account deficits, however, have substantially expanded since 1993, and last year the current-account deficit is estimated to have reached 8.0% of the country's GDP. Nevertheless, the country's net capital inflows are more than adequate to cover this deficit, and for the past few years the Dong's exchange rate has actually been experiencing upward pressure. Viet Nam's foreign exchange reserves have also been growing. In addition, it appears that US \$, which have been in plentiful supply and widely circulating in Viet Nam, are increasingly being converted to Dong.

It is largely factors related to the country's resurgence that have made possible comparatively high economic growth in spite of low savings and investment rates. Incentives that had been suppressed under the old economic system were liberalized, use was made of excess production capacity, and investments were made in more needed areas. The result of this was greater investment efficiency. The collapse of the CMEA had a relatively weak impact because Viet Nam had a comparatively small volume of trade with the other member nations, the Vietnamese economy is fundamentally an agriculture-centered one, and Viet Nam was not highly integrated into its international division of production. The use of gold and dollars as mediums of exchange may have helped to stabilize the economy during this turbulent period. Now the country is about to be tested as to whether or not it can sustain high growth as it moves from a period of resurgence to one of rebuilding.

The most important factor behind the taming of inflation in Viet Nam was the termination, beginning in 1992, of the policy of monetizing the country's fiscal deficit (financing the deficit with central bank credit). This is a fundamental difference between Viet Nam, on the one hand, and Russia and the countries of Latin America, where rabid inflation went unchecked, on the other. The cessation of lending by the central bank to state enterprises also helped to tame inflation. These changes were made possible by the country's success in reducing its budget deficit. The budget deficit fell to 2.4% of GDP in 1994, in part because of increased government revenues from oil. Indeed, without oil revenues the budget deficit would have averaged 8.4% of GDP annually from 1989 to 1994, but with these revenues it was only 5.7%. Government borrowings from abroad averaged 1.6% of GDP over this same period, and this is thought to have also helped the country circumvent monetization of its deficit. These circumstances differ from those in Eastern Europe and Russia.

There is no telling what the future may hold, however, as it is possible that monetization of the budget could be reinitiated if, for example, a raise in wages in the public sector were to cause the fiscal deficit to grow at a time when there were limitations on the issue of government bonds.

The collapse of the CMEA certainly had an impact on Vietnamese trade, but the country was successful in finding new trading partners in a short period of time and mitigating the negative impact. This success can be partly ascribed to the fact that the majority of Viet Nam's principal exports are primary products, such as crude oil, rice, and marine products, which it was able to sell with comparative ease on world markets. In addition, further progress in liberalization of the country's principal export markets, including Japan, over the same period also helped to boost Viet Nam's exports. With the Dong's real exchange rate (the actual exchange rate adjusted for differing rates of inflation) rising against the dollar, however, attention will now turn to whether or not Viet Nam is able to maintain high growth in exports of higher value-added products.

Net capital inflows are rising, and they now surpass the current-account deficit (the deficit on the trade account and the invisible trade account). Inflows in the form of direct investment are particularly large. The outstanding amount of direct investment in Viet Nam (on a contract basis) is reported to have reached US \$20 billion, nearly equivalent in size to the country's GDP. This is partly attributable to Vietnamese efforts to attract foreign capital and the Vietnamese economy's excellent performance. It is also attributable, moreover, to a boom of investing in developing countries among industrialized nations and some middle-income nations. The recommencement of official development assistance to Viet Nam by many countries has also contributed to the expansion of capital inflows. The rescheduling and reduction of past foreign debt, which have already been partially agreed to by the country's creditor nations, have made it easier for Viet Nam to finance the deficit in its international balance of payments. In order to achieve stable economic performance from here on, it is important that Viet Nam promote the mobilization of domestic savings and not rely too heavily on foreign savings.

A trend in conversion of dollars into Dong can be inferred from the fact that Dong currency and Dong-based deposits have both been on the rise while dollar-based deposits have not risen at all since 1991. The fundamental factors behind this are high interest rates on Dong deposits, real interest rates (nominal interest rates minus the expected rate of inflation) that are positive, and the stabilization of the dong's exchange rate against the dollar. As long as large amounts of gold and dollars are used as stores of value and mediums of exchange, it will be difficult for the central bank to control domestic liquidity and to mobilize domestic savings as investment capital. If the conversion of gold and dollars into dong is to be promoted, it will be necessary to maintain positive real interest rates and a stable exchange rate. Price stability is an important factor in the achievement of these goals.

## 2. Examination of the proposed Five-year Plan

The proposed Five-year Plan (1996 to 2000)<sup>1)</sup> calls for an average annual growth rate of 9 to 10% and an inflation rate (in consumer prices) of less than 10%. These macroeconomic targets are premised upon a variety of plans and assumptions. Seeking high growth through overly ambitious investment plans can send prices surging upward and adversely affect a country's balance of payments, thereby undermining the foundations for sustainable growth. On the other hand, however, excessively restrained economic plans can cause a country's economic growth potential to go unrealized.

Assuming that the plan's growth and inflation targets are appropriate, what conditions must be met in order to achieve those targets? And what effects would changes in these conditions have? By analyzing these effects it is possible to determine what is important in the effort to achieve stable growth. In the consideration of such questions it is often useful to construct an economic model expressed in mathematical

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1) "Directions, Planning Tasks of Socio-economic Development for 5-year 1996-2000", Central Executive Committee, November 1995.

formulas and examine the aptness of the figures in the model. At the same time, it is helpful to examine how a change in one variable (investment, for example) changes other variables (growth rate, inflation rate, balance of payments, etc.). Economic variables are inextricably interrelated, and an economic model is useful in consistently assessing the changes variables have on each other.

In Viet Nam's case, however, there are major limitations on the construction of such a model. Specifically, Viet Nam's economic system is in the midst of substantial change, which presents the following problems: economic data relevant to a market economy are lacking; what data are available are not very reliable because they are changing in both content and meaning (several different figures often exist for one variable); and, the relationships among economic variables are not necessarily stable. For these reasons, we had to be satisfied with constructing a simple model. In our simulations (using our model) we adopted the data and structural parameters (which express the relationships between economic variables) used in the proposed Five-year Plan. There are some inconsistencies in the economic variables, but these are thought to be similar in nature to the inconsistencies that frequently appear in the formulation of economic plans by countries around the world. Namely, after targets have been set, diverse input from various quarters causes the targets to be modified, which results in inconsistencies in the interim. In our work, however, these types of inconsistencies were not regarded as significant problems insofar as our objective was to perform simulations to observe the relationship between high economic growth and economic stability. The following points outline the main findings of our simulation.

1) If investment, particularly private investment, continues to follow the recent high-growth trend and high investment efficiency is sustained, the economic growth rate may exceed the targeted range. At the same time, however, Viet Nam's international balance of payments situation may worsen and foreign debt rise. That is to say, if the given public investment plan is adopted, and private investment increases more than envisaged in the plan, the economic growth rate could exceed 10%. In this case, unless domestic savings rise considerably or foreign direct investment surpasses the plan's forecasts, borrowings from abroad will increase more than estimated in the plan and the country will take on considerable foreign debt. This, in turn, could become a constraint on future stable growth.

In the above case, if Viet Nam were unable to borrow more funds from abroad than envisaged in the plan, the growth rate could even fall below 9% during the five-year period covered by the plan.

If foreign debt mounts substantially or sufficient foreign borrowings cannot be secured, and private investment expands more than envisaged, measures might be needed to reduce fiscal spending, including a downward revision of public investment plans.

2) If investment or consumption expands more than envisaged in the plan, the inflation rate will be more likely to rise. If either investment increases or domestic savings decline (because of increased consumption), the domestic savings-investment balance will deteriorate. And, as a result, the fiscal deficit may grow. If the fiscal deficit is financed by the central bank, the rate of inflation could exceed 10%.

The inflation rate would also rise if foreign exchange reserves grow, for whatever reason, leading to an increase in the money supply. In this context, it is important whether or not the central bank intervenes in the foreign exchange market and takes sterilization measures (the central bank itself absorbs Dong liquidity that had been supplied through central bank dollar-buying intervention).

3) The inflation rate is affected by many variables and economic policies. A high growth rate does not necessarily lead to a higher rate of inflation. In our examination, the factors seen as bringing about the highest inflation rate were an expansion of government consumption and a consequent financing of the fiscal deficit by the central bank. These factors were not seen as leading to a higher economic growth rate. In contrast, an increase in public investment produced a relatively low inflation rate and a high growth rate in the simulation.

4) The above simulation findings have several implications. The first one is the importance of sustaining high investment efficiency. To achieve this, technological levels must be heightened through direct investment and the introduction into Viet Nam of technology from abroad, and appropriate investments

### What is Wrong with Inflation?

(1) Inflation can produce an unfair distribution of income and wealth. People anticipate inflation, attempt to protect themselves from inflation, and try to gain from inflation, with the result being the waste of economic resources (human resources, goods, and capital). An important aspect of inflation is that it robs people of the hope that their lives will be enriched through steady work.

(2) When the inflation rate is high, the forecasted range of future fluctuations in the rate widens, making it difficult for people and businesses to make future plans and diminishing their inclination to save and invest.

(3) A high rate of inflation implants inflation expectations in people's minds, and people then try to adapt to continued inflation (for example, by raising wages and prices to match inflation). Thus, inflation expectations themselves beget inflation.

(4) When inflation forecasts are not lowered, there is no decline in the retention of gold and dollars as mediums of saving and exchange, making it difficult to control domestic liquidity and mobilize investment capital.

(5) It is difficult to lower interest rates when inflation is high, and high interest rates discourage investment, especially long-term investment. Lowering interest rates when inflation is high causes a decline in savings and a consequent decline in investment.

(6) High inflation in Viet Nam brings with it expectations of a decline in the Dong's exchange rate against the dollar, which impede the conversion of dollars into Dong.

(7) With the Dong's exchange rate against the dollar stable as it has been recently, if Viet Nam's inflation rate were higher than that of other Asian countries, exporters would lose their price competitiveness. With one or two exceptions, other Asian countries have inflation rates of less than 10%.

should be made possible through deregulation and financial system reform. The second implication is the importance of boosting domestic savings. This has the effect of reducing the country's dependence on foreign capital. The third implication is that although foreign borrowing is necessary as a last resort, direct investment is obviously more desirable than borrowing as a source of foreign capital. The fourth implication is that fiscal spending may need to be reduced in order to promote stable growth, and to this end it would be desirable for the government to examine spending priorities in advance. The fifth implication is that it is very important to maintain the recent central bank policy of not linking increases in the fiscal deficit and foreign exchange reserves with an excessive money supply. The sixth implication is that if fiscal spending is increased, growth in investment is preferable to growth in consumption expenditures in terms of both prices and economic growth.

### 3. Present state of economic statistics in Viet Nam

Economic statistics are essential for all kinds of macroeconomic studies and management. In Viet Nam, where economic reforms have been undertaken in the past decade, its statistical system is in the process of transition.

As for National Account Statistics, the General Statistics Office (GSO) is in the process of implementing the UN System of National Accounts (SNA). GSO started to consider adopting SNA in 1990, and in 1992 it was decided to replace the Material Product System (MPS) with SNA. GDP figures before 1989 or 1990 are not officially available. The capital stock data for SOEs are published by GSO, and capital stock data excluding SOEs is held by Ministry of Finance, but not published.

The system of compiling CPI has been also changed in recent years. Under the new system introduced in 1996, price data for around 300 items are collected by a retail price survey while CPI from 1990 to 1995 was calculated with 175 items and fixed weights. Between 1980 to 1988, the Retail Price Index was compiled in such a way that the General Price Index was calculated as a weighted sum of the Official Price Index and the Free Market Price Index. The Export/Import price index is calculated based on the report on f.o.b./c.i.f. prices of major items from trading companies through the Ministry of Trade. The Production Price Index is compiled from survey results for around 600 items, which come from different ministries.

The aggregate amount of cash currency is available from 1986, and the amounts of demand deposits and bank reserves from 1989. Attempts to estimate the amount of US \$ in circulation are so far not



satisfactory, since the government is equipped with little means to gauge the amount remitted by Vietnamese living abroad and the amount brought into the country by tourists. The figures for the rediscount rate are available from 1992, and the government deficit is calculated by the Ministry of Finance (MOF) on the basis of estimation.

Regarding balance of payments, trade statistics are compiled based on the report of the Ministry of Trade, which combines reports of companies and local governments. Other parts of international balance of payments are shared by the Ministry of Trade, SBV and MOF.

Employment and unemployment are surveyed by GSO. Data on working hours are collected by the Ministry of Labor from enterprises and local governments. Wages are gauged by GSO with reports from ministries and local governments. The statistical definition of "wage" corresponds to wages and income in the public sector. For the private sector, "income" is surveyed.

Since the statistical system in Viet Nam is in transition, one should be cautious when using its macroeconomic statistics. As for National Account Statistics, three points have to be born in mind. First, it is not acceptable to use the series of annual GDP figures as usual time series data. Although some GDP figures were estimated on the basis of experimental computation, GDP figures are officially not available until 1989 or 1990. Even after 1991, GDP does not necessary represent the same object because of insufficient coverage and methodological changes. Secondly, there remain some discrepancies between the system of calculating GDP in Viet Nam and SNA standards. For example, nominal GDP is not equal to, probably not equivalent to nominal GDE. The gap between the figures is substantial. This is probably because the GDP indicators are compiled not from the harmonized system of national accounts, but from the limited basis of production accounts without coordination with other accounts. Thirdly, the reliability of the estimates suffers from insufficient coverage. The scope of calculation does not yet cover all industrial and economic sectors. For example, it admittedly fails to collect a complete set of data from non-state economic sector activities, export and import activities through unofficial channels. The lack of such information may significantly distort the aggregate and lower their reliability and validity. Besides the above points, there are shortcomings in the breakdown of GDP and in the calculation of local GDP. Currently GDP is not broken down by institutional sector, and the breakdown by industrial sector is not completed. Every province and city calculates GDP for its own locality, which is often invented due to methodological problems and the intention of proving economic achievement.

As for the inflation indicator, first, validity of CPI figures are not assured due to limited coverage and changes of methodology. Secondly, the economic meaning of price, not statistical definition of the price, comes into question when one sees the series for the 1980's. Thirdly, the present CPI is based on retail prices which may be different from actual consumer prices in Viet Nam.

Regarding trade statistics, figures for both exports and imports are unreliable. It is difficult for the authority to cover all the dispersed organizations engaged in international trade. A large amount of goods are smuggled, but such unofficial activities are not reflected in the present statistics.

With respect to labor statistics, there is a concern that the unemployment rate does not necessarily show the real situation of the labor market due to its definition problem. Currently, employment is defined as people who have stable jobs for six months or longer while unemployment as people of working age who have no stable job and want to work. Since there is no unemployment allowance in Viet Nam, everyone has to make his/her own living by any means, including sharing a portion of work which could be handled by only one adult.

Considering the present status and problems with regard to macroeconomic statistics, the following areas require further efforts for improvement. There is a need for the total coordination of government statistics. Basic classification systems of industry sectors, commodities, etc. should be immediately set up for common use in government statistics. The management of all statistical activities undertaken by GSO and other governmental organizations has to be strengthened to avoid overlapps or gaps of surveys and statistical reports which are necessary for economic management.

Fundamental statistics such as GDP have to be generated with a firm basis in the scope of SNA. An Input-Output table would be helpful to summarize the entire economic activities of the country. How to deal with the existence of the underground economy is one of the most difficult issues.

For macroeconomic and econometric studies, time series data are essential. To make any analysis meaningful, it is necessary to document and publish, if possible, the transition of concepts and methodology, based on the latest framework.

International comparability should be secured in the process of development of statistical systems. It would be desirable to arrange within the government a system of statistical standards according to the recommendations of international organizations such as UN, IMF, ILO etc. It is also recommended to fully participate in international activities such as the International Comparison Program organized by the UN.

## **II. Socioeconomic development with particular emphasis on the environment**

To maintain stable growth from the long-run point of view, it is important for any developing country to consider the ways of dealing with issues related to the environment. One such issue is the relations between economic development and the environment.

The experiences of Japan and industrializing Asia highlight the importance of effective environment protection as well as pollution prevention measures to be taken at the early stages of industrialization. In the recent history of Japan, development priority was placed on industrialization and export promotion, and environmental fallout was largely ignored as an insignificant side effect. The government never acted until it faced severe environmental hazards, or environmental problems became a political issue. This often resulted in tragedies, Minamata Disease being one of the most serious. Once such disasters occur, the cost of compensation for the damage is very high and complete recovery from the damage is almost impossible. Unfortunately, this approach to development is still popular among the industrializing Asian countries. East Asian countries (Asian NIEs, China and the ASEAN countries) have maintained outstanding growth performance in the recent past, being reputed as the "growth center" of the world economy. These countries, however, are encountering severe environmental disruption and natural resource depletion as a result of rapid economic growth. Special attention, therefore, should be paid not just to the benefits of economic growth, but also to its costs, including environmental degradation.

Industry in Viet Nam has rapidly developed in recent years with annual growth rate of 13.5% between 1991 and 1995. Along with rapid industrialization, environment pollution due to industrial waste has reached alarming status. With little investment in drainage systems, rivers, canals and lakes in industrial and urban areas are being used as drainage, receiving household and industrial waste. As a result, BOD (Biochemical Oxygen Demand) concentration in Hanoi and Ho Chi Minh City is already exceeding maximum level set by the government. Also, canal water contains heavy metals and toxic substances in some localities, threatening severely the environment and health of the urban population. The levels of air pollution substances like CO, CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>2</sub> also exceed the maximum levels allowed in urban areas.

Six industries are identified as being major sources of industrial pollution. These are energy, metals, mining, chemicals, construction materials, and light industry. Although the ways they affect the environment differ, they face common problems in relation to industrial pollution. One of them is that the technologies and equipment adopted in those industries are old and outdated, and consequently a large amount of industrial waste is generated. Another problem is that some of them are facing severe competition and budget constraints, and thus cannot afford to adopt appropriate pollution prevention technologies. As a result, a large amount of waste is discharged, untreated or only partially treated, which contaminates air, water and land.

In response, the Government of Viet Nam has initiated a number of actions in recent years. To seek appropriate technologies to deal with industrial waste, many studies were conducted. Laws and regulations were also promulgated on environment protection. Among them, Environment Protection Law and Decree

No. 175-CP are the most important. Environment Protection Law was promulgated in 1993, which specifies the main functions of state management of industrial environment. To facilitate the implementation of the Law, the Decree No. 175-CP was promulgated. In this decree, the Ministry of Science, Technologies and Environment is designated as the leading agency to manage environment protection in the whole country, and responsibilities of each concerned agency such as Ministries, and Provincial and City People's Committees are also specified. Up to now, measures to solve environmental pollution in Viet Nam are mainly based on legislative documents and regulations, instead of applying economic tools. Many countries have begun to use economic tolls to resolve environmental problems.

It is expected that rapid industrialization and high economic growth will continue in Viet Nam. Thus, the situation of environment degradation will become worse unless further measures are taken now. To formulating effective measures to minimize industrial pollution, not only technological and legal aspects need to be considered. Equally important is examination of the level of environmental consciousness of the population as well as institutional frameworks which provide incentives and disincentives for environmental protection. For example, in spite of the fact that Asian countries have adopted environment related laws, cases can be observed in which the laws adopted have in practice been used to legitimize activities that cause environmental pollution. Many enterprises in China allegedly continue to release pollutants while paying the fines set by law. One problem may be that the level of fines is too low, but another factor may well be that in state-owned enterprises "soft budgeting" undermines the incentives to control costs. The substantial efforts made by the government of Viet Nam are to be commended in promulgating various environmental laws and regulations. However, for formulation and implementation of effective environmental protection measures, further efforts beyond discussions on technological and legal aspects are required.



## Industrialization, Modernization Policy in Viet Nam

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### I. Achievements of Doi Moi Policy

Viet Nam has set a target of doubling its per capita GDP within 10 years from 1991 to 2000. Will Viet Nam achieve the target or not ?

We believe that Viet Nam can attain the target. Under the severe conditions resulted from the former Soviet Union's sharp cutdown of aid to Viet Nam and the country's socio-economic crisis we were still able to find way to overcome many difficulties. Now Viet Nam has entered a new stage of development, conducting industrialization, modernization with a view to reducing the gap in development level between Viet Nam and its neighbors.

Following are five major achievement recorded during the past 10 years :

#### 1) Inflation reduction and stabilization of fiscal and financial situation

\* The inflation rate was brought down from 774% in 1986 to 67% in 1990 and 12.7% in 1995. In the near future, the inflation rate is expected to be between 10-12%, which will be resulted from two main factors, namely the relationship between demand and supply, the adjustment of the domestic price level in accordance with international price level and the depreciation of the Vietnamese Dong. This situation is similar to that of the Republic of Korea (See Box No. 1).

\* Budget revenue from domestic sources accounts for more than 20% of GDP and thus can cover all the items of expenditure and about 10% of the budget revenue can be saved for public investment. State budget deficit in 1995 was about 4% of GDP and was financed by both domestic and external loans without printing more money.

Box 1 Deflator and Growth Rate in the Republic of Korea (%)

	GDP growth rate		GDP Deflator	Exchange rate Won/US\$	Nominal growth rate (in US\$)
	in current price (%)	in constant price (%)			
1970-75	29.6	8.3	19.7	8.9	19.0
1976-80	29.4	7.1	20.8	6.4	21.6
1981-85	16.3	8.4	7.3	6.2	9.5
1986-90	15.9	11.2	4.2	6.5	23.1
1970-90	23.0	8.6	13.3	4.1	18.2

Source : Major Statistics of Korean Economy 1990.

\* In the 1986-1990 period the gross domestic saving was negative and external resources, mainly from former Soviet Union, were used to meet both investment requirements and part of consumption requirements. However, in 1995 it accounted for 20% of GDP, covering 60% of the total domestic investment requirements. This has become one of the main pre-conditions for Viet Nam to enter the new period of "industrialization, modernization".

2) A multi-sector economy has been developed and achieved an average annual growth rate of 8.2% during the 1991-1995 period in which the figure for 1995 alone was 9.5% and it is expected to reach nearly 9.7% this year. As far as GDP growth rate is concerned, at present, Viet Nam ranks number one among the South East Asian countries. Moreover, relatively high growth rate has also been seen in all regions and economic sectors of the country.

Remarkable development has been seen not only in the industrial sector (public and private) which has been growing at an average rate of 13.3% per annum, but also the agricultural sector (98% of which belongs to the private sector) whose average growth rate has been nearly 4% per annum during the recent five year-period.

3) The country has strongly conducted an "open-door" policy, befriending with the international community on the basis of mutual benefit, and mutual respect for each other's sovereignty :

\* Export has been growing at an average rate of 20% per annum and new markets have been found, mainly in East Asia. Export volume is currently accounting for 25% of GDP, a very high ratio at a stage of preparing "pre-conditions for take-off". Viet Nam's imports not only meet its requirement for raw materials and intermediate goods as inputs to the production and that for consumer goods, but also satisfy the requirement for equipment and machinery needed for capital investment. The figures on imports of Viet Nam also include the imports by FDI and ODA projects.

\* External resources for investment: So far, licensed FDI projects have capitalized at more than US\$20 billion, and more than US\$6 billion has been actually implemented. International community's commitment of ODA to Viet Nam through three donors and OG conferences held in Paris has mounted to US\$6 billion, and US\$1.7 billion has been disbursed over the last three years. As a result, external resources contributed about 40% to the total investment made during the 1991-1995 period.

4) The living standards of the people has been improving not only in urban areas, but also in rural and mountainous areas. In general, income in constant price has increased by 1.5 times during the last five years. However, at present, about 20% of the population still live under the poverty line with the level of income being lower than the level of food security (i.e. 20 kg of rice/person/month).

5) Legal framework has been improved on the basis of the new constitution (promulgated in 1992) and a series of laws such as civil law, land law, labor law, state budget law, company law, environment protection law, etc. At the same time, the country has made a better preparation for the next step in building its physical infrastructure. This is the "soft and hard pre-condition" for a take-off.

In view of the above-mentioned achievements we can say that Viet Nam has escaped from its socio-economic crisis. Although a number of aspects have yet to be firmly consolidated, Viet Nam is moving steadily to a new period of "industrialization, modernization".

## **II. Challenges in transition**

Viet Nam is one of the poorest countries in the world. Its per capita GDP calculated in US\$, using official exchange rate, was US\$181 in 1993, US\$220 in 1994 and US\$ 274 in 1995, i.e. less than US\$1 per day. Following is the comparison between Viet Nam and other countries in terms of per capita GDP (1993 figures):

Viet Nam's per capita GDP of US\$181 = 1 time

<b>G7</b>		
-Japan	US\$31,490	174 times
-USA	US\$24,740	137 times
-Canada	US\$19,970	110 times
<b>NIEs</b>		
-Singapore	US\$19,850	110 times
-Republic of Korea	US\$ 7,660	42 times
<b>ASEAN</b>		
-Malaysia	US\$ 3,140	17 times
-Thailand	US\$ 2,110	12 times
-Philippines	US\$ 850	5 times
-Indonesia	US\$ 740	4 times
<b>Low-income</b>		
-China	US\$ 490	2.7 times
-India	US\$ 300	1.7 times

Source : *World Development Report 1995*, World Bank, 1995, p. 162-163

In order to make a comparison based on the same international price level between Viet Nam and other countries, Purchasing Power Parities (PPP) method can be used in per capita GDP computation.

As mentioned in the "Human Development Report in 1995" published by UNDP, per capita GDP of Viet Nam in 1993 calculated in PPP method was US\$1,010. If this figure is used as a basis for the comparison, then the gap in development level between Viet Nam and other countries will be narrowed considerably (See the figures below).

Viet Nam's per capita GDP of US\$1,010 = 1 time

<b>G7</b>		
-Japan	US\$20,520	20 times
-USA	US\$23,760	24 times
-Canada	US\$20,520	20 times
<b>NIEs</b>		
-Singapore	US\$18,330	18 times
-Republic of Korea	US\$ 9,250	9 times
<b>ASEAN</b>		
-Malaysia	US\$ 7,790	8 times
-Thailand	US\$ 5,950	6 times
-Philippines	US\$ 2,550	2.5 times
-Indonesia	US\$ 1,950	2 times
<b>Low-income</b>		
-China	US\$ 1,950	2 times
-India	US\$ 1,230	1.2 times

Source : *Human Development Report 1995*, UNDP, 1995, pp. 155-157

Per capita GDP is the only indicator which shows the biggest gap between Viet Nam and its neighbors and really calls for the country's great efforts in its process of development so as to achieve the difficult goal of narrowing the gap between Viet Nam and other countries, first of all its neighboring countries.

From the 1995 World Bank Report it is very clear that the problem is very serious for Viet Nam. Projections on average annual per capita GDP growth rate of some groups of countries in the world during the period from 1994 to 2010 are as follows:

China	3.9%
East Asia	4.4%
OECD	2.3%

Therefore, if Viet Nam is able to achieve an average annual per capita GDP growth rate of 8%, then the gap between Viet Nam and other countries will be reduced significantly:

Country or group of countries	Per capita GDP in PPP method (in US\$)		The gap Viet Nam = 1 time	
	1993	2010	1993	2010
Viet Nam	1,010	3,737	1.0	1.0
China	1,950	3,737	1.9	1.0
ASEAN-4	3,111	6,469	3.0	1.7
OECD	20,000	29,438	20	7.9

In the long run, can Viet Nam continue to grow at a high rate? The answer is yes. Because to reduce the gap in development level is not only our subjective desire, but also obviously feasible. In my opinion, Viet Nam enjoys some important comparative advantages, especially in terms of human resources.

In the above-mentioned "Human Development Report", Viet Nam ranks number 120 among 174 countries in the world in terms of HDI, in which Viet Nam's rank in different aspects is as follows:

-in terms of economic development: 151/174 (per-capita GDP is US\$1010 in Viet Nam, US\$330 in Ethiopia and US\$23,760 in the USA);

-in terms of health: 107/174 (life expectancy at birth is 65.2 years in Viet Nam, 39 years in Sierra Leone and 79.5 years in Japan);

-in terms of education level: 70/174 (adult literacy rate is 91.9% in Viet Nam, 12.4% in Ethiopia and 99% in OECD countries).

Under the new conditions, with its comparative advantages Viet Nam can make full use of its opportunities and overcome big challenges. The fact that Vietnamese people are very hardworking and moreover, half of the Vietnamese population are now less than 20 years old constitutes a very important factor for the country's future development. After a 15-year period from now to 2010 the quality of Viet Nam's labor force will improve very much if the fact that 1/4 of the country's population presently go to school is taken into consideration.

On the other hand, Viet Nam still has a number of weaknesses and is facing with many difficulties.

#### 1. Under-developed productive forces

This situation is reflected not only in low per capita GDP of Viet Nam, but also in its economic structure. The agricultural sector presently accounts for 30% of GDP and the share of the industrial sector in GDP is less than 30% GDP, similar to the economic structure of Thailand and Korea in more than 25 years ago as shown below:

	1970	
	Share of Agriculture in GDP	Share of Industry in GDP
Republic of Korea	25%	29%
Thailand	26%	25%

Underdeveloped labor forces have led to low labor productivity is low, e. in 1995 it was US\$500 per employee.



## 2. Low technological level

In Viet Nam many enterprises still use machinery and production lines of the 1960s and 1970s' technology. At present, the rate of fixed capital depreciation is about 7% and the contribution of technological factor to productivity is still low (in light industry alone, it is about 10-20%). Technological level of FDI projects is not high and only about 1/3 of FDI enterprises' products can be exported. In general, local products are not of high quality and thus are not strongly competitive in both local and international market. Being part of the ASEAN Free Trade Area (AFTA), Viet Nam is obliged to reduce considerably its tariff barriers from now to 2006 (the time limit for its completion of tariffs reduction program under AFTA). This will create more difficulties for Viet Nam if it is not able to improve its own technological level of production.

## 3. Social and environmental problems in development

Like many other developing countries, Viet Nam has to solve simultaneously many social problems as follows:

\* Unemployment and under-employment: Vietnamese population is young with half of that now being less than 20 years old. The number of unemployed people is over 2 million at present, accounting for 7% of the total labor force and that of underemployed people is 7 million. From now to the year 2010-2020 we have to create jobs not only for these unemployed and underemployed people, but also for the young people who will enter the labor force each year. This will be obviously a very big challenge to the country as 2/3 of its population is expected to be in the labor force during the period of 2010-2020.

\* Poverty: At present, 20% of the Vietnamese population still live under the poverty line as mentioned earlier in this paper.

\* Viet Nam is also facing with the problem of regional disparities. With the achievement of an average annual growth rate of 8.2% during the 1991-1995 period, we have to accept the fact that the gap between some regions of the country will be getting wider and wider. While an economic growth rate of 15% per annum is seen in the Southern triangle (Ho Chi Minh City, Dong Nai, Song Be and Ba Ria-Vung Tau, the rural areas can only see a growth rate of less than 10% per annum. Another clear indication of the gap is that while per capita GDP in Ho Chi Minh City is now about US\$900-1,000, in mountain areas it is only US\$100, which is equivalent to just one ton of rice, or even less than that. The gap will become wider if Ho Chi Minh City continues to grow at the rate 15% per annum while the growth rate of some mountain and rural areas will be only 8-10%.

Viet Nam also meets many problems concerning environmental protection. The forest coverage rate in Viet Nam has declined considerably from 62% in 1942 to only 28% at present. Pollution in industrial areas has become very serious and the level of pollution has been increasing year by year.

Certainly, we must take comprehensive measures so as to overcome the above-mentioned difficulties. In my opinion, we can take two main measures at the same time under the "dual economy" approach:

- Great importance should be attached to agricultural and rural development as the key point of the future economic policy (see Prof. Ishikawa's paper);

- The industrial sector, including some main heavy industries, (as mentioned in Fukui's report) and small- and medium- size enterprises should be strongly developed.

## III. Industrialization, modernization policy

We have been striving for reducing the gap in development level between Viet Nam and the international community.

"The goal of industrialization and modernization is to turn ours into an industrialized country with a modern material-technical base, an appropriate economic structure, advanced production relations suited to the development level of the production force, high standards of material and intellectual well-being, firm

national defense and security, a prosperous people, a strong country and an equitable and civilized society".

How can we achieve the target? The target will be attained through a sustainable development of our country with a balance between three following factors:

- Economic development.
- Social development.
- Environmental protection.

We can not and do not want to follow any ready-made models. Instead, we will find out an appropriate development model for our own country with an aim to catch up with other countries in the world. This means that with our comparative advantages we can take a flexible way to achieve the targets.

### 1. Productive forces

Viet Nam will continue to develop strongly and comprehensively its agriculture, forestry and fisheries whose combined employment accounts for 2/3 of the labor force and the rural population. This sector can be developed towards large-scale commodity production in close combination with the processing of their products, using more advanced and modern technologies.

According to our estimation, the agricultural sector is expected to grow at an average annual growth rate of about 4-5%. Its share in the country's GDP is expected to be gradually reduced as follows:

Year	Share of agricultural sector to GDP
1995	30%
2000	19-20%
2020	5-10%

Not only production in rural areas will be developed, but the rural economic structural transformation will be also conducted.

In several years to come, a comprehensive program on rural development which consists of many sub-programs in economic, social and environmental areas will be implement.

Priority will be given to the manufacturing sector and following sub-sectors:

- food processing.
- production of consumer goods and export articles.
- electronics and informatics.
- some engineering industries.

Special attention will be paid to medium- and small- scale industry, including rural industry, so as to create a large number of jobs for the young people.

According to our estimation, the share of the industrial sector in the country's GDP will be as follows:

Year	Share of the industrial sector in GDP
1995	29%
2000	35%
2020	45%

The rest is contributed by the services sector. Much attention will be paid to the development of social and economic infrastructure, such as transportation and telecommunications, electricity and water supply, finance, banking, insurance, technology extension, education, health, science, etc.

A rational development will be created in various territorial regions with priority being given to some important regions which are three development triangles in Viet Nam.

\* Northern triangle covering Hanoi, Hai Phong, Quang Ninh and Hai Hing with the Hai Phong and Cai Lan deep-sea ports, and the highways No.5 and No.18 from Hanoi to Hai Phong and Quang Ninh (and will possibly lead to China) to be developed.

\* Central triangle covering Quang Nam and Quang Ngai with deep sea-ports in Da Nang and Dung Quat which can link to Thailand and Laos by the highway No.9 to be constructed.

\* Southern triangle covering Ho Chi Minh City, Dong Nai, Song Be and Ba Ria-Vung Tau with the inter-Asian highway linking Ho Chi Minh City and Phnom Penh to be built.

Special attention will be paid to the development of rural and mountainous areas with a view to creating a balanced regional development. To this end, a comprehensive program for the development of rural and mountainous areas which consists of many sub-programs on both economic and social development will be implemented. For example, in the Mekong River Delta alone, only 10 projects, consisting of 5 irrigation projects and 5 transport ones (to which priority to use ODA funds are given), expected to be implemented during the 1996-2000 are capitalized at as much as US\$1.2 billion, while it is expected that about US\$7-8 billion of ODA will be attracted nationwide during the same period.

In the area of production, great efforts will be focused on improvement of technological level of production and the level of human resources.

## 2. Social and human development

In order to strongly develop the country importance must be attached to improving the technological level of the industry. In this regard, education has become one of the main areas of development for which domestic resources should be mobilized. Based on a quality human capital Viet Nam's technological level can greatly improve to meet the requirements of its development process in the long run.

As regards foreign investment, there is great concern about the quality of imported equipment and technologies.

Renovation of the existing education system will be of great importance, and retraining of officials in the public administrative reform is an area of priority.

## 3. External economic relations

Under the new conditions of the world economy of today, Viet Nam must improve considerably the competitiveness of its exports in the international market and reduce the proportion of unprocessed or semi-processed exports. Viet Nam has actually adopted an export-led development policy, in which foreign direct investment (FDI) has been playing an important role while ODA resources have been contributing considerably to the development of the country's physical and social infrastructure. Therefore, specific issues concerning the relationship between domestic and external funds are handled in a flexible manner so as to ensure a successful realization of the set development goals and tasks.

External economic relations policy will play a significant role in the country's overall economic policy.



## The Results of Simulations of a Simple Macroeconometric Model of the Economy of Viet Nam

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The purpose of this note is threefold: (1) to report the results of simulations of a simple macroeconometric model of the Vietnamese economy, (2) to describe the assumptions of the macroeconometric model used in simulations and (3) to discuss their policy implications.

The simulation exercises are carried out with two specific objectives. The first objective is to compare the values of various macroeconomic variables contained in the Five-year economic plan systematically with the historical data. The second objective is to give the quantitative content to the concern: An overly ambitious development program might destabilize the economy and end up with higher inflation, higher external debts and possibly lower aggregate growth rate.

The specification of the macroeconometric model used for our simulation study is chosen by our desire to replicate most of the target values and estimates of macroeconomic variables in the Plan under the explicit set of assumptions on the structure of the Vietnamese economy. Many important parameters of our model correspond directly to the parameters discussed in the Plan. This helps us not only replicate the Plan but interpret the results of simulations within the basic framework of the Plan.<sup>1)</sup> Besides the number of sample points is too small to estimate complicated behavioral equations for the economy whose structure is changing rapidly. For most relationships between variables we simply compute the averages of their ratios either for the whole sample period or for the recent couple of years and assume them to be fixed for the whole planning period from 1996 to 2000. Such a modeling imparts a priori a very rigid structure to the adjustment mechanism embedded in the model and tends to overemphasize the instability of the economy. While we consider this as an important limitation of this exercise, it will still serve our purpose to answer the questions stated in the previous paragraph.

We will first examine a non-monetary model in Part I under the assumption that both the inflation rate and the rate of depreciation of Dong are fixed at the rate assumed in the Plan. The primary objective of studying the non-monetary model is to gain the first and robust insights into the interrelationships between the Plan and the growth prospect of the Viet Nam economy without complication of monetary factors. In Part II we will attach a model of the monetary sector to the non-monetary model studied in Part I in order to reexamine our observations obtained in Part I and to expand the scope of our analysis to inflation. Part III concludes the paper.

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1) Besides it makes it possible for us to use the parameter values used by our counterparts in computing the figures in the Plan and to discuss whether or not assumptions on the parameter values are appropriate.

## I. A non-monetary model

In this section we evaluate the effects of changes of various policy variables on the growth path of the economy without considering monetary factors. The inflation rate is assumed to remain constant without regard to the development of real economic variables such as real GDP or real investment. Thus the negative implications of overly ambitious investment program appear primarily either in the accumulated external debt or in the accumulated domestic debt of the government at the end of the Plan period.

Part I consists of three sections. Section 1 describes a non-monetary model used for simulations in Part I. The model is chosen to obtain the quantitative information about the important macroeconomic relations on the basis of the limited number of data observed during the past 5 years. The set of parameters which characterize the model correspond closely to those of the Plan. Section 2 describes the assumptions of the Plan concerning the behavior of major macroeconomic variables. Section 3 reports the results of simulations under alternative assumptions on the growth path of exogenous variables including policy variables.

### 1. A simple non-monetary growth model

The model employed is a version of the Harrod-Domar model. Technology is characterized by the linear relationship between total output (GDP) and capital stock (K):

$$\text{GDP} = \frac{1}{v(t)} K \quad \dots\dots(1)$$

$v(t)$  is the technology coefficient and varies over time exogenously. Both GDP and K are real, and unless noted otherwise, all the variables in this section are measured in domestic goods. We are assuming here that the aggregate technology is such that the labor supply exceeds the amount of labor necessary to utilize the existing capital stock fully. The technology (1) implies

$$\Delta \text{GDP} = \frac{1}{v(t)} \Delta K = \frac{1}{v(t)} I \quad \text{or} \quad \frac{1}{\Delta \text{GDP}} = v(t) \quad \dots\dots(2)$$

where I is gross investment and the ratio  $v(t)$  is the incremental capital output ratio (ICOR). We assume that  $v(t)$  is an exogenous process and changes with time t. From (2) we obtain

$$\text{the growth rate of GDP} = \frac{\Delta \text{GDP}}{\text{GDP}} = \frac{1}{v(t)} \frac{I}{\text{GDP}} \quad \dots\dots(3)$$

The gross investment I includes both government investment and private investment and is written as

$$I = IG + IP = IG + FDI + IOP \quad \dots\dots(4)$$

where IG is government investment, IP private investment, FDI foreign direct investment and IOP private investment other than FDI.

From the GNP identity in the National Income and Product Account we get the following identity between gross investment, gross savings and current account balance:

$$\begin{aligned} I &= SD - CAB \\ &= SG + SP - CAB \quad \dots\dots(5) \end{aligned}$$

where SD is domestic saving, SG government saving (that is, government revenue minus government consumption), SP private saving and CAB current account balance. From the balance of payment account we also have

$$\Delta R = CAB + FDI + \text{net external borrowings} \quad \dots\dots(6)$$

or

$$CAB = - (FDI + \text{net external borrowings}) + \Delta R \quad \dots\dots(7)$$

where R is the foreign exchange reserve held by the central bank, measured in real terms.<sup>2</sup> In Part I we assume that  $(R = 0$  and that the difference between (CAB and FDI is covered entirely by external borrowings. When we define foreign saving SF by  $SF = FDI + \text{net external borrowings}$ , then we can write Equation (7) as

$$CAB = -SF \quad \dots\dots(8)$$

Then, by substituting Equation (7) and (8), Equation (5) can be rewritten as

$$I = SG + SP + SF \quad \dots\dots(9)$$

when  $R = 0$ . Equation (9) is an identity and shows how investment is financed by different sources.

Dividing Equation (9) by GDP, we have

$$\frac{I}{GDP} = \frac{SG}{YG} \frac{YG}{GNP} \frac{GNP}{GDP} + \frac{SP}{YP} \frac{YP}{GNP} \frac{GNP}{GDP} + \frac{SF}{GDP} \quad \dots\dots(10)$$

where YG is government income (taxes and other non-tax incomes), YP private income, and GNP gross national product which is equal to the sum of GDP and net factor income abroad (NFIA). We assume that  $SG/YG = sg(t)$  (an exogenous process),  $SP/YP = sp(t)$  (an exogenous process),  $YG/GNP = yg$  (constant),  $YP/GNP = yp$  (constant),  $GNP/GDP = (GDP+NFIA)/GDP = (1+NFIA/GDP) = 1 + f$  (constant). Note that  $yg+yp=1$  and that f is negative for a highly indebted economy because of interest and amortization payment. Then the investment/GDP ratio can be written in these parameters as

$$\frac{I}{GDP} = (sg(t)yg + sp(t)yp)(1+f) + \frac{SF}{GDP} \quad \dots\dots(11)$$

Then, substituting (11) into (3), we get

$$\frac{\Delta GDP}{GDP} = \frac{1}{v(t)} [(sg(t)yg + sp(t)yp)(1+f) + \frac{SF}{GDP}] \quad \dots\dots(12)$$

Thus, given the parameter values  $v(t)$ ,  $sg(t)$ ,  $sp(t)$ ,  $yg$ ,  $yp$  and  $f$ , the higher growth path of GDP is associated with the higher dependence on foreign saving. Figure 1 illustrates the tradeoff between the growth rate of GDP and the dependence on foreign saving embodied in Equation (12). Note that Equation (12) is not a causal relationship between  $SF/GDP$  and  $\Delta GDP/GDP$ . It only shows that two ratios move along Equation (12). In order to move the two ratios along the line, we need to control exogenous variables (that is, investment variables in this model). For example, as will be shown in simulations, a higher government investment IG results in both a higher  $SF/GDP$  and a higher  $\Delta GDP/GDP$ .

We can also use Equation (5) and (7) to find the implication of a growth program for external borrowings when  $\Delta R = 0$ :

$$\begin{aligned} \text{net external borrowings} &= -CAB - FDI \\ &= I - SD - FDI \\ &= (I - FDI) - SD \quad \dots\dots(13) \end{aligned}$$

2) We get the foreign exchange reserve in US\$ term (for example) by multiplying R by price and then dividing it by the exchange rate of US\$ in terms of Dong.

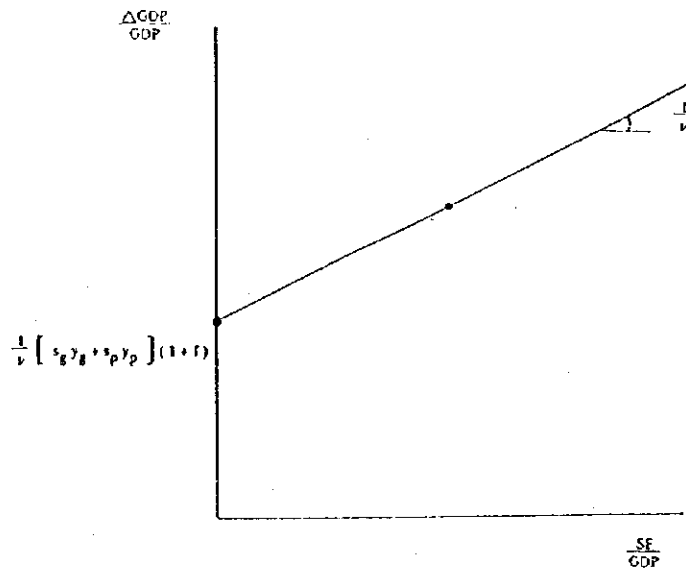


Figure 1

That is, the value of net external borrowings is equal to the non-FDI domestic investment which is not covered by domestic saving SD.

Given the values of government investment (IG) and government saving (SG), the value of budget deficits is defined simply by

$$\text{budget deficits} = \text{IG} - \text{SG} \quad \dots\dots(14)$$

Finally, we assume that the growth process of exports is given exogenously. Then, by using the definition of  $\text{CAB} = \text{exports} - \text{imports} + \text{NFIA}$  and Equations (8), we can determine imports by

$$\begin{aligned} \text{imports} &= \text{exports} + \text{NFIA} - \text{CAB} \\ &= \text{exports} + \text{NFIA} + \text{SF} \quad \dots\dots(15) \end{aligned}$$

when  $\Delta R = 0$ . Equation (15) can be written also as:

$$\text{trade balance} = \text{exports} - \text{imports} = -(\text{NFIA} + \text{SF}) \quad \dots\dots(16)$$

In summary, the model is characterized by the parameters  $y_g$ ,  $y_p$ ,  $v(t)$ ,  $sg(t)$ ,  $sp(t)$  and  $f$ . Exogenous variables are investment variables (I, IG, IP, FDI, IOP) and exports. Endogenous variables are GDP, NFIA, GNP, YG, YP, saving variables (SD, SG, SP, SF), CAB, net external borrowings, budget deficits and imports.

## 2. Model calibration

In this section we choose the parameter values of the non-monetary growth model specified in Section 1. The major criterion we use in our choice is to replicate the growth program of the Plan within the framework of our model as closely as possible. Whenever the values of macroeconomic variables given in the Plan imply specific values for the parameters of the model, we take these parameter values as the "estimates" of the parameters. The values of ICOR  $v(t)$  ( $t=1996, \dots, 2000$ ) are determined in this way from



GDP(t) and I(t) given in the Plan. For the parameters which cannot be inferred uniquely from the Plan we "estimate" their values from the data between 1990 and 1995. However, rather than taking average estimates over the whole sample period, we choose the values which seem to represent the best "estimates" for the Plan period. Thus, the values of  $y_g$  and  $y_p$  are their values in 1994;  $f$  is the average between 1992 and 1994; and  $sp(t)$  is the average saving rate from 1990 to 1994. The values of  $sg(t)$  are determined from  $SG(t)$  and  $GNP(t)$  processes in the Plan. Such "estimation" procedure is clearly arbitrary but seems to be optimal for the purpose of this paper: to examine the growth program of the Plan under alternative assumptions on the changes in the economic environment of Vietnam. The replicated growth process based on the Plan will serve as a reference case in simulations reported in Section 3.

A short remark is necessary on the relationship between the reference case based on the Plan and the Plan itself. The values of some variables (such as total investment I) are given in annual terms in the Plan, but others (such as government investment IG or FDI) are given only in 5 year totals. For the variables whose values are given in 5 year totals, we convert them into annual values by assuming that they grow at constant growth rates. For the variable whose 5 year total is given by a range we choose its annual values so that its 5 year total is close to the middle of the given range.

We proceed as follows.

**(1) Real GDP and prices (Deflator)**

Growth rate of real GDP = 9.5% (9~10% in the Plan)

Inflation rate = 10%

**(2) Investment variables and ICOR  $v(t)$**

The Plan describes the annual rate of investment I(t) in US dollar. We first convert them to dong values by assuming 4% rate of depreciation of Dong against dollar.<sup>3)</sup> Then we obtain its real values by assuming the 10% inflation rate.

From the processes of real GDP and real investment obtained above, we find the values of ICOR  $v(t)$  from 1996 to 2000.<sup>4)</sup> See the row of ICOR in Simulation 1-1(Plan). It varies between 3.05 and 3.16, falling in the range between 3.0 and 3.3, noted in the Plan.<sup>5)</sup>

The Plan provides the estimate of Government investment (IG) in its 5 year total. We assume that it grows at a constant rate and configure the annual values IG(t) so that its 5 year total equals \$15.6 billion (as defined in Table 7 in the Plan<sup>6)</sup>. The growth rate is found to be equal to 35% in nominal Dong and 22.7% in constant Dong.

The Plan does not specify the values of Private investment IP(t). We compute its values from the relation: Private investment (IP) = Total investment (I) - Government investment (IG). The Plan gives the estimate of Foreign direct investment (FDI) in 5 year total by the range \$13-\$14 billion. We assume it to grow at 40% in dollar so that its 5 year total is equal to \$13.4 billion, in the middle of the \$13-\$14 billion range of the Plan. This is equivalent to the 44% growth in nominal Dong and the 30.9% growth in constant Dong.

The Plan does not specify the value of private investment other than FDI. We compute its value by: Other private investment (IOP) = Private investment (IP) - FDI. IOP includes both a part of the investment of state enterprises and the investment of the private sector.

**(3) Saving variables and saving rates  $sp(t)$ , and  $sg(t)$**

We assume that  $f (=NFIA/GDP)$  is equal to - 0.02 which is the average between 1992 and 1994. See the row NFIA/GDP in Simulation 1-1(Plan). Then,  $GNP = GDP + NFIA$ .

3) The value of the rate of depreciation is not in the plan but was used in computing the amount of external funds necessary for investment.

4) ICOR is computed by . This assumes that the investment in period t increases productive capacity and output during the same period.

5) We do not have substantial evidence which may be used to test the validity of the assumption of the Plan on the range of  $v(t)$ . But some evidence is available to check whether the assumption is plausible. See the section of ICOR of Macroeconomic Report.

6) First, the real value of public investments is given. Then it is converted to nominal Dong value by assuming the 10% inflation rate. Finally the dollar value is computed by assuming the 4% depreciation rate of Dong.

We assume that  $yp = 0.75$ . This is the value of  $YP/GNP$  in 1994.  $yg = 0.25$  by definition. See the rows  $YP/GNP$  and  $YG/GNP$  in Simulation 1-1(Plan).

We assume that  $sp(t) = 0.1$ . This is the average rate of private saving  $SP/YP$  during 1990 - 1994. See the row  $SP/YP$  in Simulation 1-1(Plan).

Foreign saving ( $SF$ ) =  $FDI$  + net external borrowings (mostly ODA). The annual values of net external borrowings are obtained so that its 5 year total is equal to \$7.3 billion which is in the \$7 billion ~ 8 billion range of the Plan.<sup>7)</sup>

The value of Government saving follows from the GNP identity: Government saving ( $SG$ ) =  $1 - SP + CAB = 1 - SP - SF$ . In the last equality we assume that foreign exchange reserve remains constant in real term. Domestic saving ( $SD$ ) follows from:  $SD = SP + SG$ .

We compute the parameter values of the government saving rate by:  $sg(t) = SG(t)/YG(t)$  ( $t=1996-2000$ ). It declines gradually from 0.311 in 1996 to 0.182 in 2000. See the row  $SG/YG$  in Simulation 1-1(Plan). Simulation 1-1(Plan) also shows the change in the government consumption/GDP ratio in the row  $CG/GDP$ . It is related to  $sg(t)$  by:  $CG/GDP = ((YG-SG)/YG)(YG/GNP)(GNP/GDP) = (1-sg)yg(1+f)$ . It increases gradually from 16.9% in 1996 to 20.1% in 2000.

#### (4) Exports, imports and trade balance

The Plan assumes that the 5 year total of exports during the Plan period is 3 times their 5 year total from 1991 to 1995. When we assume that the growth rate of exports is constant, the Plan implies that exports grow at 24.8% in Dong, 20% in dollar, or 13.5% in real terms. See the rows of exports in the table of Trade Balance. The growth rate in dollar value of exports is somewhat smaller than the range between 24 - 28% which is also given in the Plan. The value of Imports is obtained from:  $Imports = Exports + NFIA - CAB = Exports + NFIA + SF$ , when the foreign exchange reserve remains constant in real terms. We can also compute the trade balance by:  $Trade\ balance = Exports - Imports = -(NFIA + SF)$ . See the rows of imports and trade balance in the table of Trade Balance.

Table of Trade Balance also shows the value of imports described in the Plan. We note immediately that the value of imports obtained in the model is vastly different from that of the Plan. Since we have chosen the parameter values of the model in order to replicate the investment and saving program of the Plan, the significant difference in the estimates of imports within the Plan implies that the estimates of exports and imports are not consistent with the estimates of investment and saving in the Plan. In particular, the Plan underestimates the value of imports by a large margin (as much as 13.6% of GDP in 2000), if we take the investment and saving program of the Plan as given. In Appendix A we show that the Plan is indeed most likely to be underestimating the value of imports by comparing the import function estimated from the data during 1991-1995 with that from the data in the Plan.

### 3. The results of simulations

This section reports the results of simulations under alternative assumptions on the values of exogenous variables and parameters.

#### (1) Private investment IP

##### 1) IP in the Plan, Non-monetary model (Plan)

As seen in Non-monetary model, the growth rate of real private investment declines gradually throughout the Plan period from 18.7% to -3.4%. Given the values of its growth rate, 19.9% in 1993, 35.4% in 1994 and 23.8% in 1995, the Plan values are likely to underestimate the growth rate of real IP by a large margin.

Given the target growth rate of real GDP, this is caused by one or both of the following reasons: (1) the

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7) The annual values do not grow at a constant rate by a mistake. If they do, they will cause government saving (government consumption resp.) to decline (to increase resp.) somewhat more rapidly. The effects seem to be minor.

government investment (IG) is too large, given the growth rate of total investment, or (2) total investment is too small, given the growth rate of real GDP, or, equivalently the implicitly assumed values of ICOR are too small. If we consider the implicit values of ICOR (between 3.05 and 3.16) as plausible, then IG is too large for the 9.5% growth rate of real GDP.

On the other hand, if IG is given as planned and if IP continues to follow its trend during the past 5 years, the growth rate of real GDP is likely to be higher than 9.5%. We will check this possibility later.

The underestimation of private investment is most visible for other private investment (IOP) which is calculated as residual after subtracting government investment (IG) and foreign direct investment (FDI) from total investment (I). It serves the role of the adjustment term in the standard case. The fact that real IOP increases at the rate of 25.6% in 1996 but declines at the rate of minus 27% and minus 47.1% in the last two years of the Plan period indicates that there is a significant imbalance in the growth program of the Plan.

## 2) Alternative cases of private investment

We have examined the implications of alternative assumptions on the growth path of IP. The results are shown in five tables from Non-monetary model (IP-1) to (IP-5).

The first three tables, from Non-monetary model (IP-1) to (IP-3), examine the effects of the increase in the growth rate of real IP from 9.5% to 20% to 30%. The effects on the growth rate of real GDP are straightforward. If real IP grows at 20%, a somewhat conservative estimate of the growth rate of IP, the average growth rate of real GDP increases from 9.7% to 11.4% to 13.5% during the Plan period. Thus, if the growth rate of real IG is given at 22.7% in the Plan, the growth rate of real GDP is likely to be higher than 9.5%. Its effects on foreign loans necessary to finance the higher investment are shown in the row ODA and Loans (OL). When real IP grows at 20%, the 5 year total of OL amounts to \$17.3 billion, much higher than the range \$7-8 billion in the Plan. The accumulated OL/GDP ratio caused by the borrowing between 1996 and 2000 reaches 37.3%, much higher than the standard case 16.7%.

Non-monetary model (IP-4) looks at the case when real other private investment grows at 30%. While the average growth rate of real GDP is 13.5% and is much higher than the standard case, its effect on the accumulated OL/GDP ratio is very large, increasing from 16.7% (in the standard case) to 56.6%.

Non-monetary model (IP-5) shows what happens if FDI is lower than planned, growing at 10% in real terms rather than 30.9%. The average growth rate of real GDP is 8.3%, the lowest among the cases examined.

## (2) Government investment (IG)

In the standard case, Non-monetary model (Plan), real government investment grows at 22.7%. Two tables, Non-monetary model (IG-1) and (IG-2), shows the effects of higher (30%) and lower (9.5%) growth rate of real IG. The average growth rate of real GDP during the Plan period is 10.1% and 8.6% respectively. The row BS shows the budget surplus. The effects of the change in the growth rate of IG on the budget deficit (that is, negative BS) and OL can be seen clearly. When real IG grows at 30%, both the accumulated -BS/GDP ratio and the accumulated OL/GDP ratio increase from 14.7% and 16.7% (in the standard case) to 22.2% and 23.7% respectively in the year 2000. When real IG grows at 9.5%, the two ratios decline to 3.4% and 6.2% respectively in the year 2000.

## (3) Private saving rate $sp(t)$

Non-monetary model (SP) shows the growth path of the economy when  $sp(t)$  is 8% for the whole Plan period, smaller than the standard case  $sp(t) = 10%$ . The accumulated OL/GDP ratio increases from 16.7% (in the standard case) to 22% in the year 2000.

## (4) Government consumption and government saving rate $sg(t)$

Non-monetary model (CG-1) shows the case when the CG/GDP ratio remains at 16%, lower than the standard case. This is equivalent to the case when  $sg(t)$  is constant at 34.7% throughout the Plan period. Both the accumulated -BS/GDP ratio and the OL/GDP ratio decline from 14.7% and 16.7% (in the standard case) to 5.9% and 8% respectively in the year 2000. On the other hand, Non-monetary model (CG-2) shows the effects of a larger CG/GDP ratio which increases gradually to 25% at the end of the Plan period.  $sg(t)$

declines from 30.6% to minus 2%. Both the accumulated  $-BS/GDP$  ratio and the accumulated  $OL/GDP$  ratio increase to 26.4% and 28.4% respectively in the year 2000.

#### (5) ICOR $v(t)$

Within the framework of our model the growth processes of GDP and other endogenous variables depend importantly on the choice of the estimates of ICOR  $v(t)$ . While we have used the values of  $v(t)$  calculated from the Plan, some evidence exists which indicates that  $v(t)$  may increase over time as a trend.<sup>8)</sup> Tables denoted by ICOR show the results of the simulations corresponding to the cases discussed above under the assumption that ICOR increases from 2.9 (in 1996) to 3.3 (in 2000). Non-monetary model (ICOR) computes the value of investment  $I$  under the new values of ICOR and the assumption that the growth rate of real GDP equals to 9.5%. Now IP and IOP take more plausible values, but still their underestimation is clearly visible in the rows of their growth rates. Generally speaking, the simulation results are not much different from the standard case under the new values of ICOR. The average growth rate of real GDP remains approximately the same as the standard case because real GDP grows faster at the beginning and slower at the end of the Plan period.

#### (6) IOP and $sp(t)$

Non-monetary model (IOP, SP) assume the growth rate of real IOP at either 20% or 30%, which is much higher than the rate implicit in the Plan but is in line with the historical trend observed during 1991-1995. The average growth rate of real GDP during the Plan period is much higher than the Plan and is 12% and 13.5% when real IOP grows at 20% and 30% respectively. Non-monetary model (IOP, SP) also examine more possibilities for the saving rate  $sp(t)$ , increasing from 0.1 in 1995 to either 0.15, or 0.20, or 0.30 in 2000. While the higher growth rate of IOP results in the higher accumulated external debt to GDP ratio, the higher saving rate seems to be able to reduce the ratio significantly. For example, the increase in the saving rate in the final year 2000 from 15% to 20% reduces the accumulated  $OL/GDP$  ratio from 34.7% to 26.2% when the growth rate of real IOP is 20%.

### 4. Summary of Part I

We can summarize the main observations obtained in Part I as follows:

(1) The exports/imports side of the Plan is not consistent with the investment/saving side of the Plan. Given the estimate of the income elasticity of real imports during 1991-1995, the Plan is underestimating the value of imports by a large margin. The investment/saving side of the Plan implies much higher trade deficits than those described in the Plan.

(2) The assumption on Private Investment implicit in the Plan is unrealistically low. When we extrapolate the trend of Private Investment observed between 1991 and 1995 to the Plan period, the growth rate of real GDP is likely to exceed the range between 9 and 10% of the Plan significantly. This implies that the government investment program of the Plan is likely to result in the higher growth path of GDP. It is also likely, however, that the Plan will result in external debts much higher than the range anticipated in the Plan.

## II. A monetary model

Now we consider monetary factors explicitly and reexamine the insights we have gained in the non-monetary model in Part I in view of the changes in the inflation rate and foreign exchange rate.

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8) See the section of ICOR of Macroeconomic Report.

## 1. A model of the monetary sector and its calibration

We describe the monetary sector by a money demand function and a model of the money supply mechanism. The specification of a money demand function establishes the linkage between GDP, money supply and the price level. The model of the money supply mechanism shows how money supply changes in the economy.

We choose the demand function for real currency balances (held by the public) rather than M1 or M2 as a demand function of money. In the cash-dominated economy with a small amount of demand deposits being used as a medium of exchange, the demand for real currency balances will better approximate the transaction demand for money.<sup>9)</sup> We assume that the demand for real currency balances is determined uniquely by real GDP. Let  $Cur$  and  $P$  denote currency held by public and the price level respectively. By using the data from 1989 to 1994 we find that:

$$\log \frac{Cur}{P} = -11.89 + 1.79 \log (\text{real GDP}) \dots\dots(17)$$

$$(-7.11) (12.86), \\ R^2 = 0.97, DW = 2.50$$

(The figures in the parentheses are t-values.)

The equation implies that the income elasticity of demand for real currency balances is 1.79.

The basic construct of a money supply mechanism is the mechanism which regulates the value of high powered money HPM (monetary base or base money), the amount of currency issued by the central bank. It is divided into two components: currency held by public ( $Cur$ ) and currency held by the banks as reserve. The money demand function (17) is the demand for the former component. We assume that the  $Cur/HPM$  ratio is constant and is equal to 0.807, the average ratio during 1992-1995.

Let  $\Delta HPM$  denote the change in the stock of high powered money. Three sources exist which change HPM: the balance of payments, the change in the net government liabilities held by the central bank and the change in central bank credits to financial institutions.<sup>10)</sup> That is,

$$\Delta HPM = \text{the balance of payments} + \text{the change in net government liabilities} \\ + \text{the change in credits to financial institutions} \dots\dots(18)$$

We assume that the position of the overall balance of payments causes the same amount of change in the foreign exchange reserve held by the central bank and in the amount of HPM.<sup>11)</sup> Since the balance of payments is equal to the sum of the current account balance  $CAB$  and the net capital inflows  $SF$ , foreign exchange reserve increases or decreases, depending whether  $SF$  exceeds  $CAB$  or not. Note that  $SF = FDI + \text{net external borrowings}$ . In the non-monetary model we have assumed that  $CAB + SF = 0$ .

The change in net government liabilities held by the central bank is caused by various reasons, including direct or indirect monetization of budget deficits and the purchases and sales of government securities. We assume that the degree of monetization of overall government budget deficits is given by a policy parameter  $\alpha$  (alpha). We run simulations by assuming either  $\alpha = 0.5$  (for most cases) or  $\alpha = 0$  (for other cases).

Central bank credits to commercial banks is another important channel to increase HPM. The central bank can support an increasing demand for credits necessary for the growth of the enterprise sector,

9) By using real currency balances rather than M1 or M2, we can avoid using the estimate of money multiplier which seems to be very unstable. We have tried to estimate the demand function of quasi money in order to evaluate the strength of currency substitution in Vietnam. But we failed.

10) Devaluation of Dong increases the Dong value of foreign exchange reserve held by the central bank. Its immediate effect is the capital gain by the central bank and it does not increase HPM in itself, although it could create incentive to increase HPM.

11) This is true when all foreign currencies are surrendered to the central bank. But even when they are not surrendered to the central bank, the position of the balance of payments will have similar monetary effects if foreign currencies are used as medium exchange.

including state enterprises (SOE), private firms, cooperatives and so on by increasing its credits to financial institutions. In such a case the central bank refinances a part of the credits extended by commercial banks to the enterprise sector. The Public Investment Program for 1996-2000 provides the estimate of the commercially viable investments of SOEs at \$5.9 billion and that of the investments of the private sector at \$19.9 billion which further consists of domestically financed \$6.9 billion investments and \$13.0 billion FDI. We assume that the central bank refinances the commercially viable investments of SOEs and that its fraction out of domestically financed private investments is given by a constant,  $5.9/(5.9+6.9)$ , throughout the Plan period. That is, we assume that 46% of domestically financed private investment is financed by issuing new HPM.<sup>12)</sup>

## 2. Assumptions on foreign savings

We consider two extreme cases on the availability and use of foreign savings. One is the case (Case A) in which external resources are readily available and are used to eliminate the deficits of Current Account Balance exactly. In this case the balance of payments is always zero and does not cause a change in HPM. The other is the case (Case B) in which the amount of foreign savings which are available and used is fixed exogenously at the value given in the Plan. In this case the deficits of Current Account Balance are only partly financed by foreign savings and the remainder results in the change in foreign exchange reserves. Such a policy is feasible only when the level of foreign exchange reserves is non-negative. When reserves run out, the growth program must be revised within the limit determined by the amount of available foreign savings given in the Plan. The foreign exchange reserve held by the central bank at the end of 1995 is estimated to be at US\$0.7 billion.<sup>13)</sup>

We also consider two alternative foreign exchange rate policies. One is to depreciate Dong at a constant rate (4%) against US dollar. The other is to keep real exchange rate constant. The difference in their effects on the growth process, however, is very limited in the present model. Our model does not have a mechanism through which real exchange rate affects exports or imports. Exports are given by an exogenous process and imports are determined by the GNP identity. The role of exchange rate is minimal: to translate foreign currency denominated variables into Dong values. But this does not mean that the choice of foreign exchange rate policy has no real effect on the economy. In our simulations FDI is given in US dollar and takes on different values in constant Dong, depending upon the choice of foreign exchange rate policy.<sup>14)</sup> Also the amount of ODA is given in foreign currencies rather than Dong or constant Dong.

## 3. The results of simulations

Now we will reexamine the implications of alternative growth programs for the behavior of the economy in the framework of the monetary model. However, rather than producing exact counterparts of the simulations of the non-monetary model, we will reexamine the problems found in Part I in detail in the new framework.

The most important problem seems to be the underestimation of IOP, private investment other than FDI. So, in the first place, we will consider various growth possibilities of IOP and examine their effects. Then we will assume that real IOP grows at 20% which is smaller than its average (24.5%) between 1993 to 1995 and examine the effects of the changes of other exogenous variables and parameter values.

### (1) IOP (private investment other than FDI)

We increase the growth rate of IOP from 0% to 20% by 5%. Private saving rate  $sp(t)$  is assumed to increase gradually from 10% to 20%. Government saving rate  $sg(t)$  remains the same as the non-monetary

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12) This assumption on the degree of monetization may be too large, giving an upward bias to inflation.

13) This is its value as of March 1995.

14) We are not sure how important this mechanism is. External commitments seem to be made in foreign currency.

model. ICOR  $v(t)$  is assumed to increase from 3.1 (in 1996) to 3.5 (in 2000), somewhat higher than the value used in Part I.<sup>15</sup> Real IG grows at 22.7%, the rate assumed by the Plan. The dollar value of FDI is the one used in Part I.

#### Case A : $CAB + SF = 0$

The tables of Monetary model 1 (13-1,...,5) and (14-1,...,5) show the complete results of the simulations. The table of Monetary Model 1 summarizes their main results. The figures of Monetary Model 1 (13, 14) plot the relationships between two variables in the table. Real exchange rate is fixed for the cases marked 13 and nominal exchange rate depreciates at 4% for the cases marked 14. We can obtain following observations:

1) A clear trade-off exists between the growth rate of real GDP and the three variables: the inflation rate, the accumulated  $OL/GDP$  ratio and the accumulated  $-CAB/GDP$  ratio. The trade-off between the growth rate of real GDP and inflation and the  $OL/GDP$  ratio is more marked when the nominal exchange rate depreciates at a constant rate. But the opposite is the case for the  $-CAB/GDP$  ratio.

2) The accumulated budget deficits to GDP ratio has negative correlation with the growth rate of real GDP. This is attributable to the assumption that real IG grows at a constant rate.

The main policy implication of these observations is that we should expect higher growth in real GDP and prices, higher external borrowings and higher current account deficits when IOP turns out to be higher than anticipated by the Plan.

#### Case B : $CAB + SF \neq 0$

The tables of Monetary model 2 (13-1,...,5) and (14-1,...,5) show the complete results of the simulations. The table of Monetary Model 2 summarizes their main results when the total amount of available external funds is fixed at the level given in the Plan. The figures of Monetary Model 2 (13, 14) plot the relationships between two variables in the table. The observations we obtain in Case B are more complicated than Case A:

1) When real exchange rate is fixed, the foreign exchange reserve runs out of stock in the year 2000 only when IOP grows at 20%. When IOP grows more slowly, the result is the same as Case A.

2) When nominal exchange rate depreciates at 4%, the stock of foreign exchange reserve decreases to zero if the growth rate of IOP is higher than 10%. The growth program breaks down in the year 2000 for two cases and in the year 1999 in one case. The relationships among variables become more irregular and less predictable.

These observations indicate that the foreign exchange rate policy to depreciate the value of Dong at 4% may not be sustainable and that the growth program may need a major revision before the end of the Plan period if the dollar value of ODA and other external loans is fixed at the level of the Plan.

#### (2) Other simulations

Sixteen tables from Monetary model 1(1) to Monetary model 1(16) are the simulation results for Case A (when  $CAB + SF = 0$ ). Another sixteen tables from Monetary model 2(1) to 2(16) are for Case B (when  $CAB + SB \neq 0$ ). Both of them cover the cases in which private saving rate  $sp(t)$  remains at 10% (case 1,2), increases gradually to 15% (case 11,12), 20% (case 13,14) or 30% (case 15,16); budget deficits are not monetized ( $\alpha = 0$ ) (case 3, 4); real exports grows at 20% (case 5, 6); the share of government consumption increases gradually to 25% of GDP (case 7,8); and real government investment increases at 30% (case 9, 10). In all of these cases real IOP is assumed to grow at 20%, the highest among the cases examined in the previous section, but somewhat smaller than its average during 1993 - 1995.

Two tables, Monetary model 1 and Monetary Model 2 summarize the main results of the simulations.

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15) The parameter values of  $sp(t)$  and  $v(t)$  are different from those used in Part I. New values are chosen after the consultation with the VN counterpart in Hanoi and Tokyo.

Various figures are attached to ease the comparison of a large number of cases. The observations obtained from them verify the conclusions we have derived in the previous section.

#### 4. Summary of Part II

We have gained certain additional insights from the monetary model:

(1) We should expect higher growth rates in real GDP and prices, higher external borrowings and higher current account deficits when IOP turns out to be higher than anticipated by the Plan, provided that foreign savings are available whenever necessary to fill the current account deficits.

(2) If the dollar value of ODA and other external loans is fixed at the level of the Plan and if the foreign exchange rate policy is pursued to depreciate the value of Dong at 4%, then the growth program may need a major revision before the end of the Plan period because of the constraint of foreign exchange reserve.

### III. Concluding remarks

We run simulations to find answers to the following two questions: ① whether the growth program of the Plan is systematically based on the trend and characteristics of the Vietnamese economy observed in the historical data during 1990 - 1995; ② under which condition the Plan might become overly ambitious, destabilize the economy and end up with higher inflation, higher external debts and possibly lower aggregate growth rate.

Our answers are follows:

(1) The exports/imports side of the Plan is not consistent with the investment/saving side of the Plan. The Plan is underestimating the value of imports by a large margin. The investment/saving side of the Plan implies much higher trade deficits than those described in the Plan.

(2) The assumption on Private Investment implicit in the Plan is unrealistically low. When we extrapolate the trend of Private Investment observed between 1991 and 1995 to the Plan period, the growth rate of real GDP is likely to exceed the range between 9 and 10% of the Plan significantly. This implies that the government investment program of the Plan is likely to result in the higher grow path of GDP. It is also likely, however, that the Plan will result in inflation, external debts and current account deficits much higher than the range anticipated by the Plan.

(3) If Private investment grows faster than the estimate of the Plan, if the dollar value of ODA and other external loans is fixed at the level of the Plan and if the foreign exchange rate policy is pursued to depreciate the value of Dong at 4%, then the growth program may need a major revision before the end of the Plan period because of the constraint of foreign exchange reserve.

All in all, we may conclude that the behavior of Private investment and Imports may deviate significantly from the Plan. In order to prevent such deviations from destabilizing the growth process, a certain flexibility will be necessary for the investment program.



Appendix A

For the period 1991-1995, we get:

$$\log \text{IMP/P} = -13.72 + 2.04 \log (\text{real GDP}) \dots\dots(1)$$

(-8.59) (15.42),  
R<sup>2</sup>=0.99, DW = 2.09

(The figures in the parentheses are t-values.)

The income elasticity of imports is 2.04 which indicates that the real imports grew twice as fast as real GDP during the sample period.

For the imports derived from other variables in the Plan, we get:

$$\log \text{IMP/P} = -6.68 + 1.48 \log (\text{real GDP}) \dots\dots(2)$$

(-35.82) (99.44),  
R<sup>2</sup>=0.9996, DW = 2.51

(The figures in the parentheses are t-values.)

If we take the import function (1) estimated from the past data as a reference, the value of imports derived from other variables in the Plan seems to be too small. This implies that either SF is too small or I is too small in the Plan, if we take exports and SD as given.

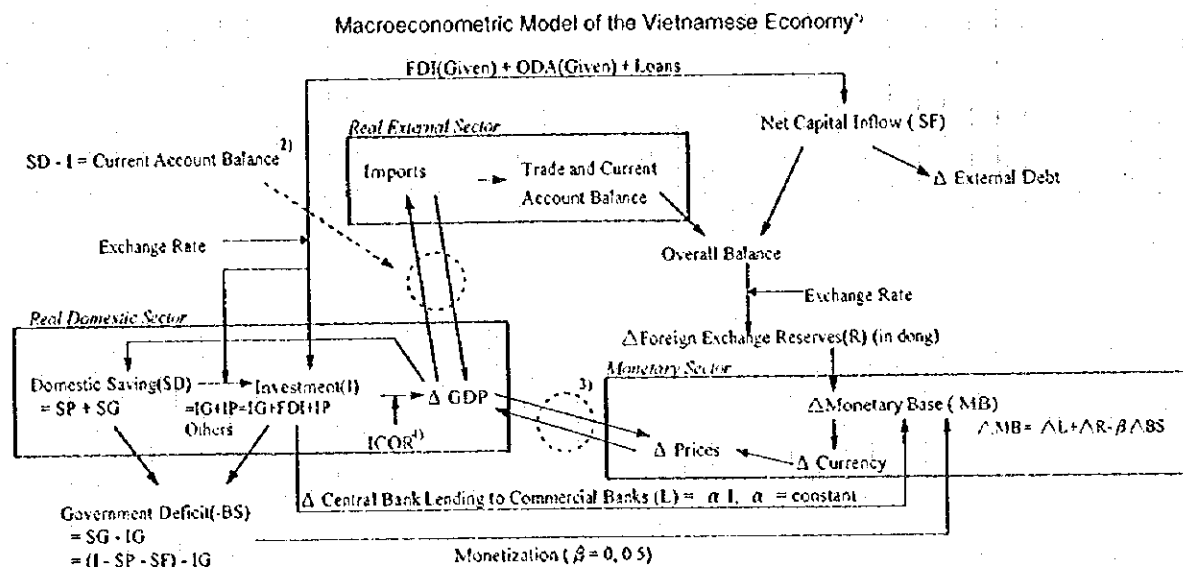
For the estimates of imports given in the Plan, we have:

$$\log \text{IMP/P} = -1.10 + 1.02 \log (\text{real GDP}) \dots\dots(3)$$

(-8.59) (15.42),  
R<sup>2</sup>=1.0000, DW = 2.59

(The figures in the parentheses are t-values.)

Clearly the income elasticity is too small, much smaller than the estimate in Equation (2). The value of imports seems to be chosen in the Plan so that the value of real imports grows at the same speed as real GDP. The empirical basis of such assumption, however, is very weak.



- 1) P stands for the private sector and I G for the government. Δ indicates changes.
- 2) Real imports or the import volume is considered to be determined by real GDP, but, in case of need, imports are further adjusted to make the domestic savings and investment balance and the current account balance equal.
- 3) Real currency balances (currency outstanding divided by the price level) are considered to be determined by real GDP. The price level and real GDP are determined so as to ensure both the equilibrium of the real sector and that of the monetary sector.
- 4) ICOR is the incremental capital output ratio which is defined as the ratio of an increase in real capital stock to an increase in real GDP. In actual calculation, real investment is used in place of the increase in real capital stock. The lower ICOR, the more efficient is investment.

## Plan(1)

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
GDP, real	214397	234765	257068	281490	308231	337513		
YOY	1.095	1.095	1.095	1.095	1.095	1.095		9-10%
nominal	214397	258242	311052	374663	451281	543568		
YOY	1.259	1.205	1.205	1.205	1.205	1.205		
Deflator	1.000	1.100	1.210	1.331	1.464	1.611		less than 10%
YOY	1.150	1.100	1.100	1.100	1.100	1.100		
Exchange Rate	11000	11440	11898	12374	12868	13383		depreciated at 4%
YOY	1.000	1.040	1.040	1.040	1.040	1.040		

## Plan(2)

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
GDP, real	214397	234765	257068	281490	308231	337513		
YOY	1.095	1.095	1.095	1.095	1.095	1.095		9-10%
nominal	214397	258242	311052	374663	451281	543568		
YOY	1.259	1.205	1.205	1.205	1.205	1.205		
Exchange Rate	11000	11440	11898	12374	12868	13383		depreciated at 4%
YOY	1.000	1.040	1.040	1.040	1.040	1.040		
I, nominal	52082	68640	83284	102701	122250	143870		
YOY	1.386	1.318	1.213	1.233	1.190	1.177		
/GDP	0.241	0.266	0.268	0.274	0.271	0.265		30%
real	52082	62400	68830	77160	83499	89332		
YOY	1.205	1.198	1.103	1.121	1.082	1.070		
\$	4.7	6.0	7.0	8.3	9.5	10.8	41.6	41-42
ICOR	2.80	3.06	3.09	3.16	3.12	3.05		3.0-3.3

## Plan(3)

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
I, nominal	52082	68640	83284	102701	122250	143870		
YOY	1.386	1.318	1.213	1.233	1.190	1.177		
/GDP	0.241	0.266	0.268	0.274	0.271	0.265		30%
real	52082	62400	68830	77160	83499	89332		
YOY	1.205	1.198	1.103	1.121	1.082	1.070		
\$	4.7	6.0	7.0	8.3	9.5	10.8	41.6	41-42
IO, dong, nominal	14667	19800	26728	36081	48706	65750	15.6	15.6
YOY	1.298	1.350	1.350	1.350	1.350	1.350		
/GDP	0.068	0.077	0.086	0.096	0.108	0.121		
real	14667	18000	22089	27108	33257	40825		
YOY	1.129	1.227	1.227	1.227	1.227	1.227		
IP, nominal	37415	48840	56556	66620	73544	78120		
YOY	1.424	1.305	1.158	1.178	1.104	1.052		
/GDP	0.175	0.189	0.182	0.178	0.163	0.144		
real	37415	44400	46740	50052	50232	46507		
YOY	1.238	1.187	1.053	1.071	1.004	0.956		
FDI	10010	14414	20757	29890	43041	61979	13.4	13-14
YOY	1.520	1.440	1.440	1.440	1.440	1.440		
real	10010	13104	17154	22457	29399	38494		
YOY	1.322	1.309	1.309	1.309	1.309	1.309		
Others	27405	34426	35799	36730	30503	16141		
YOY	1.392	1.256	1.040	1.026	0.830	0.529		
real	27405	31256	29586	27596	20834	10022		
YOY	1.211	1.142	0.945	0.933	0.755	0.431		

## Plan(4)

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
YG	52748	63269	76208	91792	110564	133174		
/GNP	0.251	0.250	0.250	0.250	0.250	0.250		
CG	34201	43582	53618	66874	84683	108992		
/GDP	0.160	0.169	0.172	0.178	0.189	0.201		
SG	18548	19697	22590	24918	25880	24182		
/YG	0.352	0.311	0.296	0.271	0.234	0.182		
BS	3880	-112	-4138	-11163	-22826	-41568		
/GDP	0.018	0.000	-0.013	-0.030	-0.051	-0.076		
Σ BS/GDP		0.000	-0.014	-0.041	-0.065	-0.147		
YP	157361	189808	228623	275377	331692	399523		
/GNP	0.749	0.750	0.750	0.750	0.750	0.750		
SP	15736	18981	22862	27539	33169	39952		
/YP	0.100	0.100	0.100	0.100	0.100	0.100		
SD	34284	38668	45452	52456	59050	64134		
/GDP	0.160	0.150	0.146	0.140	0.131	0.118		15%
SF	17798	29972	37831	50245	63201	79736	260985	
/GDP	0.083	0.116	0.122	0.134	0.140	0.147		15%
\$	1.62	2.62	3.18	4.06	4.91	5.96	20.7	20-22
FOI	0.91	1.26	1.74	2.42	3.31	4.63	13.4	13-14
ODA and Loans	-0.71	1.36	1.44	1.65	1.57	1.33	7.3	7-8
Σ (ODA+Loans)/GDP		0.060	0.105	0.141	0.162	0.167		

## Plan(5)

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
Exports, nominal	76442	95400	119059	146565	185434	231422		
YOY	1.426	1.248	1.248	1.248	1.248	1.248		
\$, nominal	6.9	8.3	10.0	12.0	14.4	17.3	nominal \$ basis	
YOY	1.426	1.200	1.200	1.200	1.200	1.200		24-28%
real	76442	86727	98396	111634	126654	143695		
YOY	1.240	1.135	1.135	1.135	1.135	1.135		
/GDP	0.357	0.369	0.383	0.397	0.411	0.426		3.0 times
Imports, nominal	88591	106876	128935	155548	187653	226384		
YOY	1.420	1.206	1.206	1.206	1.206	1.206		
\$, nominal	8.1	9.3	10.8	12.6	14.6	16.9	nominal \$ basis	
YOY	1.420	1.160	1.160	1.160	1.160	1.160		22-24%
real	88591	97160	106558	116865	128169	140567		
YOY	1.235	1.097	1.097	1.097	1.097	1.097		
/GDP	0.413	0.414	0.415	0.415	0.416	0.416		2.8 times
Trade Balance, dong	-12149	-11477	-9877	-6962	-2218	5033		
/GDP	-0.057	-0.044	-0.032	-0.019	-0.005	0.009		
Σ (Trade Balance)/GDP		-0.044	-0.069	-0.076	-0.068	-0.047		
\$ basis	-1.10	-1.00	-0.83	-0.56	-0.47	0.38		

## Non-monetary model

	GDP #1	Inflation #2	Budget Deficit #3	ODA and Loans #4	Comments
Plan	9.5	10.0	14.7	16.7	
IP-1	10.6	10.0	14.6	19.4	real IP growth rate: 9.5%
IP-2	13.5	10.0	12.7	37.3	real IP growth rate: 20%
IP-3	17.2	10.0	10.8	56.1	real IP growth rate: 30%
IP-4	17.3	10.0	10.8	56.6	real Others growth rate: 30%
IP-5	7.2	10.0	16.1	18.2	real FDI growth rate: 10%
IG-1	10.8	10.0	22.2	23.7	real IG growth rate: 30%
IG-2	7.8	10.0	3.4	6.2	real IG growth rate: 9.5%
SP	9.5	10.0	14.7	22.0	private saving rate: 8%
CG-1	9.5	10.0	5.9	8.0	share to GDP remains at 16%
CG-2	9.5	10.0	26.4	28.4	share to GDP arises to 25%
IPO, SP-1	14.7	10.0	12.1	34.7	real Others growth rate: 20%, SP/YP increases gradually to 0.15
IPO, SP-2	14.7	10.0	12.1	26.2	real Others growth rate: 20%, SP/YP increases gradually to 0.20
IPO, SP-3	14.7	10.0	12.1	9.2	real Others growth rate: 20%, SP/YP increases gradually to 0.30
IPO, SP-4	17.8	10.0	10.8	48.2	real Others growth rate: 30%, SP/YP increases gradually to 0.15
IPO, SP-5	17.8	10.0	10.8	39.9	real Others growth rate: 30%, SP/YP increases gradually to 0.20
IPO, SP-6	17.8	10.0	10.8	23.3	real Others growth rate: 30%, SP/YP increases gradually to 0.30

#1 GDP growth rate in 2000

#2 inflation rate in 2000

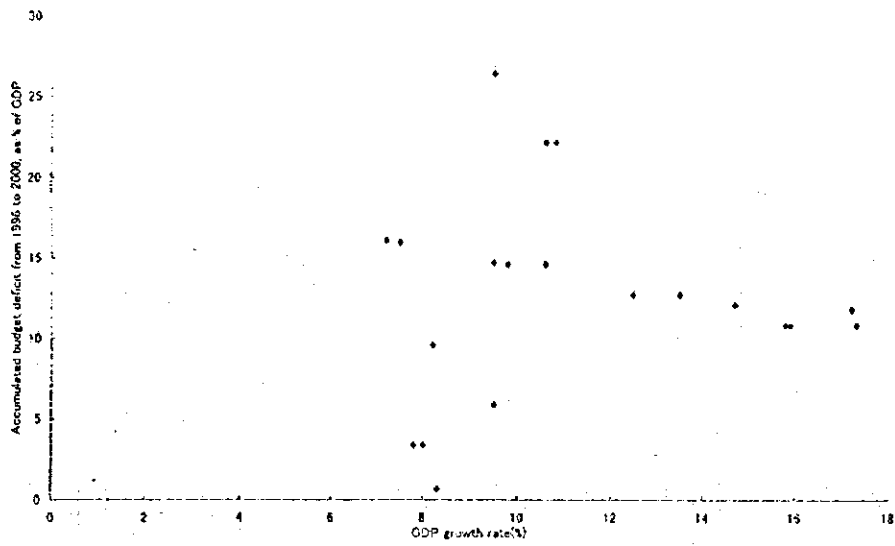
#3 accumulated budget deficits from 1996 to 2000, as % of nominal GDP

#4 Accumulated ODA and loans from 1996 to 2000, as % of nominal GDP

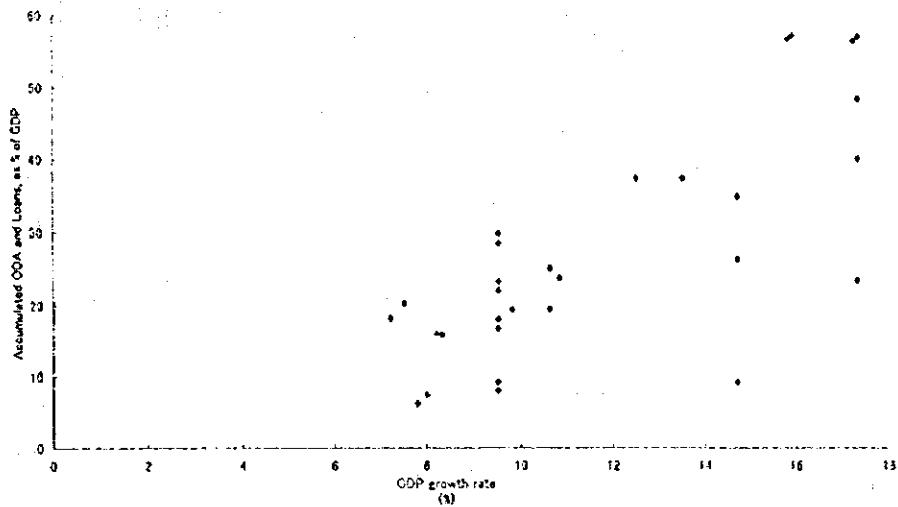
Non-monetary model, ICOR gradually increases from 3.0 to 3.5

	GDP #1	Inflation #2	Budget Deficit #3	ODA and Loans #4	Comments
ICOR	9.5	100	14.7	18.0	
IP-1	9.8	100	14.6	19.3	real IP growth rate: 9.5%
IP-2	12.5	100	12.7	37.3	real IP growth rate: 20%
IP-3	15.8	100	10.8	56.4	real IP growth rate: 30%
IP-4	15.9	100	10.8	56.8	real Others growth rate: 30%
IP-5	7.5	100	16.0	20.2	real FDI growth rate: 10%
IG-1	10.6	100	22.2	25.0	real IG growth rate: 30%
IG-2	8.0	100	3.4	7.5	real IG growth rate: 9.5%
SP	9.5	100	14.7	23.2	private saving rate: 8%
CG-1	9.5	100	5.9	9.2	share to GDP remains at 16%
CG-2	9.5	100	26.4	29.7	share to GDP arises to 25%

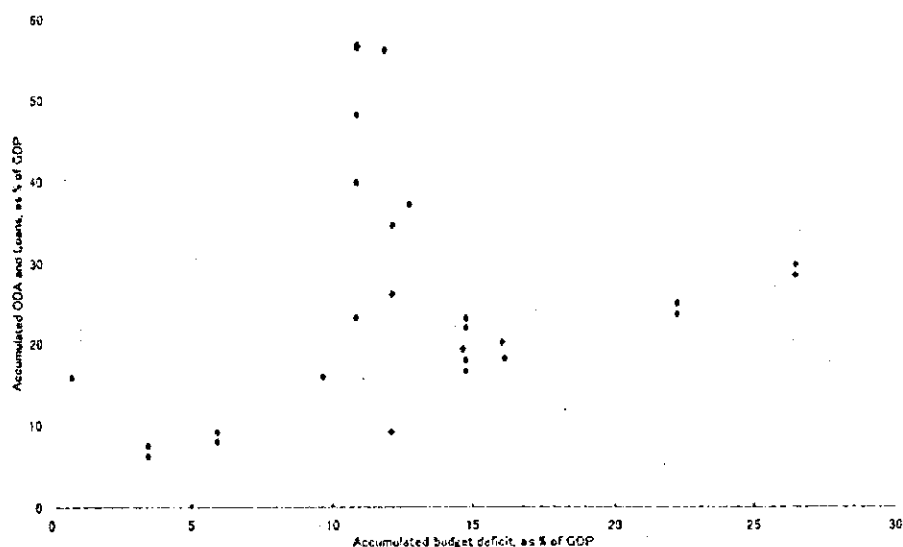
- \*1 GDP growth rate in 2000
- \*2 inflation rate in 2000
- \*3 accumulated budget deficits from 1996 to 2000, as % of nominal GDP
- \*4 Accumulated ODA and loans from 1996 to 2000, as % of nominal GDP



GDP Growth Rate VS Budget Deficit



GDP Growth Rate VS ODA and Loans



Budget Deficits VS ODA and Loans

Monetary Model 1

	GDP Growth Rate #1	Inflation Rate #1	Current Account Balance #2	Budget Deficit #2	ODA and Loans #2	Comments: #3
1	11.8	22.0	67.6	11.2	37.7	A,B,D
2	10.6	27.9	51.8	11.6	37.7	A,C,D
3	11.8	10.0	81.7	12.7	45.5	A,B,E
4	11.1	12.0	72.7	13.1	46.1	A,C,E
5	11.8	22.0	67.6	11.2	37.7	A,B,D,F
6	10.4	27.8	51.8	11.6	37.7	A,C,D,F
7	11.8	37.0	66.5	18.9	41.0	A,B,D,G
8	10.2	48.0	47.3	18.8	40.4	A,C,D,G
9	12.3	28.4	67.2	16.5	40.1	A,B,D,H
10	10.9	36.6	49.8	16.8	39.8	A,C,D,H
11	11.8	21.7	60.2	11.2	30.3	A,B,D,I
12	10.6	27.7	53.1	11.6	30.7	A,C,D,I
13	11.8	21.8	52.8	11.2	22.8	A,B,D,J
14	10.6	27.8	37.7	11.6	23.6	A,C,D,J
15	11.8	21.9	37.7	11.2	7.8	A,B,D,K
16	10.6	27.8	23.6	11.6	9.6	A,C,D,K

Notes:

\*1 average rate from 1996 to 2000

\*2 accumulated value from 1996 to 2000 as % of nominal GDP in 2000

\*3  
 A: Real other IP growth rate: 20%  
 B: Fixed real exchange rate  
 C: Nominal exchange rate is depreciated at 4% per annual.  
 D: Budget deficit is half-monetized.  
 E: Budget deficit is not monetized.  
 F: Real exports growth rate: 20%  
 G: CO/GDP arised to 0.25  
 H: Real IG growth rate: 30%  
 I: SP/YP increases gradually to 0.15  
 J: SP/YP increases gradually to 0.20  
 K: SP/YP increases gradually to 0.30

### Monetary Model 2

	GDP Growth Rate #1	Inflation Rate #1	Current Account Balance #2	Budget Deficit #2	ODA and Loans less Change in FOREX Reserve #2	Comments: #3
1	10.0	1.5	63.5	6.1	23.5	ABD
2	10.8	1.6	69.6	3.3	25.4	A,C,D
3	10.0	11.5	58.7	7.0	20.5	A,B,E
4	8.8	12.2	45.7	7.3	16.5	A,C,E
5	10.0	8.3	68.4	6.8	25.4	A,B,D,F
6	8.9	7.3	57.0	8.7	20.6	A,C,D,F
7	9.1	15.6	63.2	6.0	22.1	A,B,D,G
8	7.7	11.9	48.8	0.8	17.6	A,C,D,G
9	10.0	10.0	68.2	4.2	25.2	A,B,D,H
10	8.8	7.4	56.8	9.2	20.5	A,C,D,H
11	10.6	12.8	60.0	0.7	21.6	A,B,D,I
12	9.3	11.1	47.1	6.5	17.1	A,C,D,I
13	11.3	17.5	52.7	5.0	18.8	A,B,D,J
14	10.4	11.1	45.5	0.4	16.5	A,C,D,J
15	11.8	54.9	31.9	10.4	6.2	A,B,D,K
16	10.2	28.0	22.6	9.7	8.4	A,C,D,K

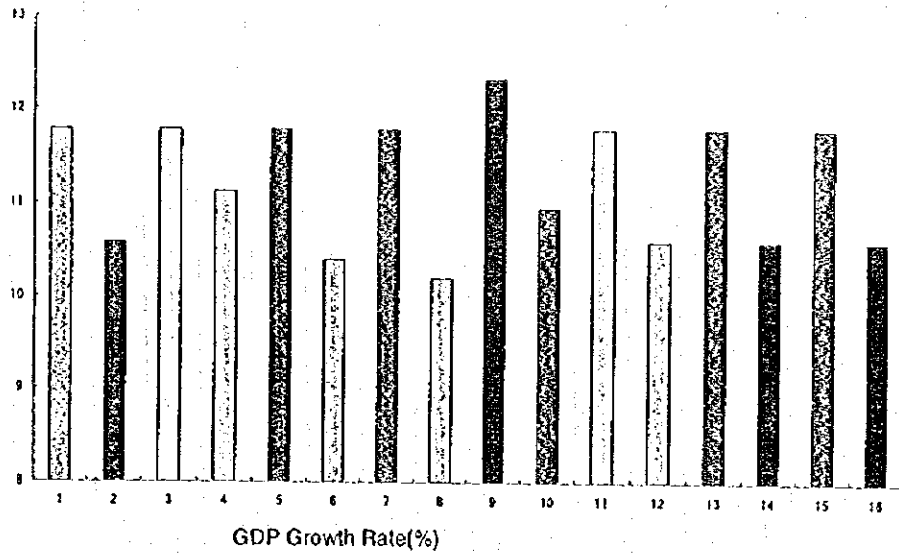
**Notes:**

#1 average rate from 1996 to 2000

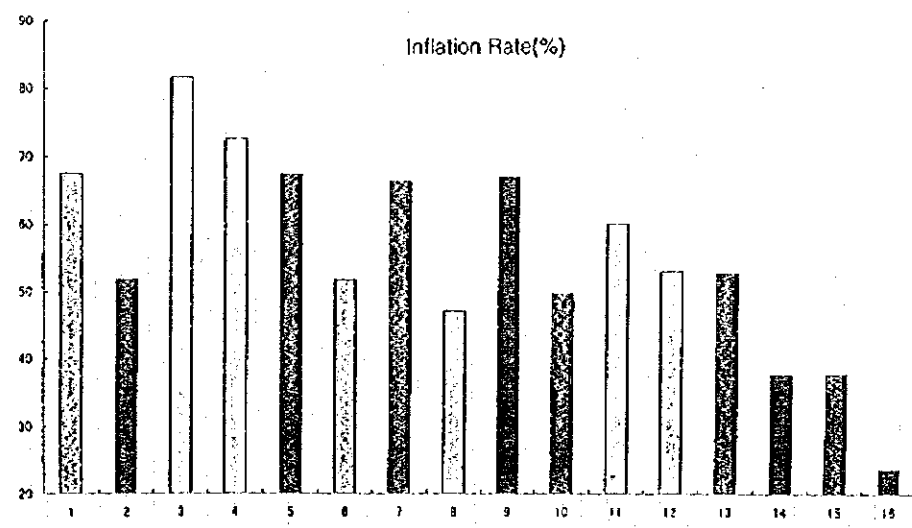
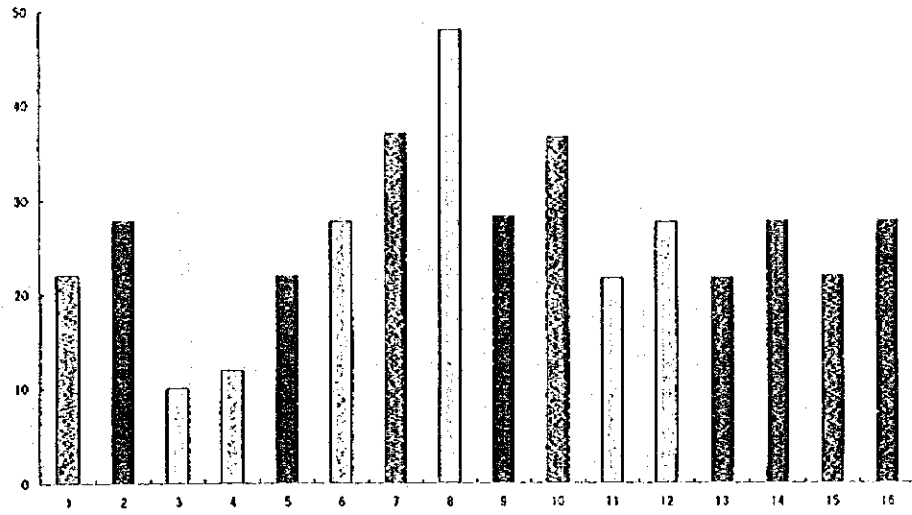
#2 accumulated value from 1996 to 2000 as % of nominal GDP in 2000

#3  
 A: Real other IP growth rate: 20%  
 B: Fixed real exchange rate  
 C: Nominal exchange rate is depreciated at 4% per annual.  
 D: Budget deficit is half-monetized.  
 E: Budget deficit is not monetized.  
 F: Real exports growth rate: 20%  
 G: CG/GDP arised to 0.25  
 H: Real IG growth rate: 30%  
 I: SP/YP increases gradually to 0.15  
 J: SP/YP increases gradually to 0.20  
 K: SP/YP increases gradually to 0.30

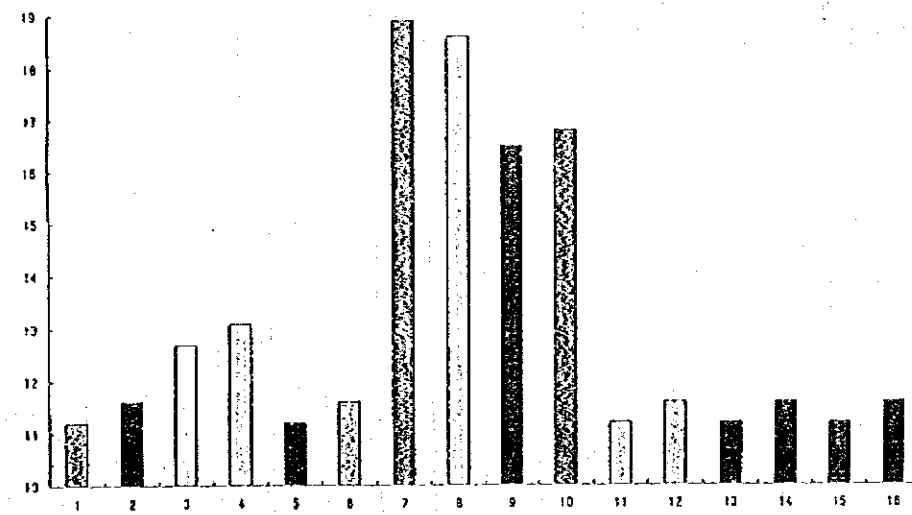
### Monetary Model 1



Monetary Model 1

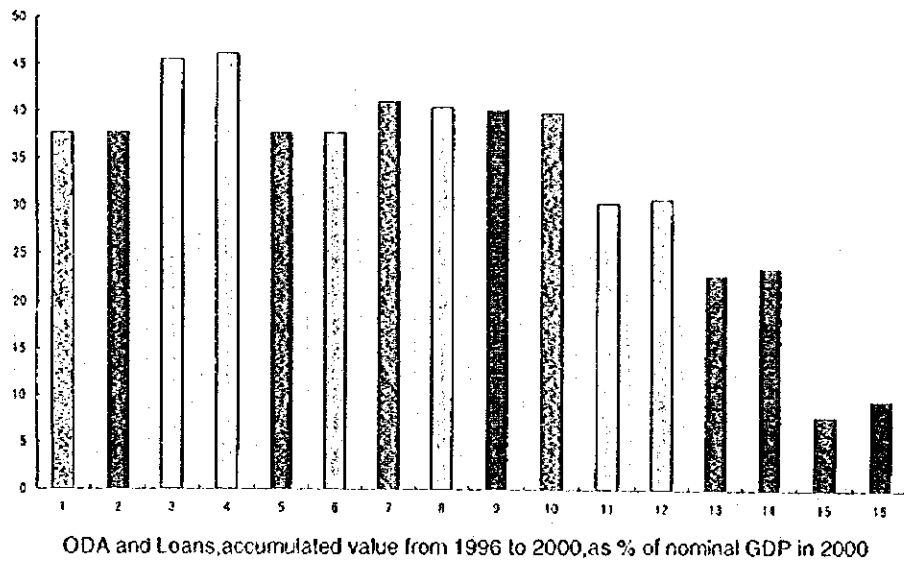


Current Account Balance, accumulated value from 1996 to 2000, as % of nominal GDP in 2000

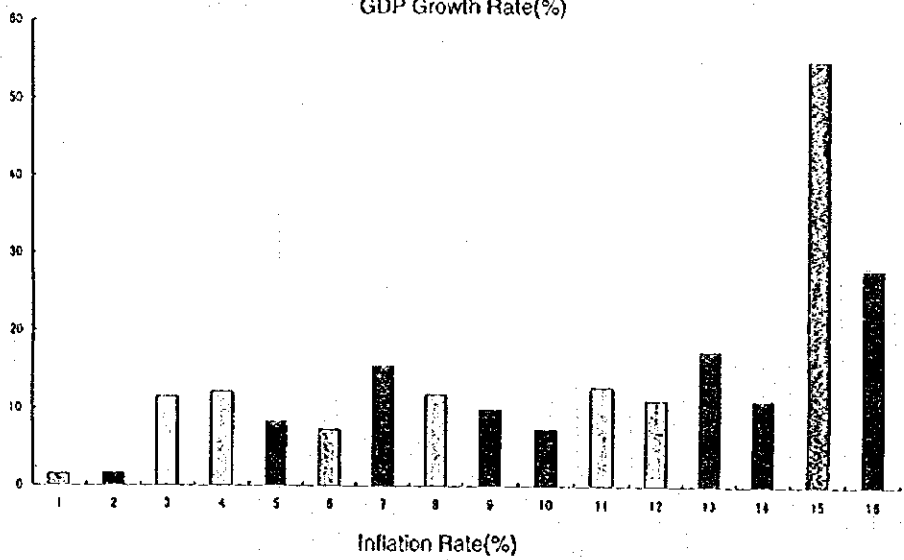
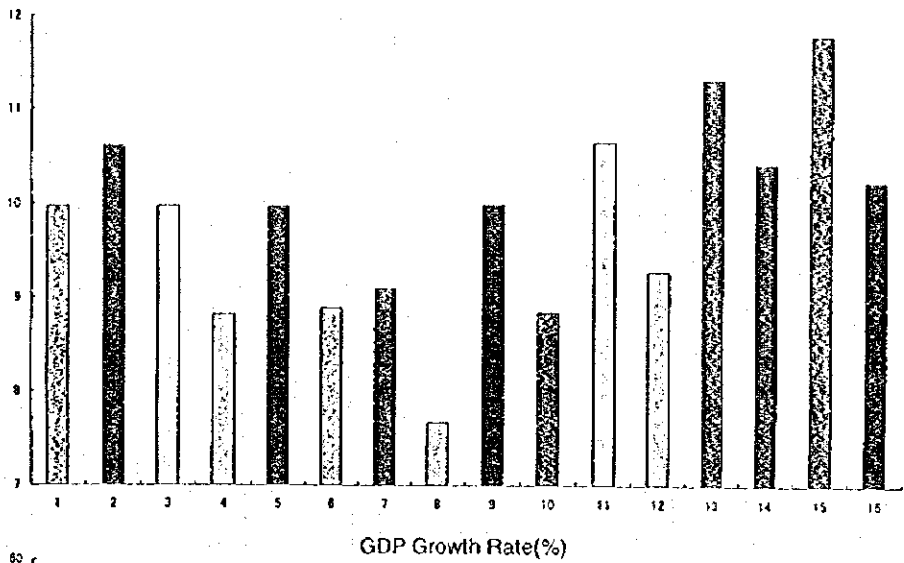


Budget Deficit, accumulated value from 1996 to 2000, as % of nominal GDP in 2000

Monetary Model 1

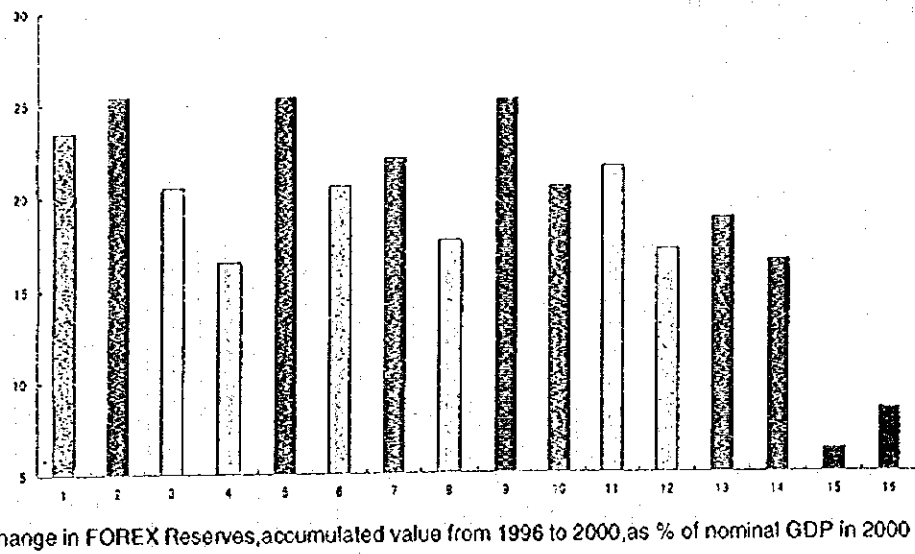
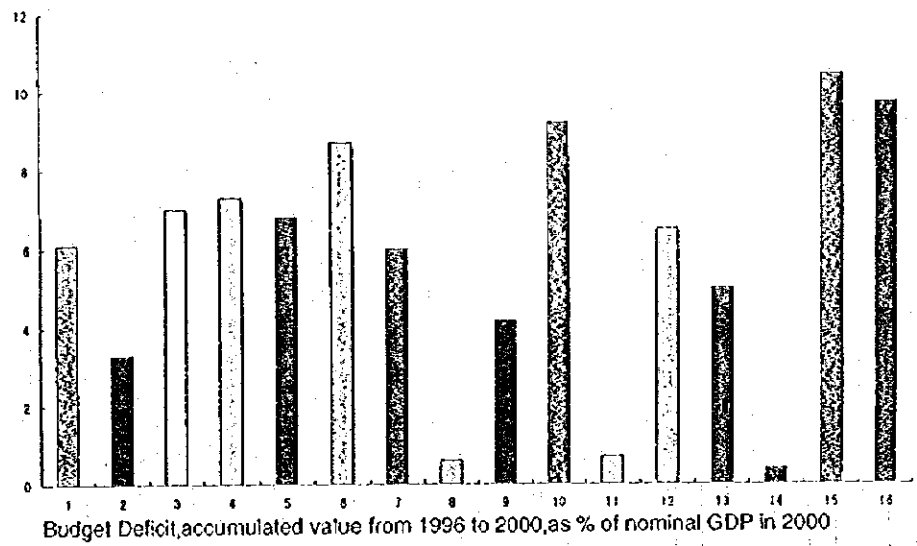
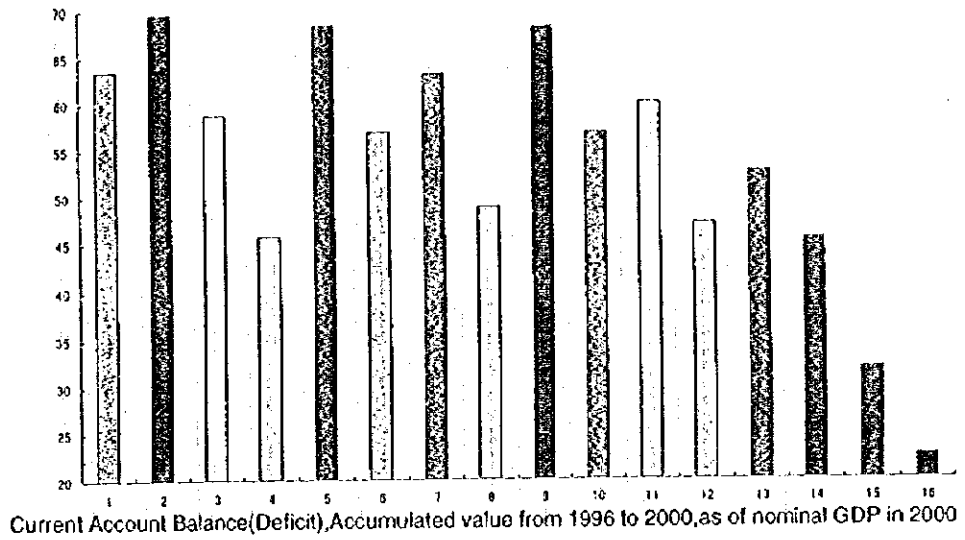


Monetary Model 2

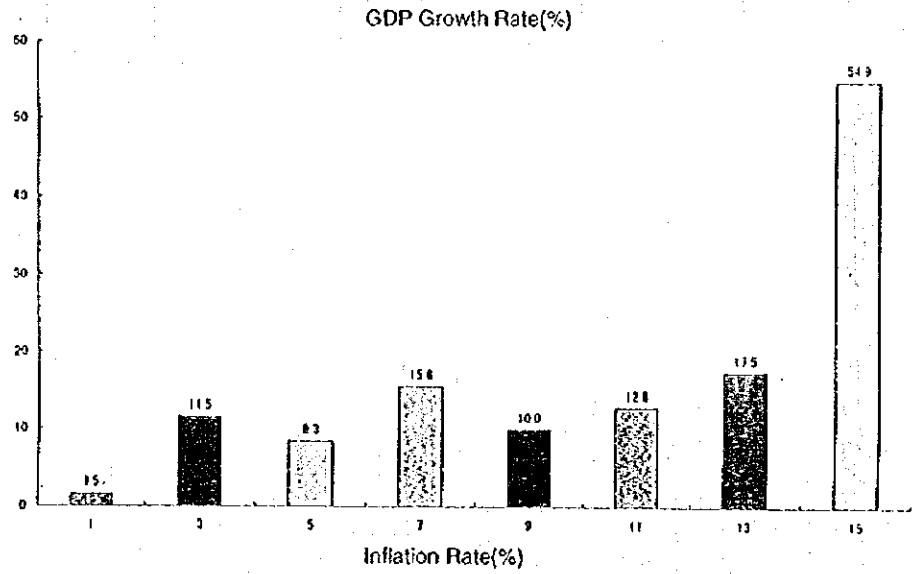
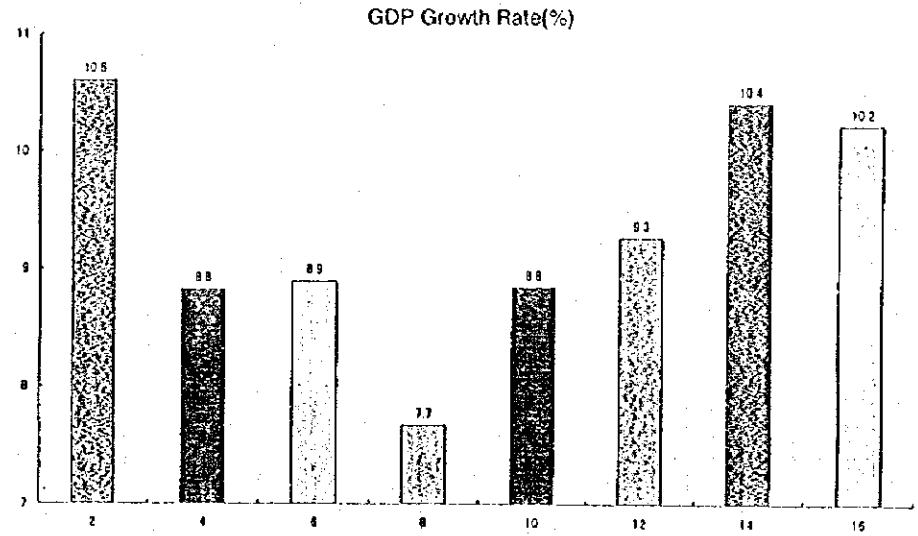
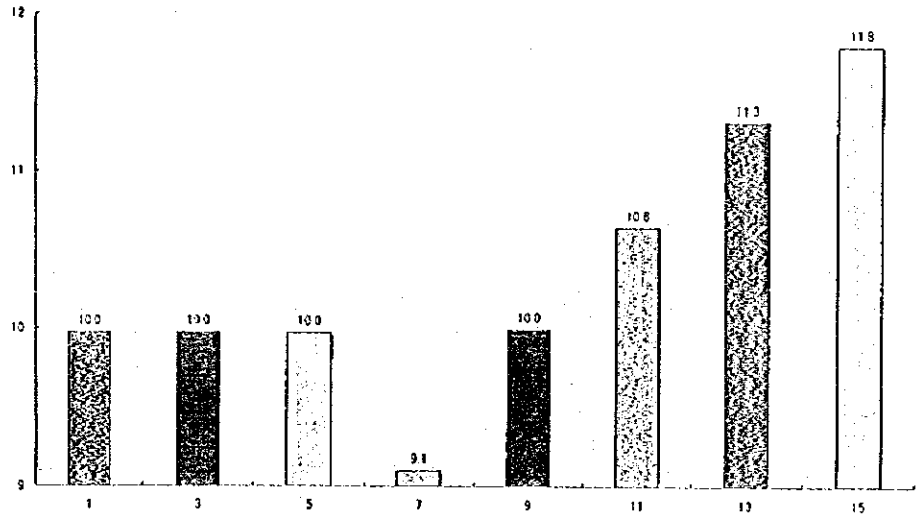




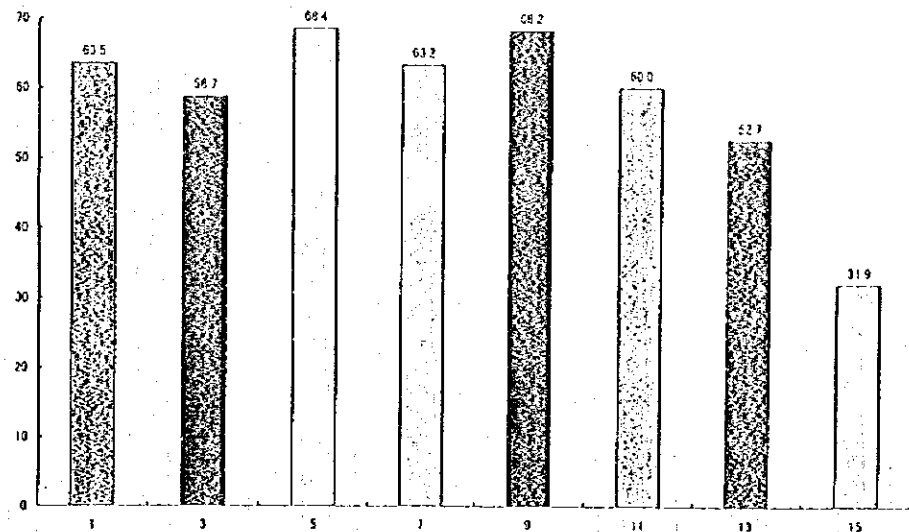
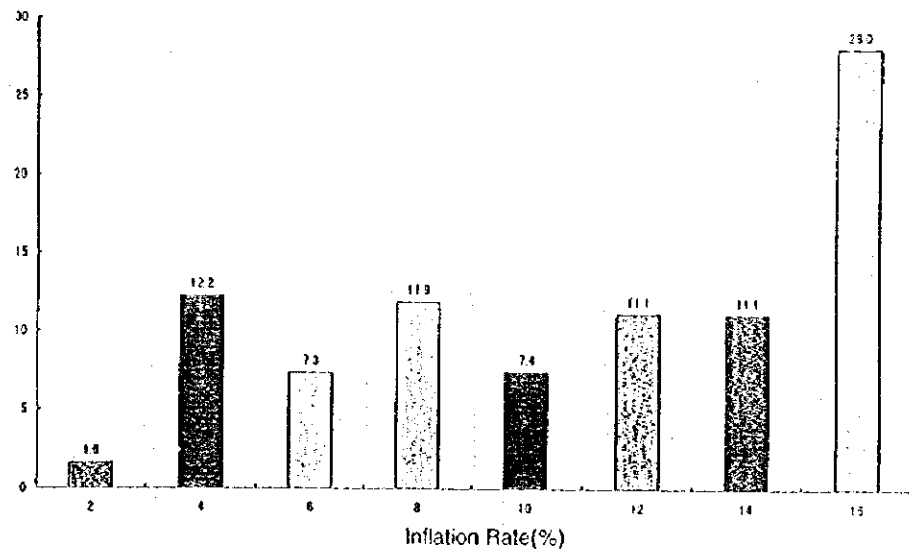
Monetary Model 2



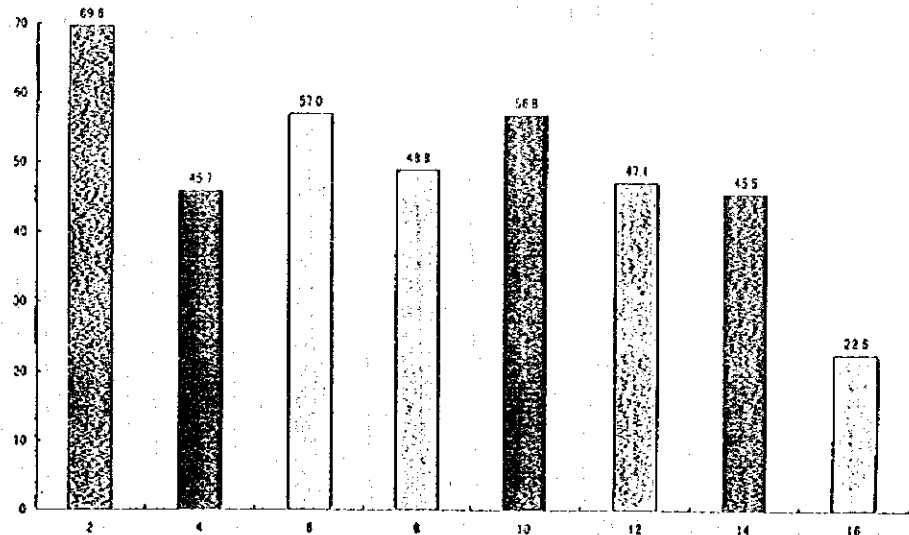
Monetary Model 2



Monetary Model 2

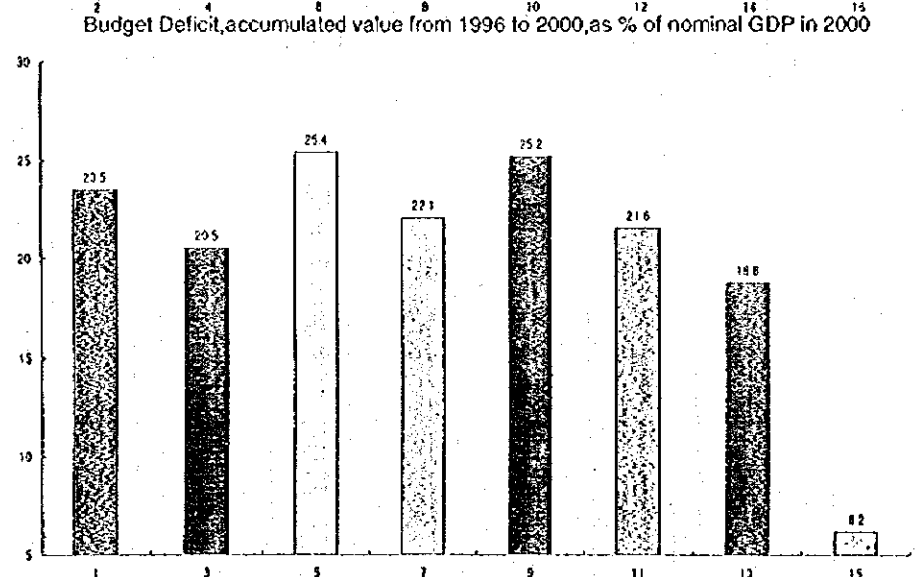
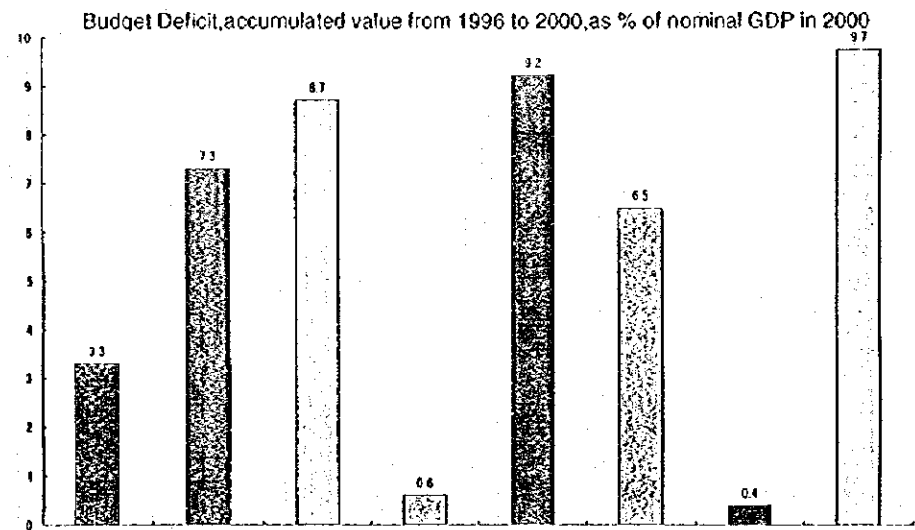
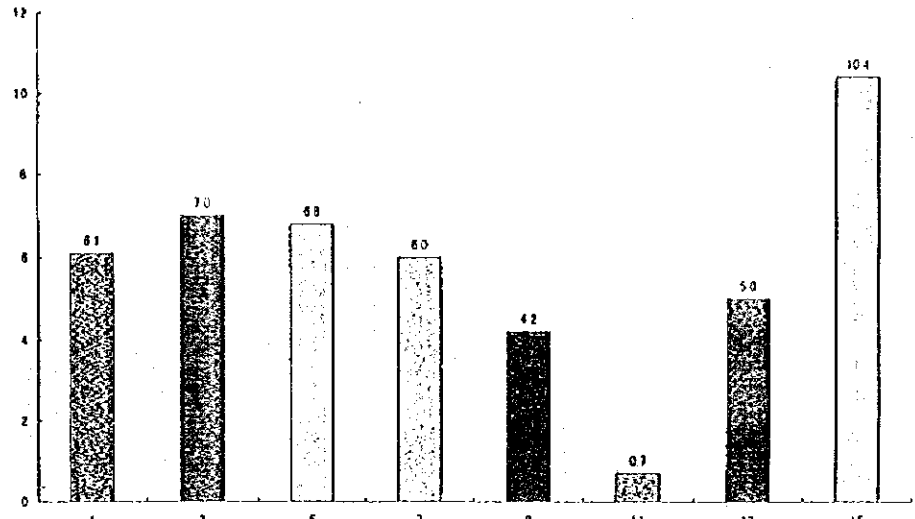


Current Account Balance(Deficit), accumulated value from 1996 to 2000, as % of nominal GDP in 2000



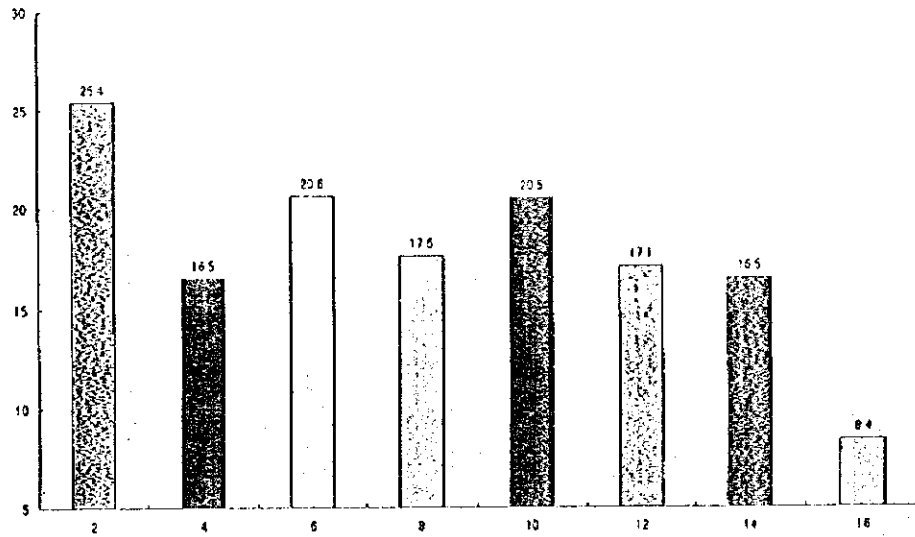
Current Account Balance(Deficit), accumulated value from 1996 to 2000, as % of nominal GDP in 2000

Monetary Model 2



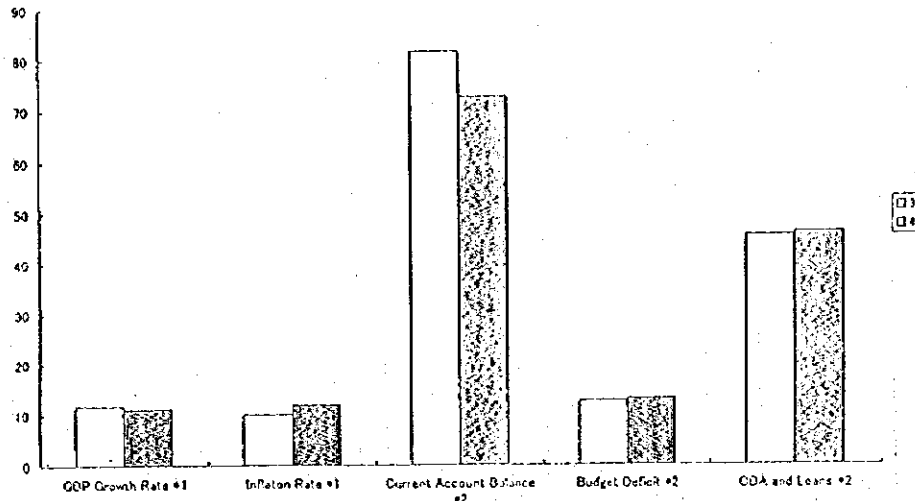
ODA and Loans less Change in FOREX Reserves, accumulated value from 1996 to 2000, as % of nominal GDP in 2000

Monetary Model 2

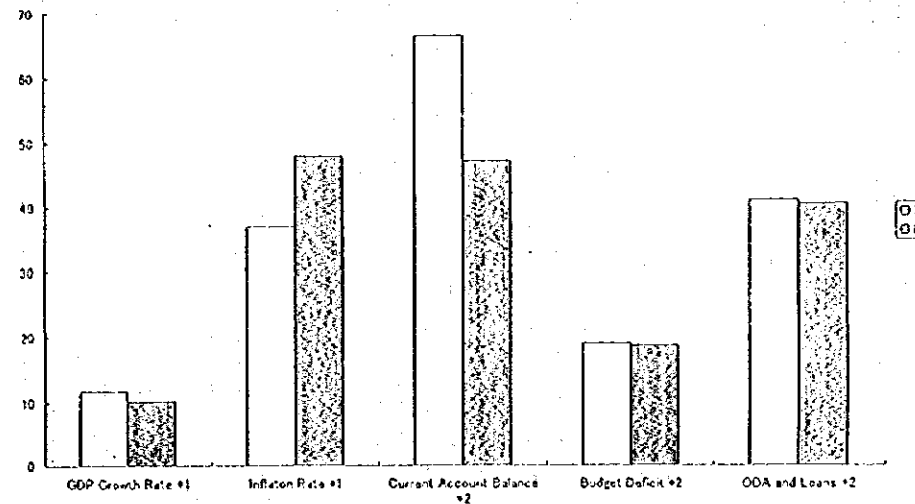


ODA and Loans less Change in FOREX Reserves, accumulated value from 1996 to 2000, as % of nominal GDP in 2000

Monetary Model 1

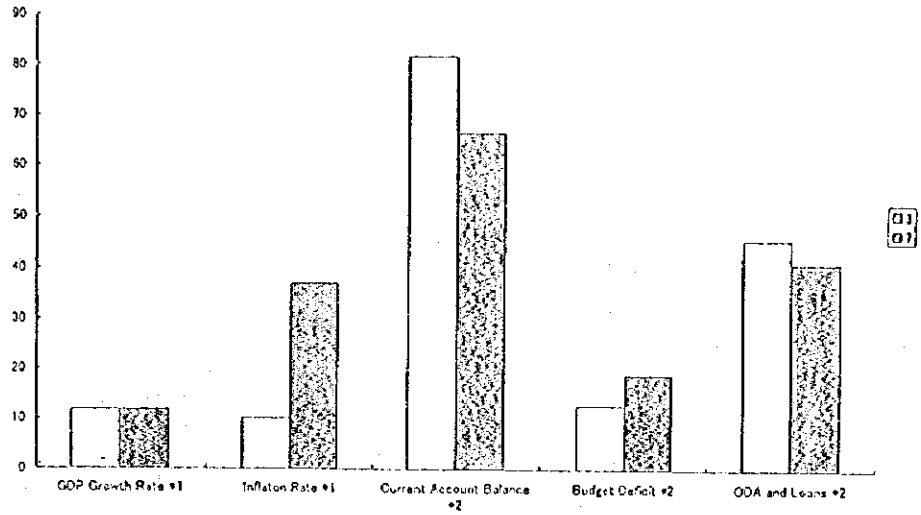


Case 3 VS Case 4

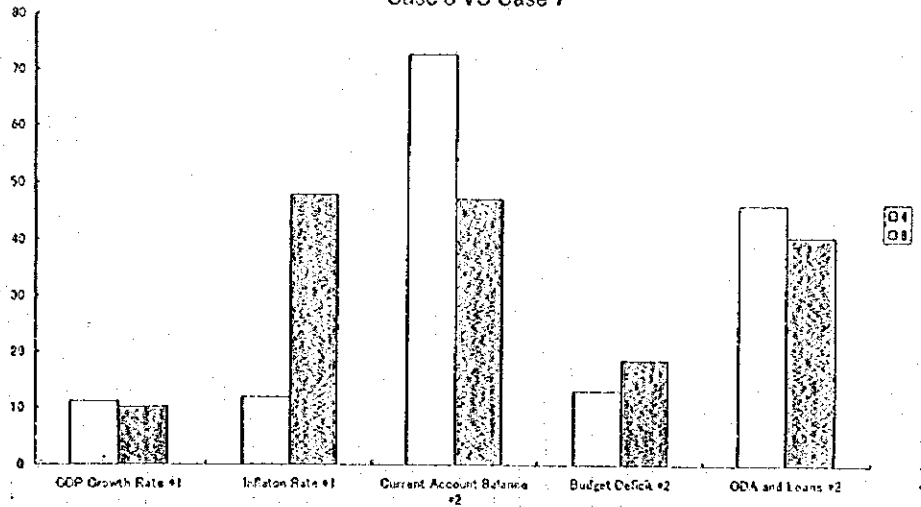


Case 7 VS Case 8

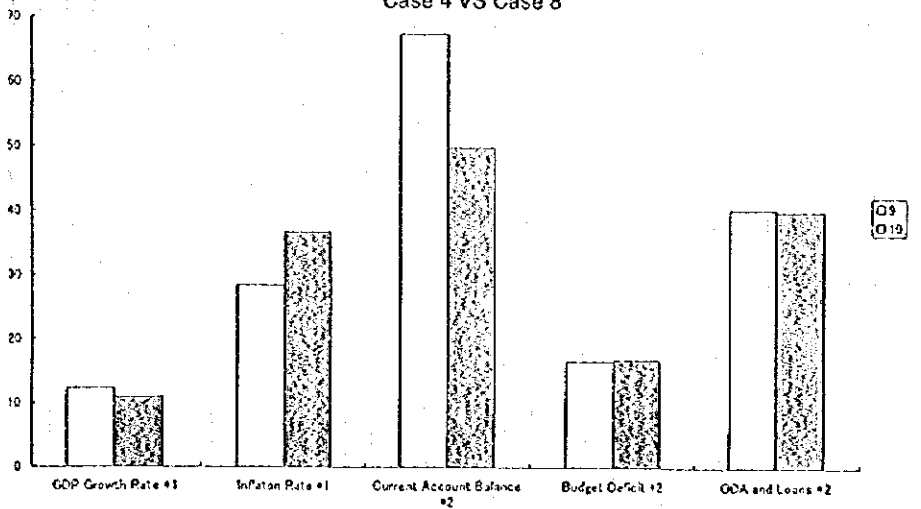
Monetary Model 1



Case 3 VS Case 7

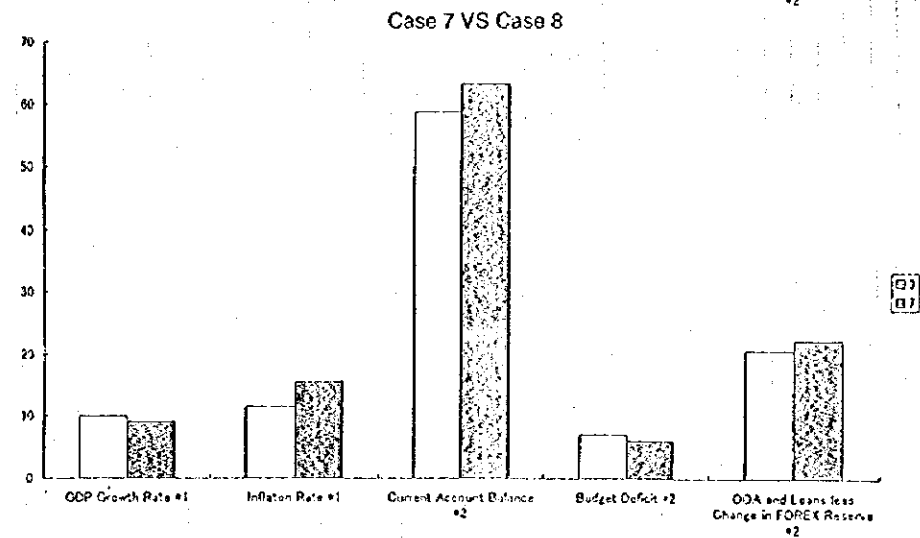
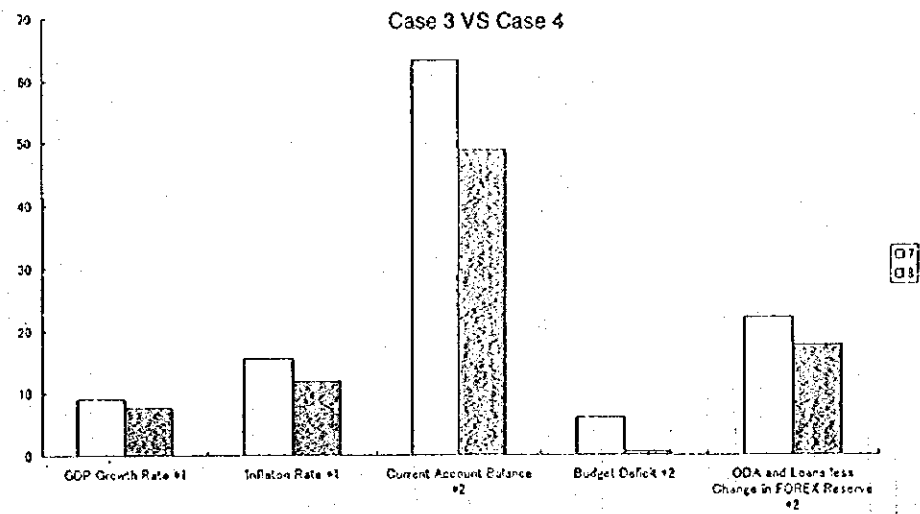
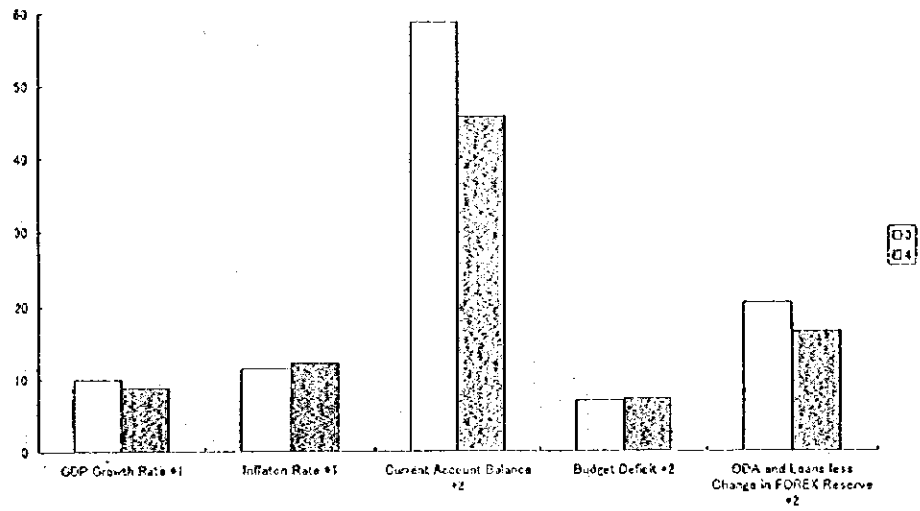


Case 4 VS Case 8



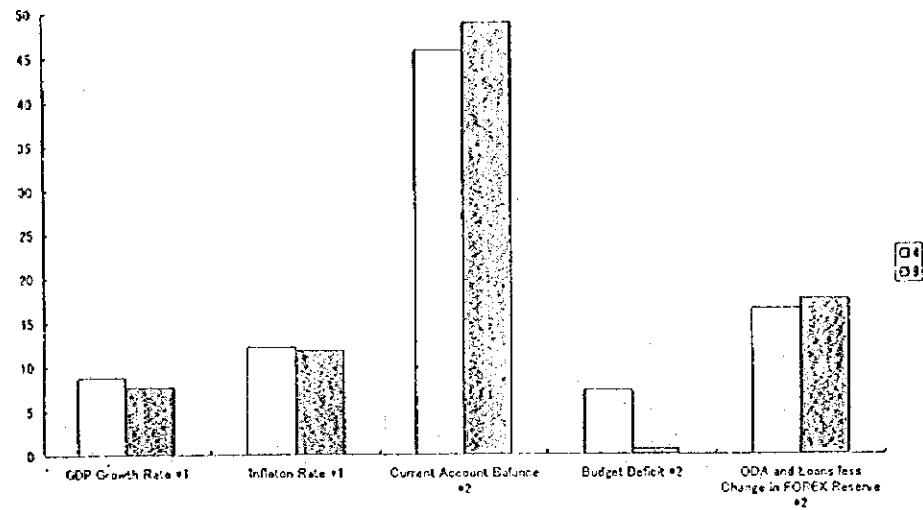
Case 9 VS Case 10

Monetary Model 2

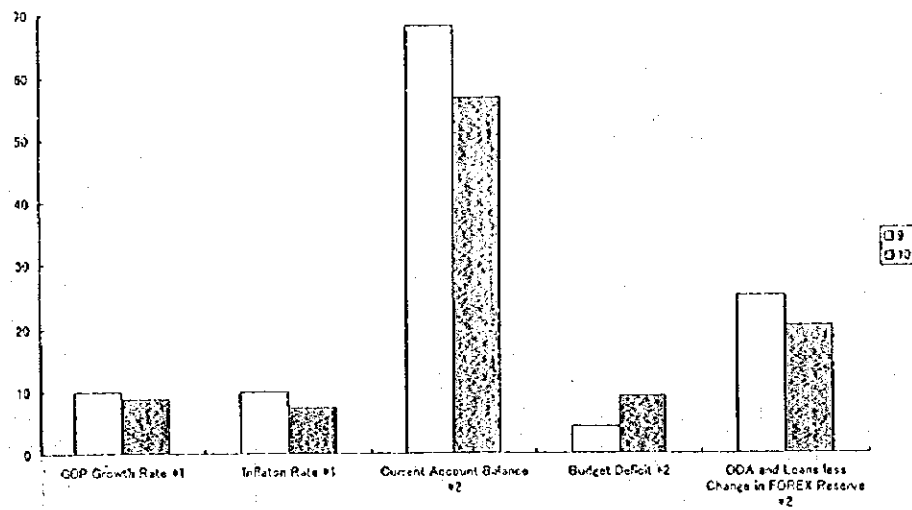


Case 3 VS Case 7

Monetary Model 2



Case 4 VS Case 8



Case 9 VS Case 10

Monetary Model 1(5)

	GDP Growth Rate #1	Inflation Rate #1	Current Account Balance #2	Budget Deficit #2	ODA and Loans #2	Comments: #3
13-1	11.8	21.8	52.8	11.2	22.8	A,F,H
13-2	9.8	13.0	40.2	14.0	4.1	B,F,H
13-3	10.2	14.7	43.2	13.3	8.4	C,F,H
13-4	10.7	17.0	48.1	12.7	13.0	D,F,H
13-5	11.2	19.2	49.3	11.9	17.8	E,F,H
14-1	10.6	27.8	37.7	11.6	23.6	A,G,H
14-2	9.0	15.8	29.8	14.3	5.1	B,G,H
14-3	9.3	18.3	31.3	13.7	9.4	C,G,H
14-4	9.7	21.0	33.2	13.0	13.9	D,G,H
14-5	10.1	24.2	35.3	12.3	18.7	E,G,H

Notes:

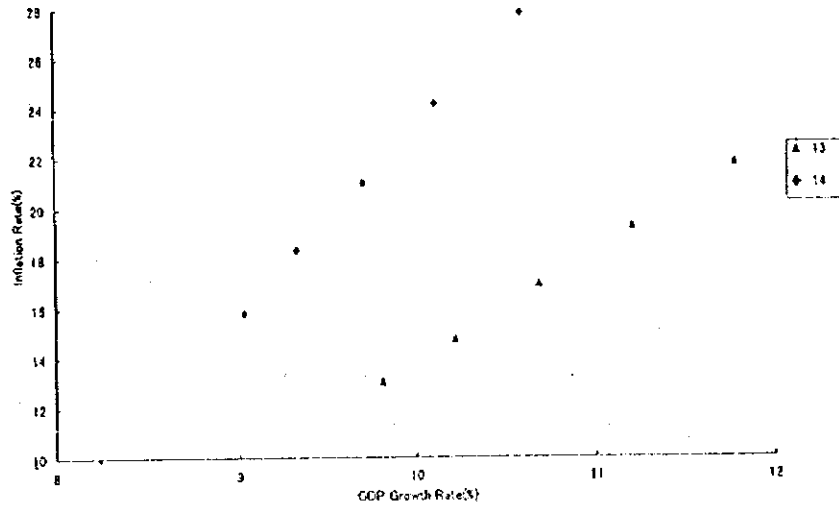
#1 average rate from 1996 to 2000

#2 accumulated value from 1996 to 2000 as % of nominal GDP in 2000

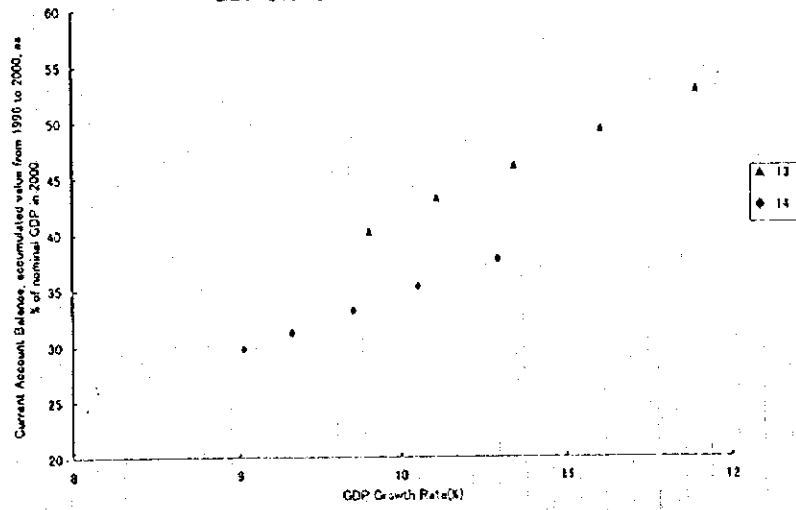
#3  
 A: Real other IP growth rate: 20%  
 B: Real other IP growth rate: 0%  
 C: Real other IP growth rate: 5%  
 D: Real other IP growth rate: 10%  
 E: Real other IP growth rate: 15%  
 F: Fixed real exchange rate  
 G: Nominal exchange rate is depreciated at 4% per annual.  
 H: SP/YP increases gradually to 0.20



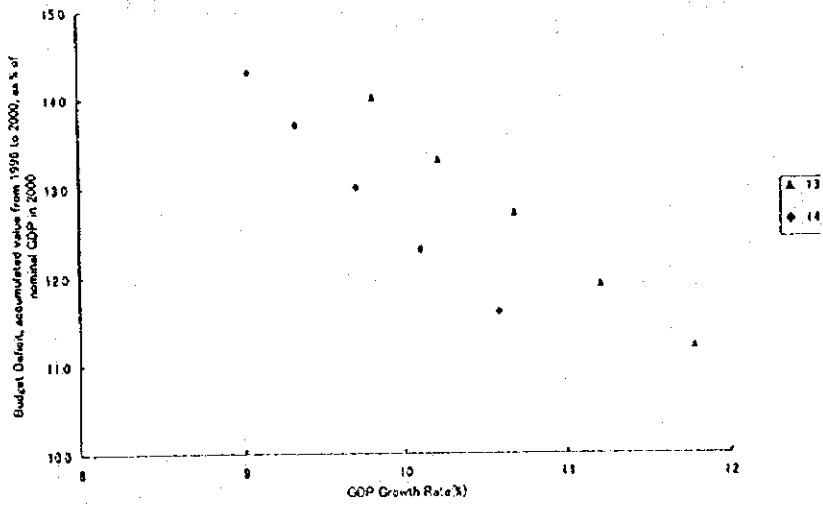
Monetary Model 1(13,14)



GDP Growth Rate VS Inflation Rate

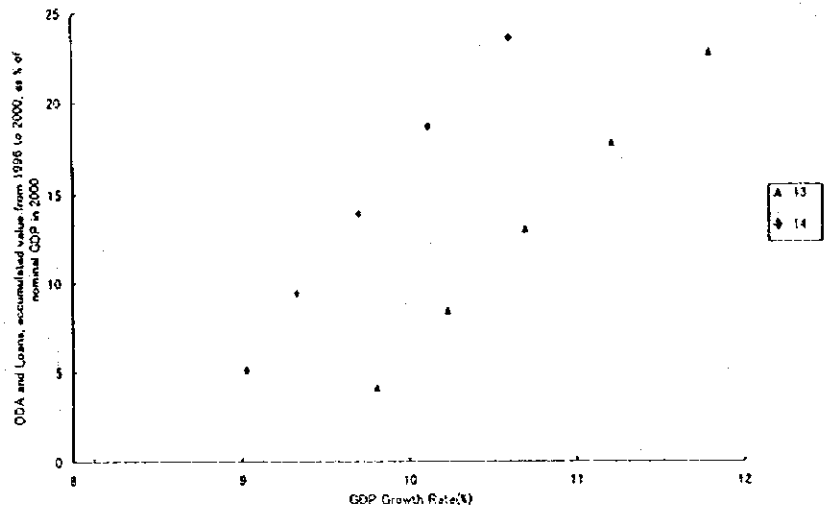


GDP Growth Rate VS Current Account Balance

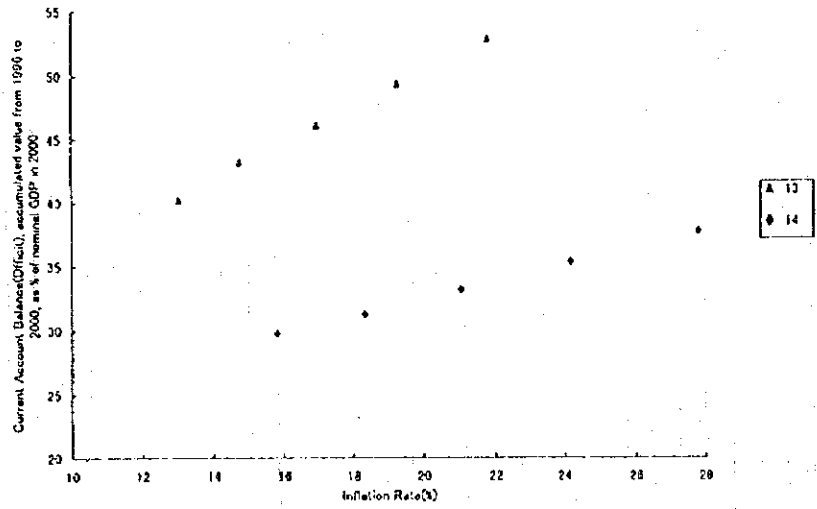


GDP Growth Rate VS Budget Deficit

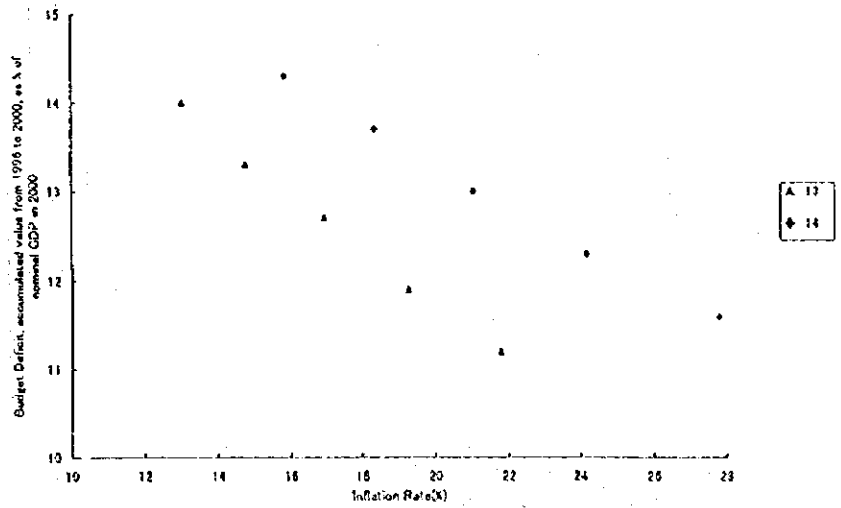
Monetary Model 1(13,14)



GDP Growth Rate VS ODA and Loans

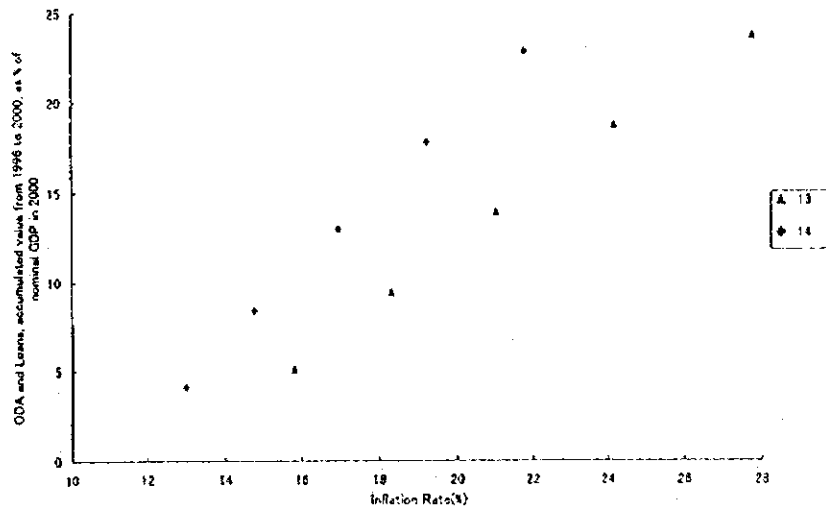


Inflation Rate VS Current Account Balance

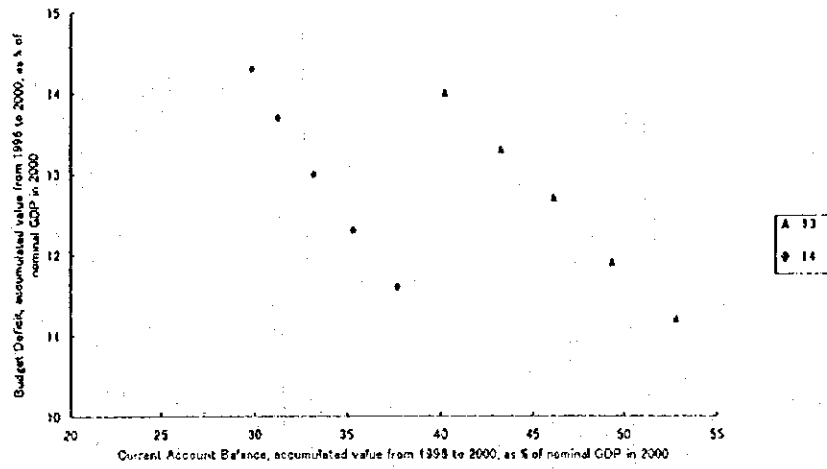


Inflation Rate VS Budget Deficit

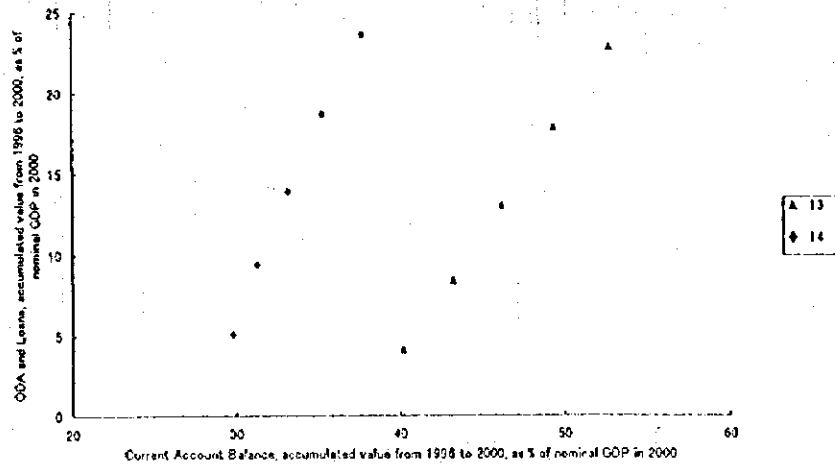
Monetary Model 1(13,14)



Inflation Rate VS ODA and Loans

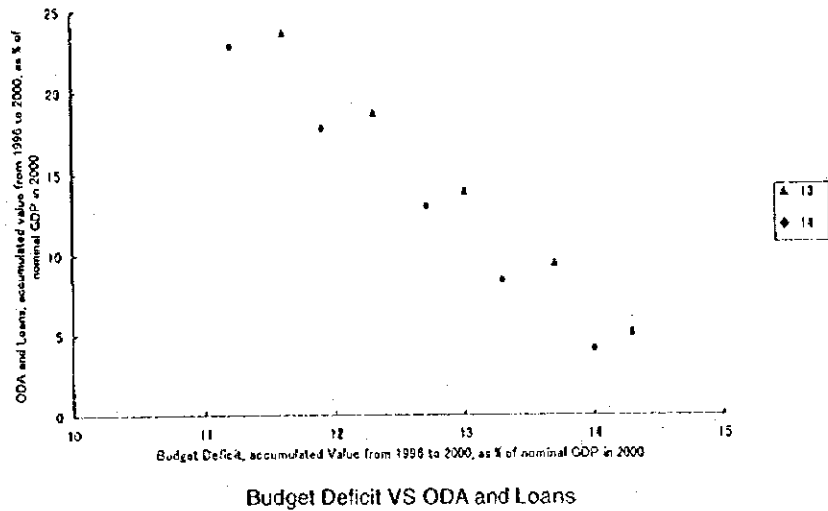


Current Account Balance VS Budget Deficit



Current Account Balance VS ODA and Loans

Monetary Model 1(13,14)



Monetary Model 2(5)

	GDP Growth Rate *1	Inflation Rate *1	Current Account Balance *2	Budget Deficit *2	ODA and Loans *2	Comments: *3
13-1	11.3	17.5	52.7	5.0	18.8	A,F,H
13-2	9.8	13.0	40.2	14.0	4.2	B,F,H
13-3	10.2	14.8	43.1	13.3	8.4	C,F,H
13-4	10.7	16.9	46.1	12.7	13.0	D,F,H
13-5	11.2	19.2	49.3	11.9	17.8	E,F,H
14-1	10.4	11.1	45.1	0.4	16.5	A,G,H
14-2	8.2	30.5	20.1	14.9	6.0	B,G,H
14-3	8.9	23.1	29.2	14.9	10.9	G,G,H
14-4	9.4	18.8	34.0	10.6	12.6	D,G,H
14-5	9.9	14.7	39.4	5.8	14.5	E,G,H

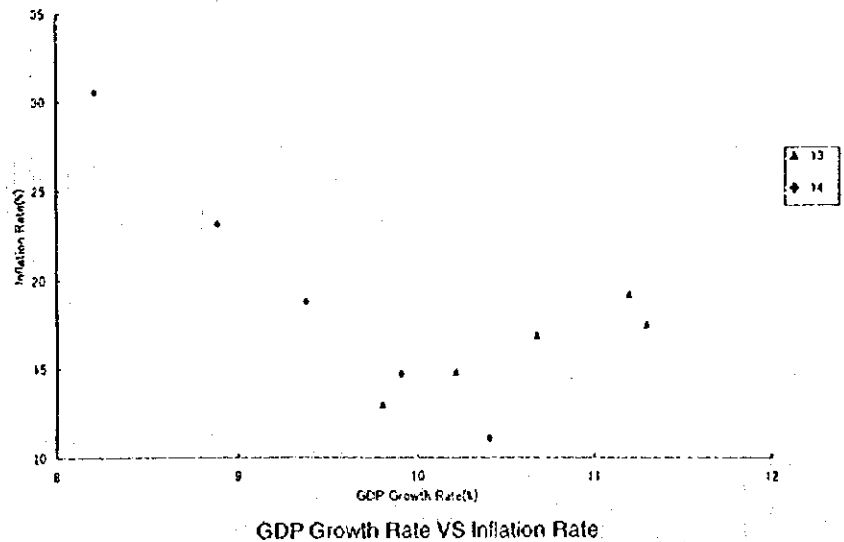
Notes:

\*1 average rate from 1996 to 2000

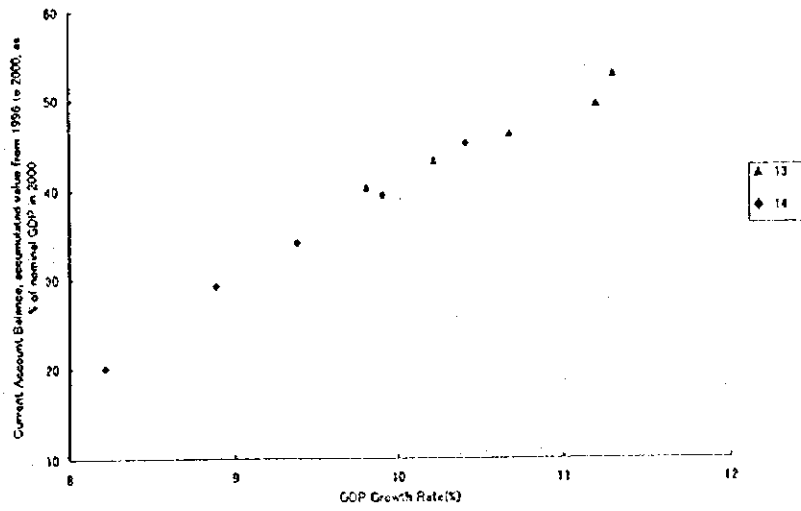
\*2 accumulated value from 1996 to 2000 as % of nominal GDP in 2000

\*3  
 A: Real other IP growth rate: 20%  
 B: Real other IP growth rate: 0%  
 C: Real other IP growth rate: 5%  
 D: Real other IP growth rate: 10%  
 E: Real other IP growth rate: 15%  
 F: Fixed real exchange rate  
 G: Nominal exchange rate is depreciated at 4% per annual.  
 H: SP/YP increases gradually to 0.20

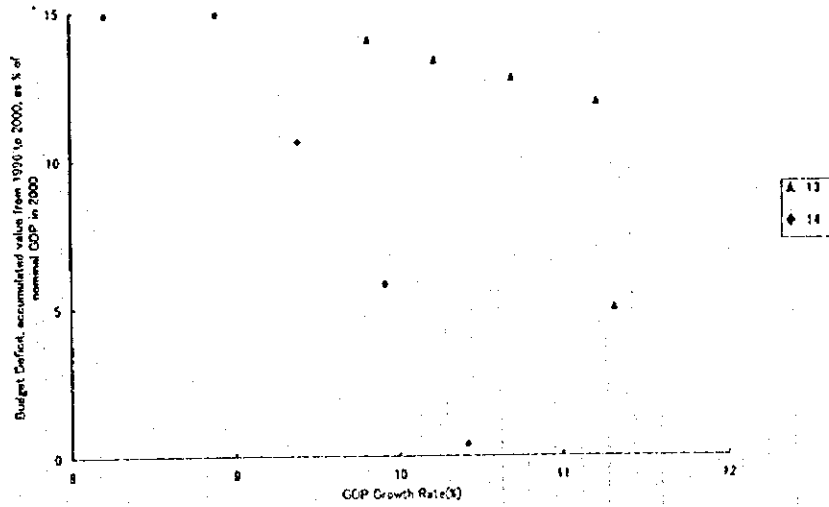
Monetary Model 2(13,14)



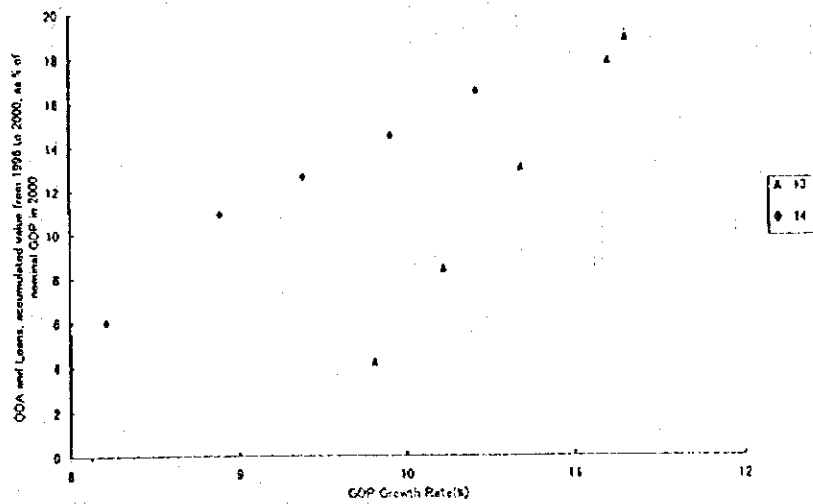
Monetary Model 2(13,14)



GDP Growth Rate VS Current Account Balance

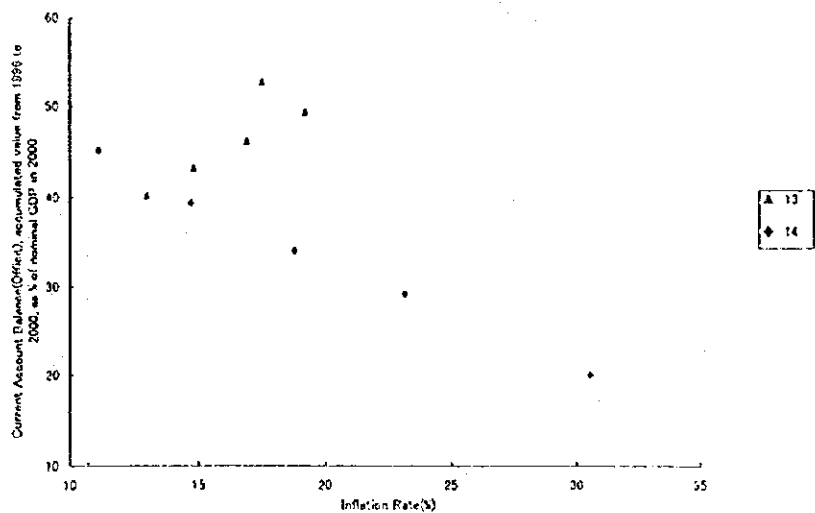


GDP Growth Rate VS Budget Deficit

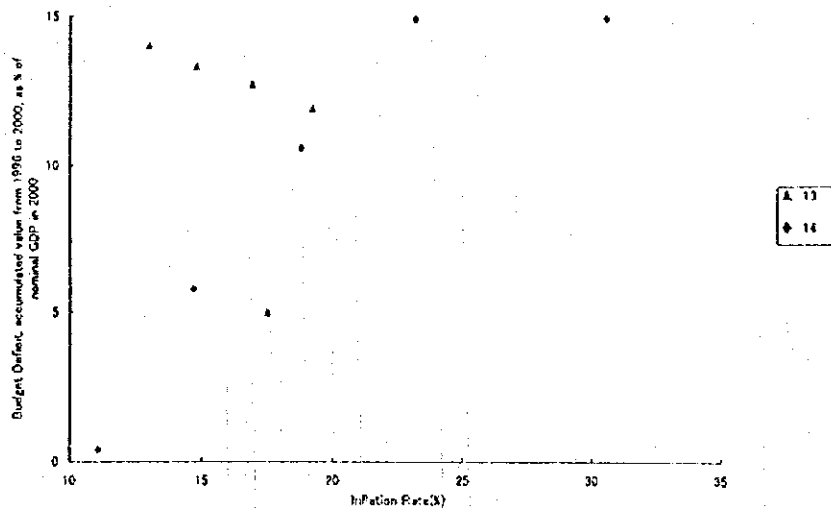


GDP Growth Rate VS ODA and Loans

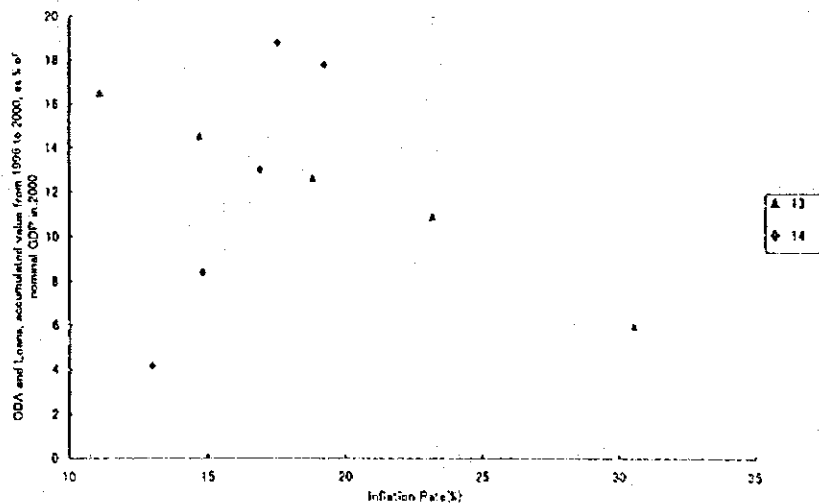
Monetary Model 2(13,14)



Inflation Rate VS Current Account Balance

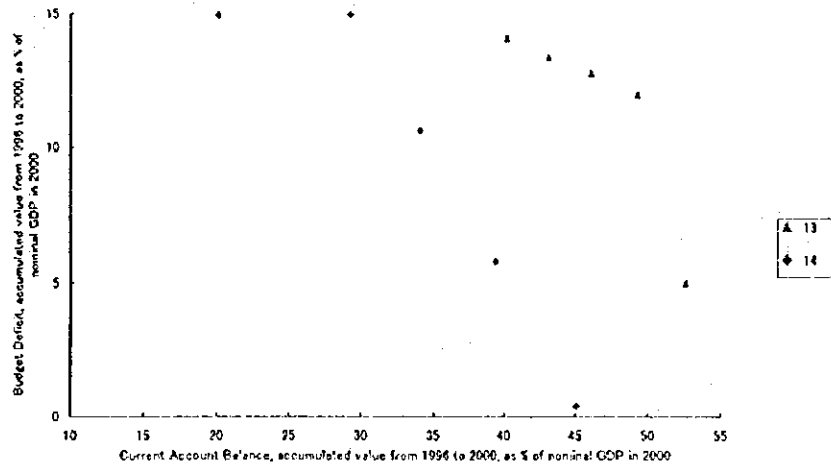


Inflation Rate VS Budget Deficit

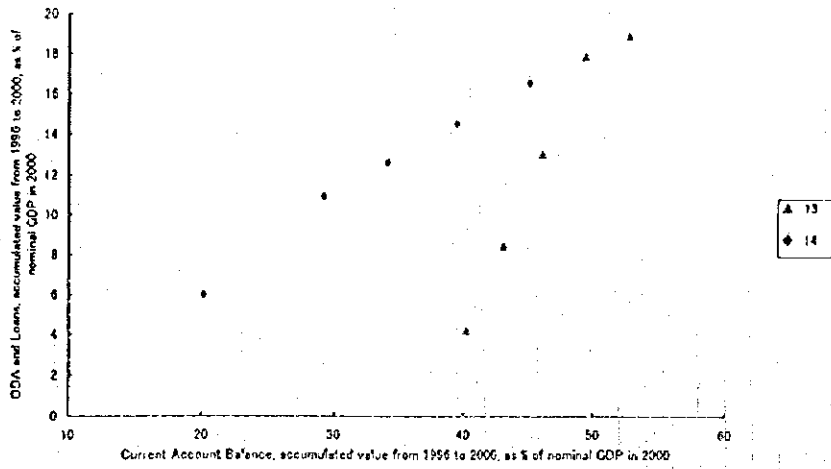


Inflation Rate VS ODA and Loans

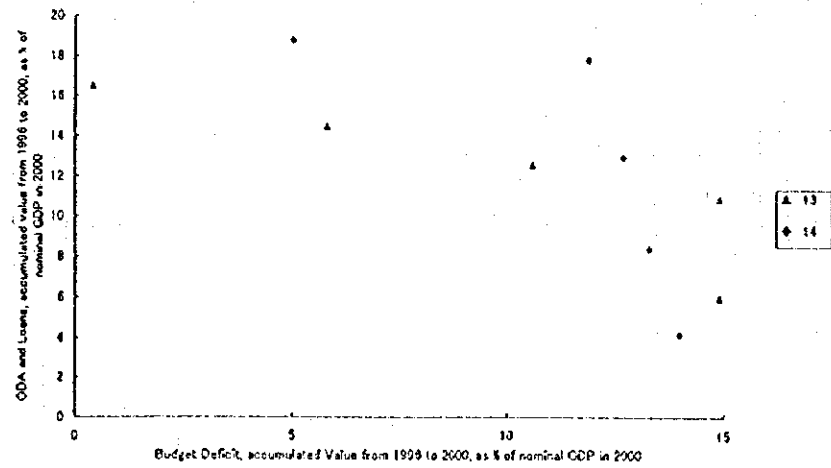
Monetary Model 2(13,14)



Current Account Balance VS Budget Deficit



Current Account Balance VS ODA and Loans



Budget Deficit VS ODA and Loans

Monetary Model 2(6)

	GDP Growth Rate #1	Inflation Rate #1	Current Account Balance #2	Budget Deficit #2	ODA and Loans #2	Comments: #3
1-1	10.0	1.5	63.5	-6.1	23.5	A,F,H
1-2	9.8	14.6	65.7	15.8	24.1	B,F,H
1-3	9.9	10.0	65.9	9.8	24.4	C,F,H
1-4	9.9	6.4	64.2	2.7	23.6	D,F,H
1-5	9.9	3.9	63.5	-1.4	23.4	E,F,H
2-1	10.6	1.8	69.6	-3.3	25.4	A,G,H
2-2	8.8	9.8	51.6	9.8	19.1	B,G,H
2-3	9.3	7.3	56.7	5.8	20.8	C,G,H
2-4	9.8	5.0	61.5	2.2	22.5	D,G,H
2-5	10.2	3.3	65.5	-0.5	23.9	E,G,H

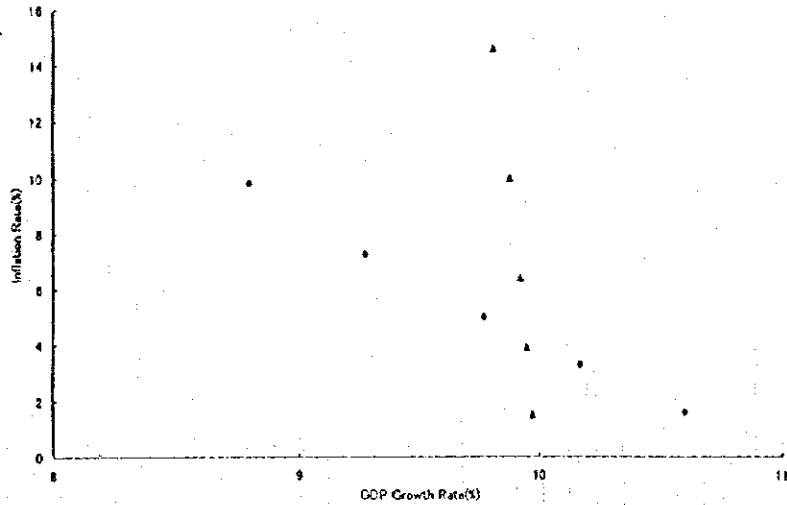
Notes:

#1 average rate from 1996 to 2000

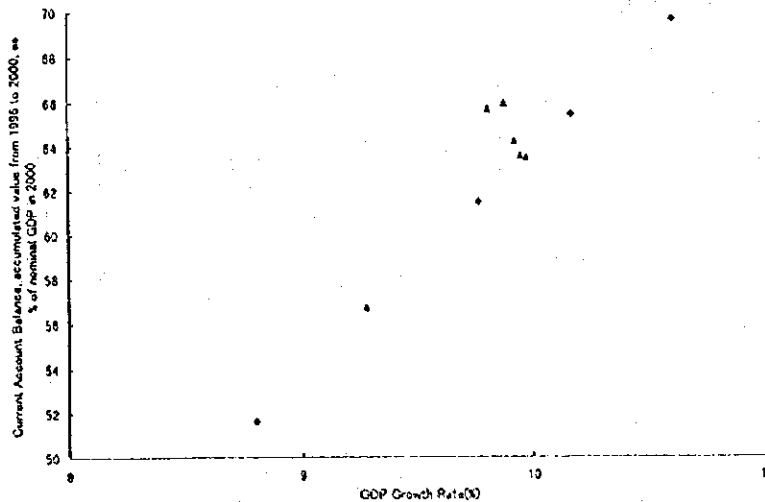
#2 accumulated value from 1996 to 2000 as % of nominal GDP in 2000

#3  
 A: Real other IP growth rate: 20%  
 B: Real other IP growth rate: 0%  
 C: Real other IP growth rate: 5%  
 D: Real other IP growth rate: 10%  
 E: Real other IP growth rate: 15%  
 F: Fixed real exchange rate  
 G: Nominal exchange rate is depreciated at 4% per annual.  
 H: SP/YP remains at 0.10

Monetary Model 2(1,2)



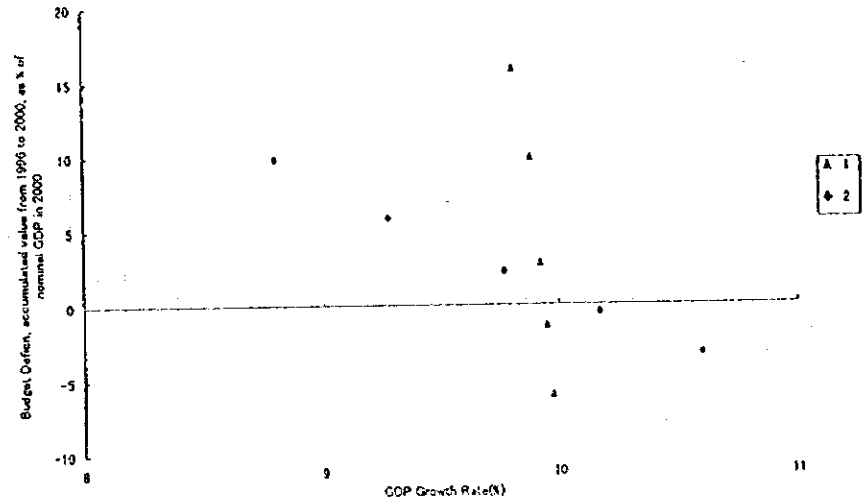
GDP Growth Rate VS Inflation Rate



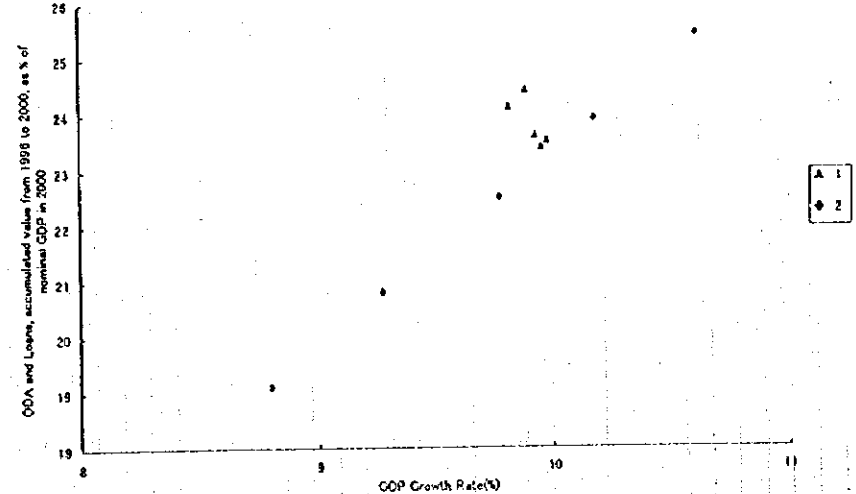
GDP Growth Rate VS Current Account Balance



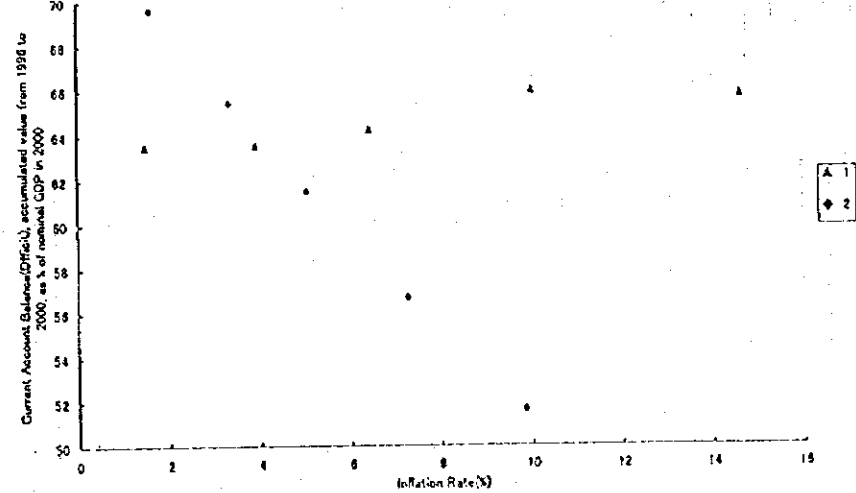
Monetary Model 2(1,2)



GDP Growth Rate VS Budget Deficit

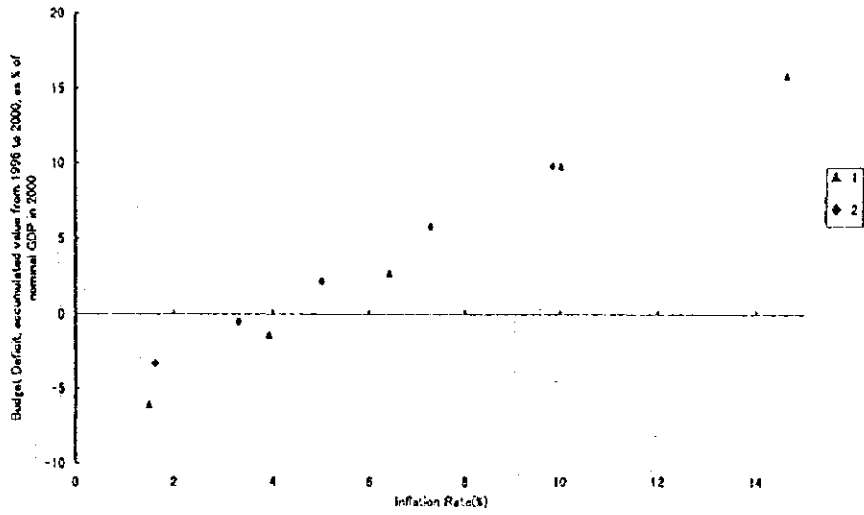


GDP Growth Rate VS ODA and Loans

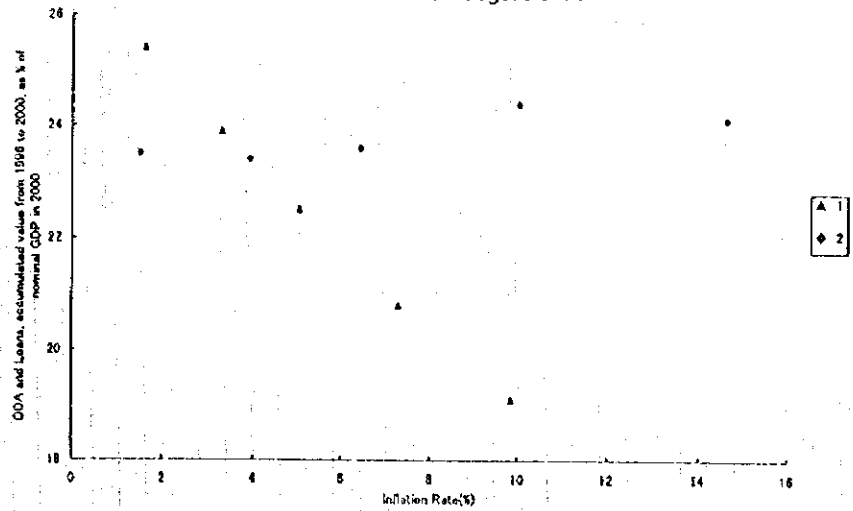


Inflation Rate VS Current Account Balance

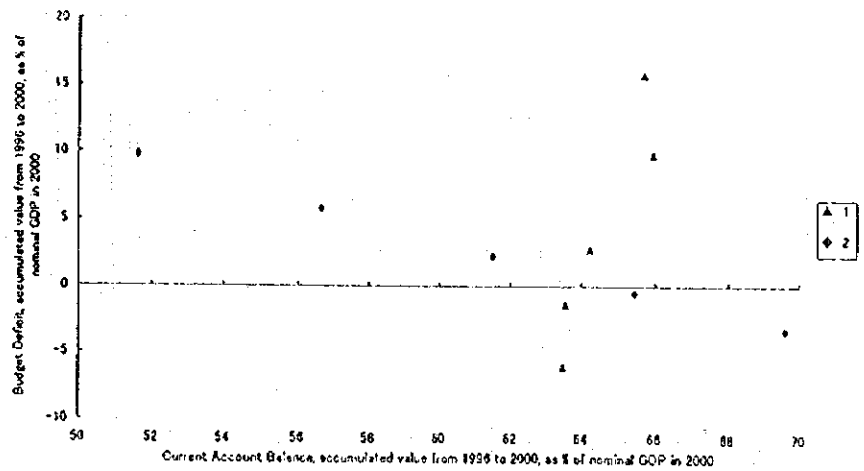
Monetary Model 2(1,2)



Inflation Rate VS Budget Deficit

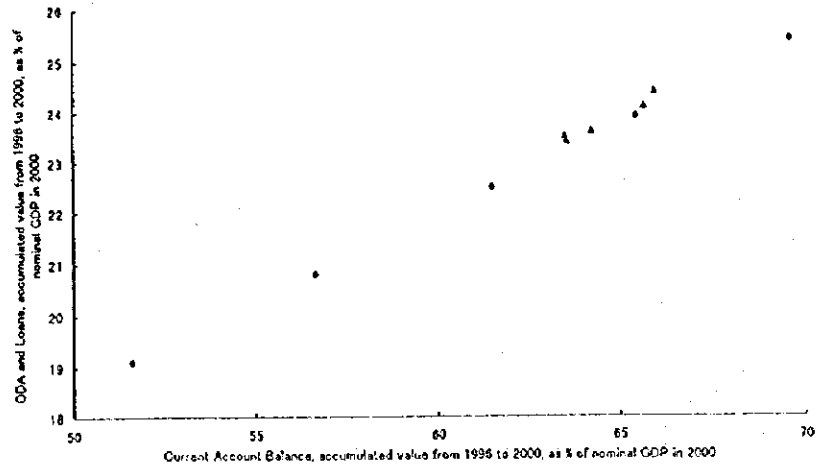


Inflation Rate VS ODA and Loans

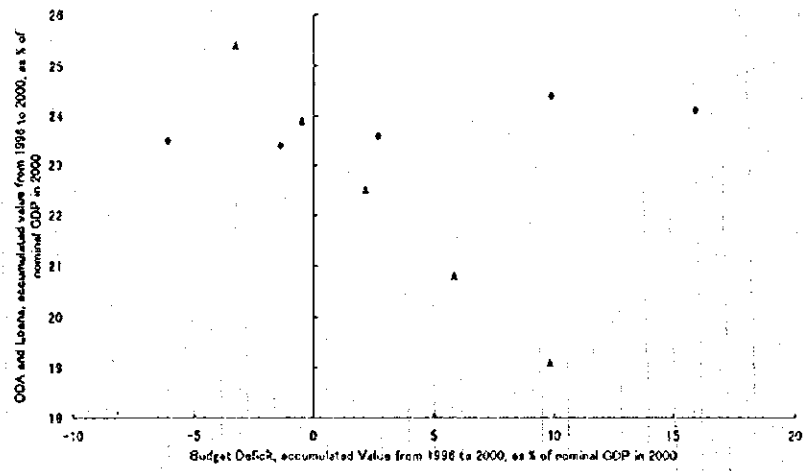


Current Account Balance VS Budget Deficit

Monetary Model 2(1,2)



Current Account Balance VS ODA and Loans



Budget Deficit VS ODA and Loans



## Development and the Environment

– The Experience of Japan and Industrializing Asia –

Shigeaki Fujisaki  
Institute of Developing Economies

The major failure of the industrialized countries, especially Japan, in the field of environmental management, is closely related to their development strategy of "Let development go first, later on the environment will catch up." Let us call it the "Get dirty, then clean up" strategy of development.<sup>1)</sup> For instance, throughout Japan's "catching up" process, overriding priority was placed on industrialization and export promotion, and the environmental fallout was largely ignored as an insignificant side effect. The governments of the industrialized countries never acted until they faced severe environmental hazards and environmental problems became a political issue. This often resulted in tragedies, Minamata Disease being one of the most serious. Once such disasters occur, the cost of compensation for the damage is very high and complete recovery from the damage is almost impossible. The irreversibility of the problem should be considered.

Unfortunately, the traditional approach to development seems to be still popular. Asia's newly industrializing economies (NIEs), especially Korea and Taiwan, have already been following in Japan's footsteps, and China and members of the Association of Southeast Asian Nations (ASEAN) appear to be heading in the same direction. The economies of the East Asian countries (Asian NIEs, China and the ASEAN countries) have maintained an outstanding growth performance in the recent past and are reputed as the "growth center" of the world economy. These countries, however, are encountering severe environmental disruption and natural-resource depletion as a result of their economic success. Special attention, therefore, should be paid not just to the benefits of economic growth but also to the costs. Environmental damage will be one of the most important.

To alleviate poverty and to improve the living standards of the people, the East Asian countries still need to attain substantial economic growth. We should recognize that poverty itself is one of the main causes of environmental degradation in developing countries, and the countries eagerly seek industrialization to solve this kind of unique problem. Industrialization, however, in turn causes another type of environmental problem as mentioned above. It is just this dilemma that developing countries face.

Let us briefly review the development process of Japan and Asian NIEs (Korea and Taiwan) with emphasis placed on the relationship between industrialization and the environment. What happened to those countries? What are the lessons from their experiences?

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1) See, for instance, Poole, Peter J., "China Threatened by Japan's Old Pollution Strategies," *Far Eastern Economic Review*, 23 June 1988, pp.78-79.

Table 1 Pollution Caused Diseases in Japan (December 1987)

Diseases	Victims	
	Alive	Dead
1st Minamata Disease	1,352	829
2nd Minamata Disease	489	201
Itai-Itai Disease	18	105
Arsenic poisoning	100	58
Air-pollution-related diseases	101,778	

Note: these are Environmental Agency certified victims.

## I. Industrialization and environmental disruption: The costs

### 1. "Get dirty, then clean up" strategy: The case of Japan

In the "catching up" process, Japan went through a number of economic phases. It is widely recognized that Japan entered a light industrialization phase in the 1880s and a heavy industrialization phase in the 1930s. Following the rehabilitation and reindustrialization phase early in the postwar era, in the mid-1960s Japan by and large reached the final stage of the "catching up" process. Thereafter, the country has been shifting to "technology-intensive" "knowledge-intensive" industries gradually.

Looking at Japan's industrialization process, we find a number of environmental challenges, especially in metropolitan areas such as Osaka and in mining sites like the Ashio copper mine even early in the prewar era. There were also some reactions to such challenges. "Regulations concerning the Establishment of Manufacturing Plants" of Osaka Prefecture (1877) and the Antimining-pollution movement in Ashio are the typical cases. The main priority, however, was given to industrialization and export promotion throughout Japan's "catching up" process; and the environmental fallout was largely ignored as an insignificant side effect. And this in turn resulted in a number of tragedies: the methyl-mercury poisoning cases in the Minamata area and the Agano River (Minamata Disease), the cadmium poisoning cases along the Jintsu River (Itai-Itai Disease), and Yokkaichi asthma. It was only after the mid-1960s that comprehensive sets of ministerial, legal, and planning measures for environmental protection were enacted in Japan.

Let us review briefly the process leading to the enactment of these measures.<sup>2</sup>

(1) In 1967, the Basic Law for Environmental Pollution Control was promulgated. Regarding the basic law, however, there was heated debate on a paragraph of it implying that the need for pollution control was not absolute but, in certain cases, should take into consideration the importance of promoting economic activities (the problem of the "harmony" paragraph).

(2) In 1969, the Tokyo metropolitan government promulgated the Pollution Prevention Act. This act recognized the environmental right as a basic right of citizens in Tokyo and rejected the "harmonization principle," which the basic law implied.

(3) In 1970, at a special session of the Diet, the so-called "environmental pollution parliament" (kogai-kokkai in Japanese), the Basic Law for Environmental Pollution Control was amended to abandon the "harmonization principle" and to bring it closer to the principles adopted by the Tokyo metropolitan government's Pollution Prevention Act. It also allowed the local governments to seek more stringent regulations independently. Altogether fourteen new regulatory statutes were established under the new principle.

2) See, for instance, Kazuhiro Ueta, "Environmental Policy Planning in Japan," *Research Development and Evaluation Commission, Proceedings of the International Conference on Public Policy Planning*, October 1989, Taipei.

(4) In 1971, the Environment Agency was established. The agency is entrusted with the task of formulating and promoting basic principles for the conservation of the environment and of coordinating the activities of other administrative agencies in this field.

In sum, it was only after the amendment of the basic law that the Japanese government took significant action against industrial and urban pollution.

As suggested, it is obvious that Japan adopted the "Get dirty, then clean up" strategy; and, in the 1970s, the country entered the "clean-up" phase of development. Japanese success with pollution control in the 1970s has been noted internationally, especially in Western Europe. It is, however, worthwhile paying a closer attention to the fact that the price the Japanese paid for the "Get dirty, then clean up" strategy for development was extraordinarily high. As Table 1 shows, more than one thousand people died of pollution-caused diseases.

## 2. "Get dirty, then clean up" strategies again: Korea and Taiwan

Korea and Taiwan went through their light industrialization phase in the 1960s and their heavy industrialization phase in the 1970s. And in the 1980s both experienced severe industrial pollution. In the late 1980s Taiwan became recognized as one of the most polluted countries in the world, while steel, petrochemical and plastic industries grew rapidly, partly due to the economy's high tolerance for pollution. In Korea, where pollution-intensive industries had grown rapidly, partly due to the high tolerance for pollution again, another tragedy occurred. Let us briefly review the tragedy: "Onsan Disease"<sup>3)</sup>

Ulsan City is located on the southeastern coast of the Korean Peninsula, about 400km southeast of Seoul and about 40km north of Pusan. Onsan Myeong is located south of Ulsan City. The Ulsan/Onsan industrial complexes are the largest industrial zone in Korea in terms of production as well as in terms of area. There were 147 firms in operation in the complexes as of December 1985. Among them thirty-one firms were established with foreign capital, namely transnational corporations (TNCs). The industries stationed in the complexes are largely pollution intensive: chemical/petrochemical industries, machinery equipment, and primary metal smelters. The Ulsan/Onsan area indeed is the area where pollution damage has been the most frequently publicized in the country.

Recently environmental problems in this area have attracted the attention of the public as some of the inhabitants around the Onsan Industrial Complex were found to be affected with a certain disease of the nervous system. The symptoms are very similar to those of Itai-Itai Disease (heavy metal contamination). It was named "Onsan Disease". The companies frequently accused of being responsible for these incidents were mainly TNCs, even though the exact cause-effect relationship has not been proven scientifically.

To solve the ever-increasing complaints about pollution damage in the area, the government finally decided to evacuate over 30,000 inhabitants from the industrial zone. The estimated cost of the evacuation amounted to more than 120 billion won.

In Korea and Taiwan, the governments had already implemented legal, ministerial, and planning measures for environmental protection in the 1970s. Such measures, however, were not effective in practice. And in the late 1980s a number of bills on environmental protection were enacted by the legislatures of both Taiwan and Korea. Behind this kind of development, there were some political factors: the heightening of public environmental awareness and increasing public interest group pressure. These facts suggest that it was in the late 1980s that the "Get dirty" phase was over both in Taiwan and Korea. Again it should be emphasized that the price people had to pay for the "Get dirty, then clean up" strategy were huge, as the case of Onsan Disease shows.

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3) Kim, Jun-Wk. "Environmental Aspects of Transnational Corporation Activities. Impact and Regulation (Phase II)," Seoul National University, 1990.

Compared with the ASEAN countries, Japan, Korea and Taiwan were early industrializers. So far they have, on the whole, followed the same "Get dirty, then clean up" strategy of development. The process, unfortunately, was accompanied by a number of disastrous incidents, including Minamata Disease and Onsan Disease. If there are "latecomers' advantages" (or more formally, advantages of relative backwardness),<sup>4)</sup> then late industrializers like the ASEAN countries should adopt a safer policy so as at least never to repeat such tragedies. Since several tragic cases, however, have already been reported in the ASEAN countries, for example in the Jakarta Bay area in Indonesia, it appears that these countries have already entered their "Get dirty" phase of industrialization. Is it, however, really necessary for them to pass through the entire process?

## II. Environmental awareness and latecomers' advantages

Environmental problems are problems of perception or awareness. The physical existence of some phenomenon (such as environmental destruction) does not necessarily mean that the phenomenon will become a problem for humanity (such as environmental problems). Only when its existence is widely recognized by society as something harmful will such a physical phenomenon be regarded as a problem, and only then will countermeasures be considered and implemented. Take the phenomenon of global warming. As far back as the end of the nineteenth century, some scientists warned that this could occur. But not until the late 1980s was it perceived as a problem that needed to be addressed at the government level. History, especially the history of the industrialized countries, teaches that it generally takes a considerable time before environmental problems achieve social recognition, and even longer before countermeasures are implemented. This time lag has been the cause of a great many tragedies. Just recall the history of Minamata Disease in Japan. Because of the debate over causal relationships, no countermeasures were taken for a long time, with the result that a second outbreak of the disease claimed many more victims.

Prof. Kenichi Miyamoto identifies four aspects of environmental policy.<sup>5)</sup> These are:

- (1) assessing environmental damage and investigating its causes (including locating the seat of responsibility for the damage);
- (2) providing compensation for damage suffered and repairing damage, along with measures to restore the environment to its original state and to promote the recovery of those affected;
- (3) establishing regulations to prevent pollution and utilizing social capital and land-use plans to reduce pollution while maintaining amenities; and
- (4) preventing future environmental damage (through cost benefit analyses, environmental-impact assessments, land-use policies, and so on).

He also writes that "polluting countries and regions like Japan should elaborate environmental policies in this order, but developing countries must take the opposite approach when developing an administrative framework for the environment."<sup>6)</sup> Prof. Miyamoto is here pointing out the potential for developing countries to benefit from the latecomers' advantage in designing and implementing environmental policy. Such potential certainly exists, and developing countries have in fact been enjoying the latecomers' advantages, although by no means to the fullest possible extent.

Developing countries are in a position that gives them full access to the experience of the industrialized countries regarding the harmful effects of industrialization and urbanization. They can also learn about the social cost that results from ignoring these problems over long periods of time. This means that they can avoid the loss of time that occurs during the recognition phase due to unnecessary political disunity. It is

4) "Advantages of backwardness" is a technical term of Economics. See, as a typical example, Gerschenkron, Arthur, *Economic Backwardness in Historical Perspective: A Book of Essays* (Cambridge: Belknap Press, 1962) pp.5-51, pp.152-187, pp.353-361.

5) Miyamoto Kenichi, *Kankyo keizai-gaku* (Environmental Economics) (Tokyo: Iwanami-shoten, 1989) p.162.



also possible to reduce the cost of policy formation and implementation in terms of both time and money by utilizing technology, know-how, and systems acquired by the industrialized countries through trial and error. Indeed, it is above all at the phases of the recognition of problems and of the formulation of countermeasures that developing countries enjoy a significant potential latecomers' advantage.

This "learning effect" was clearly manifested in the aftermath of the 1972 United Nations Conference on the Human Environment, which led many Asian countries to recognize environmental protection as a policy objective and to begin establishing a regulatory apparatus. Similarly, the 1992 Earth Summit encouraged governments to adopt measures to better enforce legislation or even to enact more stringent laws. Most of the Asian countries have passed laws requiring environmental-impact assessments, which are still not mandatory under Japanese law, and some are also enthusiastically moving to adopt economic instrument.<sup>6)</sup>

### III. Institutional factors underlying environmental problems

Environmental problems are brought about by human hands. Their causes are human activities, and the phenomena of environmental destruction and pollution that we observe are the result of these activities. The damage caused by an earthquake or a volcanic eruption, however great it may be, is a natural disaster, not an environmental problem. If we accept that human activities are the source of environmental problems, then it follows that what we should call into question are those activities and the social systems (institutions) that encourage such activities. That is not, of course, to deny the importance of work based on the natural sciences aimed at measuring the extent of the damage and at developing technological countermeasures. But we should recognize that the question of whether a particular technology (for example, one that can help solve a particular environmental problem) exists and the question of whether it will be widely used by society belong to completely separate dimensions. Which technologies a society widely adopts will depend on what sort of "problem-consciousness" that society has and what sort of incentives and rules it provides for its members. A scientifically observed level of environmental degradation that one society recognizes as a problem will not necessarily be recognized as a problem by another society. And even when two societies share the same problem-consciousness, the rules and incentives that they provide for their members are likely to be different. Hence the need for analyses of environmental awareness and human activities from the perspectives of social science.

Now let me cite some points that show just a small part of how institutions act as factors behind problems of environmental degradation in Asia and outline some possible approaches to these problems.

The first point to be noted is that many government are under heavy pressure to give priority to development policies, which are vital to the elimination of poverty and the stimulation of depressed economies, and they have little leeway to think about the environment. In this respect, it is instructive to recall the case of Japan during its high-growth era. In those days people saw smoke rising from factories as a symbol of prosperity. They were so caught up in the struggle to survive and achieve prosperity that in most cases they remained indifferent even when atmospheric pollution caused health problems. Even the word "environmental pollution (kogai in Japanese)" had not yet come into general use in Japanese society, and citizens who complained about the harm caused by pollution were treated coldly by business and the government. The country was urged to give priority to business and production, and pollution tended to be regarded as the cost of prosperity or as an insignificant by-product. Even well-known major corporations discharged toxic waste without any compunction.

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6) Miyamoto, K., *op.cit.*, p.162.

7) See, for instance, Lee, Sang-Gon, "Economic Growth and the Environment: Korea's Experience and the Policies for Sustainable Development." Kojima, Reitsuo, et al., eds., *Development and the Environment: The Experiences of Japan and Industrializing Asia* (Tokyo: IDE) pp. 294-295.

Like the Japan of its high-growth era, the Asian economies are full of people who are eager to achieve affluence. This explosion of expectation is the real source of rapid growth in Asian economies. There has been a dramatic increase in private sector investment in activities that lead directly to affluence, but investment in the public sector has been comparatively slow, resulting in a relative lack of social overhead capital. Even in the private sector, priority is given to production-related investment, while investment in environmental countermeasures, which lead to increased costs, is deferred. Similarly, industrial infrastructure, such as port facilities, roads and power plants, is the first priority for investment in social overhead capital. This situation is reflected in the imbalance between the abundance of manufactured goods that overflow in the marketplaces of these countries and the dirty and dilapidated state of their cities. The investment imbalance between or within sectors during the accelerating growth phase is a major reason for poor environmental conditions in Asian economies.

The second factor that must be taken into account is the shortcomings in and the biases of legal and economic systems. Asian countries have already made considerable progress in creating legal frameworks to deal with environmental issues. But cases can be observed in which the laws adopted have been used to legitimize activities that cause environmental pollution. Even though pollution is causing actual damage to people's health, the claim that "emission levels are in strict compliance with [statutory] environmental standards" is used as grounds for not implementing countermeasures. What, then, is the purpose of setting regulatory standards in the first place? Of course they are set with the aim of preventing harm to human health. But perhaps because the laws are borrowed or copied from industrialized country models, their spirit fails to be observed. Many Chinese enterprises are allegedly continuing to release pollutants while paying the fines set by law. One problem may be that the fines are low, but another factor may well be that, particularly at state-owned enterprises, the "iron rice bowl" (the guarantee of government support) undermines the incentive to control costs. This is a bias of the traditional socialist system arising from its dependence on "soft" budgetary constraints.<sup>8)</sup>

The problem of small and medium-sized local enterprises (in China's case *xiangzhen qiye*, or village enterprises) is also a serious one. Adopting environmentally sound practices represent far greater burden for these enterprises, which lack technology, capital, and human resources, than for large domestic or foreign firms. An incident that took place when the Institute of Developing Economies and the Thai government were jointly conducting a survey of establishments on their environmental awareness and practices in 1992 sheds light on the attitude toward the environment taken by these local producers, who are often hard pressed simply to make both ends meet. One Thai government official seeking interviews at a certain cluster of small factories was actually chased away at gunpoint by the owner of a small enterprise. The joint study concluded that whereas many large companies have displayed a positive attitude toward implementing measures to protect the environment, the majority of small and medium-sized enterprises still do not acknowledge the need for such measures and feel, furthermore, that it is inherently more difficult for them to take such steps than it is for their larger counterparts.<sup>9)</sup>

Finally, some environmental implications of the foreign direct investment boom in Asia should be taken into consideration. One of the largest factors underlying the rapid economic expansion manifest across Asia in recent years, and especially the dizzying growth of the ASEAN countries and China, has been the explosion in direct investment in these countries not only by the United States, West European countries, and Japan but also by South Korea, Taiwan, Hong Kong, and Singapore. China provides a striking example of this phenomenon. According to a United Nations Conference on Trade and Development report, foreign direct investment in China jumped from \$11.1 billion in 1992 to \$25.8 billion

8) With respect to the term "soft" budgetary constraints, see Kornai, Janos, *Economics of Shortage* (Amsterdam: North Holland, 1980).

9) See "Report on Development and Environment: The Case of Thailand" (A report of NESDB-IDE joint study project), March 1993.

Table 2 First Establishment of Environment-Related Laws in Asian Countries

China :
1979 Environmental Protection Law of the People's Republic of China
Korea :
1977 Environmental Preservation Law
Taiwan :
1974 Water Pollution Control Law
1974 Waste Disposal Law
1975 Air Pollution Control Law
The Philippines :
1977 Presidential Decree 1151, Philippine Environmental Policy
1977 Presidential Decree 1152, Philippine Environmental Code
Thailand :
1975 Improvement and Conservation of National Environmental Quality Act
Malaysia :
1974 Environmental Quality Act
Indonesia :
1982 Environmental Management Act

just one year later, making China the second largest recipient of foreign direct investment after the United States.

The swelling stream of foreign direct investment and the growing presence of multinational corporations in Asian countries are undoubtedly helping these countries attain their short term macroeconomic goals. Unfortunately, however, in certain cases this activity has resulted in environmental damage to recipient countries, provoking the criticism that foreign direct investment amounts to "exporting pollution." In the past, Japanese, American, and European multinationals were most often accused of exporting pollution, but in recent years overseas investment by Taiwanese corporations has also become the target of such criticism. Differences in nationality seem to have little bearing on the firms' foreign direct investment practices.

The crux of the problem is that existing environmental policies are inadequate to cope with the rapid globalization of economic activities. Although the evolution of a borderless economy has emasculated or rendered obsolete national schemes for environmental regulation, the international community has made no progress in articulating rules to fill this void. The controversy surrounding the disposal of industrial waste is illustrative of the dilemma. Whereas it is relatively easy to achieve social recognition of highly visible forms of pollution (air and water pollution) as problems, which in turn facilitates the early adoption of countermeasures, even industrialized countries are still struggling to build a consensus on policies covering the disposal (especially the final disposal) of industrial sludge and industrial waste because of the issue's low profile. Furthermore, affiliates of multinational corporations active in Asia are accustomed to the rules (in this case the regulations covering the disposal of industrial waste) applicable in the country of their parent corporation. This state of affairs naturally complicates any attempt to address the issue of waste disposal. To make matters worse, Asia continues to bear the brunt of policy loopholes in industrialized countries (for example, Western firms charged with the domestic disposal of waste ship it off to Asia).

#### IV. Bottom-up approach vs. top-down approach : Experiences of Japan and Industrializing Asia reconsidered

At the beginning of his book, "*Institution, Institutional Change and Economic Performance*," Prof. Douglass C. North defines the concept of institution as follows :<sup>10)</sup>

Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change.

Furthermore, according to Prof. North, the rules of the game or the humanly devised constraints are the total of :<sup>11)</sup>

- (1) formal written rules, such as constitutions and laws ;
- (2) informal rules, or unwritten codes of conduct including conventions and norms of behavior ; and
- (3) types and effectiveness of enforcement.

Applying this line of reasoning, we can state a crucial facet of environmental analysis from the social scientific perspective : In addition to considering the broadly defined legal system (written rules) and the manner in which it is enforced, we have to investigate the unwritten codes of conduct that underpin the legal system and serve to complement it, taking into account even the consciousness of people and society. Institutions and institutional change are also the keys to understanding environmental problems. Now let me make this point clear, reviewing again the experiences of Japan and industrializing Asia.

First of all, please recall the fact that there were no rules at all against environmental disruption and pollution, whether written or unwritten, until the middle of the 1960s in Japan.

As mentioned earlier, in Japan's high-growth era people saw smoke rising from factories as a symbol of prosperity. And this perception reflected the unwritten codes of conduct in Japanese society during that era. It was only in 1967 that a formal written rule, the Basic Law for Environmental Pollution Control in this case, was enacted. The consequences of this lack of rules, or "lawlessness," against environmental disruption were, simply stated, many tragic situations. Typical of these was the Minamata Disease. The experiences of the tragic consequences of pollution brought a drastic change in Japanese perceptions of and attitudes to the environment, especially toward pollution. Local authorities were the first to be forced into action by public campaigns against pollution. Eventually these campaigns also brought a shift in the stance of the central government. The government first began to take significant action against industrial and urban pollution after the amendment of the Basic Law for Environmental Pollution Control in 1970.

As the case of Japan shows, first, people's perception and attitudes changed. In other words, changes in the informal rules came first. Then, the establishment of formal written rules came about. Finally, the formal rules were enforced. Therefore, we may say that Japan had grappled with environmental problems in a bottom-up fashion. So let me call it the bottom-up approach to environmental protection. What should be recalled here is that the roles of unwritten codes of conduct are to underlie and supplement formal rules and that informal rules in fact strongly supported the enforcement of formal rules in the case of Japan, as far as the period after the "environmental pollution parliament" was concerned.

In contrast to the cases of industrialized countries including Japan, the establishment of formal rules has come first in most of Asian countries. As mentioned earlier, the experiences of industrialized countries are being applied, albeit inadequately. One of the obvious evidences of it is the fact that the Asian countries actually began to establish environment-related laws relatively early, as Table 2 shows. Since, unlike the

10) North, Douglass C., *Institutions, Institutional Change and Economic Performance* (Cambridge : Cambridge University Press, 1990) p.3.

11) North, D.C., *op. cit.*, p.4.

case of Japan, the establishment of formal written rule by, mostly, the central government comes first. Let me call it the top-down approach to environmental protection. And obviously in the top-down approach the problem is not the lack of rules, or "lawlessness" as far as formal written rules are concerned. Then, what is really the problem of the top-down approach? Simply stated, the formal rules are not sufficiently supported by the informal rules, and, consequently, the formal rules are not effectively enforced. To tackle environmental issues in Asian countries in detail, therefore, we have to raise the following questions :

- (1) Is the enforcement of the formal rules effective? ; and
- (2) How do the informal rules change?

## **V. Conclusion : Social and institutional factors matter**

Agreements reached at the Earth Summit require the industrialized countries to provide financial and technological support to enable the developing countries to balance developmental and environmental concerns. Japan made the biggest funding pledge of any country, announcing that it would spend between 900 billion and 1 trillion on official development assistance in environmental fields over five years (its donations in fiscal 1992 amounted to 280.3 billion ; and 228.0, 195.8 in fiscal 1993 and 1994, respectively). It may seem natural for Japan to be so generous. Having overcome serious industrial pollution at home, it has acquired considerable expertise, and with the biggest trade surplus in the world it is not short of funds. The question, though, is whether the aid it provides will be of much help.

An undertaking by the North to support environmental programs in the South, donate funds and antipollution devices, and transfer technology will not of itself guarantee that developing countries attain the goal of curbing the release of pollutants and preserving the environment. The installation of pollution control equipment in a developing country's factory, for example, can fail to produce the results expected. The supply of electricity may be inadequate, as it often is in developing countries. The factory will be unlikely to operate pollution control equipment if that means cutting down on production by turning off other machines. Again, the equipment will not be used unless plant managers are provided with sufficient funds to keep it running, and without proper maintenance it will soon cease to function as it should. In such cases the equipment will be unable to fulfill its purpose of protecting the environment.

Obviously, technology development in industrialized countries will play an important role in environmental protection in the growth economies of East Asia, especially with regard to industrial and urban pollution. The question is whether social, economic, and political conditions in the countries concerned will permit this technology to be utilized appropriately. Environmental protection at the national or regional level must in practice be implemented by local communities and people. Unfortunately, many factors in Asia and the third world in general make it difficult to deal even with localized environmental problems.

In conclusion, I would like to emphasize that a variety of social and institutional factors underlie the worsening environmental degradation in the third world, and no solution will be possible unless they are addressed. The industrial world can lend a hand by supplying funds and technology, but while this may be a necessary condition for protecting the environment, it is by no means a sufficient condition. Only the third world's citizens themselves can find solutions to the myriad of problems that exist.



## Study on Industrial Development and Environment in Viet Nam

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### I. Analysis of the impact of industrial development process and infrastructure to the ecological environment and living condition in Viet Nam

The development of industry brings many products to serve people, but it simultaneously leads exhaustibility of natural resources and increases wastes that can pollute the environment. The more the industry develops, the more products are made and at the same time the more environment is severe degenerated.

Being a country with high population density, farming land part of relatively lowness (0.11 ha/ person), diversity natural resources but not rich. Viet Nam has also considerable resources like: energy, oil, scarce solid, coal, apatit which are huge potential to develop the industry. However, Viet Nam's industrial development process in the past was a relatively short process and new. In the wartime (1960-1975), industrial development in Viet Nam North concentrated mainly priority of heavy industrial development, coming from internal material like thermo-electricity, black and colour metallurgy, chemical, fertilizer and some light industries like textile, paper... ect. Technology in this time relied mainly on former Russian, China with level of 1950s of the world. After the completely united country (1975), Viet Nam carried out to rehabilitate some industrial manufacturing foundations simultaneously began to construct some new ones like :Pha Lai thermo-electricity plant, Hoa Binh and Tri An hydro-electricities Hoang Thach, Bim Son cement factories, Bai Bang and Tan Mai paper factories and many textile, sewing foundations.

Up to now, however, foundations rehabilitated, extended after 1975 of Viet Nam which are mainly low in technique level and technology. Most of these foundations have small scale, weak economic effectiveness but severe environment pollution.

Furthermore, dangerous waste in many cases is not treated before discharge, caused considerable effectiveness to the ecologic environment and resident's living condition.

After changing into market economy, Viet Nam's industry had already encouraging development steps. One of basic characteristics of recently Viet Nam's industry, was that to achieve continuous high growth speed since 1991 up to now (1991 increased 10.4%, 1992 increased 17.1%, 1993 increased 12.7%, 1994 increased 13.5% and 1995 increased 14%). So in the last 5 years, annual growth speed of Viet Nam's industry is at 13.5% - the highest growth level in the region. Industrial rate in GDP increased gradually from 18.8% (1990) to 24% (1995), in which public economic component occupied over 70% product valuation of all sectors. Most of industrial sectors were rehabilitated and developed. All sectors with huge rate and important role in economy are all sectors with rapid growth rate like: energy sector occupied 23% industrial product valuation with average growth speed of 21%/ year, in which electric sector increased 64.5%/ year, coal

58.5%/ year, oil increased 22.5%/ year, chemical sector serving agriculture increased 22.5%/ year, construction material product increased 14.6%, in which cement increased 22%, brick increased 8.1%/ year, foods industry increased averagely 11.6%/ year<sup>1)</sup>. Because of rapid growth of the above key sectors, Viet Nam economic mechanism released gradually unbalances lasting tents years, satisfied better the consumption needs for industrial product of the whole society. However rapid growth of the industry appeared also unbalance between industrial growth speed and development speed of infrastructure and society, created threat for establishment and development process of the industry with high pollution rate.

Industrial mechanism of the areas now tends to concentrate more in some areas like: Ho Chi Minh City and Southern East provinces occupied 48% product of all sectors, increased averagely 16.6% year, provinces in Chu Long river occupied 14.1%, increased 9.1%/ year, Hanoi area and provinces in Red river occupied 13.5%. The rest areas occupied only small rate. Furthermore, many concentration industries, export-processing, zones like: Sai Dong (Hanoi), Do Son (Haiphong), Tan Thuan (Ho Chi Minh City), Long Binh (Dong Nai) recently are formed. These industrial zones and export-processing zones bring many economic effectiveness, but at the same time appear also many new issues in environment, especially industrial environment in concentration zones.

One of other important characteristics of Viet Nam's current industry is that almost industrial foundations with small size, despersion, low technique level and technology. To year 1993 there were 370,000 product foundation, in the whole industry, in which public zone occupied 2268 enterprise with 32.5% labour and 78.9% of total fund of the whole sector. Large and medium enterprise occupied only 2% in total industrial product foundations, most concentrated in public economic component with average fund of each enterprise about 9 billion Dong (= US \$900,000). Small enterprises occupied nearly 98% in total product foundations with average fund over 1 million dong and over 3 labours/ 1 foundation.

These numbers showed that small size of Viet Nam's industry. Although in recent years, due to new policy, industrial foundations had some considerable developed steps but admitted that industrial skill and technique equipments were basically outdated and handicraft, no strong enough to compete with foreign product.

This showed still difficulty in management and treatment of polluted waste created by the industry. In addition, because of construction planning, private business industrial foundations operates alternative with resident's area causing pollution on airy waste, solid waste and noise, impacting not too little to surrounding Resident's living.

One big difficulty of Viet Nam's current industry is lack of fund (for investment and business).

Though, the Government invests annually for industry 5,200-5,600 billion Dong, occupies 56-57% in total budget investment fund for the whole economy, but still small compared to the needs. The fund in resident is big, but mobilization rate in development investment is still limited (only 30%, but most in housing construction). Although, Viet Nam established already some industrial zones with rapid concentration rate and growth like Hanoi, Ho Chi Minh City, Dong Nai, Hai Phong...etc., income level per capita of these cities is still much lower than average income level of countries in the region. This factor impacts considerably to technological choice and industrial environment protection and improvement in current Viet Nam as well as in the coming time. With limited fund, Viet Nam is not ability and condition enough to treat all effectiveness on environment pollution created by existing industry and also not ability enough to import the most clearest technologies for the industry to be developed foreign investment fund stream flowed into Viet Nam.

To year 1995, foreign investment in Viet Nam with granted permission was 1,604 projects, with total registrations were US \$18,834 million, in which foreign investment in industrial sectors occupied over

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1) This date from statistic date in 1994 and primary report in socio-economy in 1995 of General Statistic Development.



25%<sup>2)</sup>. Phenomenons of foreign investment speed in Viet Nam increasing rapidly will reduce intention of lack of fund situation, permit Viet Nam to approach quickly with modern industry, but also cause certain difficulties on industrial infrastructure. Practice showing due to many reasons, some foreign investment project in Viet Nam caused not small impact to ecologic environment and resident's living in the area (like VEDAN powder in Dong Nai). Especially in tendency of the world being in technological renovation, some countries have a tendency to more old technologies with low economic effectiveness and high environment pollution.

Practice on polluted import happened in Viet Nam, leading to Viet Nam could become waste station of old industry of the world.

Pollution and environment destruction due to deforestation caused and emaciation in mountainous areas. If in 1943, land area site covered by the forest in Viet Nam with 67%, in 1994 with only 26%. Especially deforestation speed increased strongly in recent years (1991-1994 increased average 1.5% annually)<sup>3)</sup>.

In short, although having some considerable growths and improvement, technological renovation and having investment both internal and external, but Viet Nam's industry is still small and outdated with old technology and many toxic wastes.

Public industry is still prevailed, weak infrastructure and slowly developed.

Furthermore, boom and development of small private product foundations, in which there are many product types with dangerous waste caused difficulty in control and management of the State. So, industrial environment issue in large cities and industrial zones of the country is now severe. It requires measures to implement on time to protect environment and security for resident's living.

## II. Situation of environment pollution caused by industrial waste

### 1. Water pollution

As the survey result showing that, although in the initial pollution situation in urban areas and Viet Nam's industrial zones is severe. For a many decades, Viet Nam has not paid attention in investment for water drainage system, so water drainage system in urban areas became old and degenerated, many roads in rainy season being floody, dirty water under sewerage increased overflowed and caused non-sanitation situation. The rivers, canals, lakes in Hanoi, Ho Chi Minh City played role in drainage and also received domestic and industrial waste water which are not treated by any process.

In the North, no-treated industrial waste water flowing into large rivers is annually 240-300 million m<sup>3</sup> in which Hanoi with 120 million m<sup>3</sup>, Hai Phong 70 million m<sup>3</sup>, Viet Tri: 34 million m<sup>3</sup>. Due to no-treated, water waste concentration in discharging point is big BOD=50-190mg/l, COD=80-495mg/l, DO < 1mg/l. In general, lakes can clear themselves, but pollution degree here increases.

Currently, if compared to standard determined by MOSTE (Ministry of Scientific and Technological Environment), pollution level in lakes would be double about 5-20 times of standard according to BOD or SS.

In Ho Chi Minh City, industrial and domestic water all discharges into canal systems and ultimately discharging into Saigon & Dong Nai rivers. Result of water quality examination in canals shows that most norms exceeding standard. BOD concentration is averagely 120-140 mg/l in which canals containing some heavy metals, especially Pb, Cr, Hg with concentration bigger some tents compared to the permitted standard, including toxic substances, like defilizer and other pollution substances threatening severely to environment & health of urban resident.

2) Resource: Primary report on socio-economic situation in 1995, General statistics Department.

3) Resource: World Bank, 1995

## 2. Air pollution

In Viet Nam's cities and industrial zones, air pollution situation caused by industry and motorised means use with increasing pollution fuel. Indicators of pollution substance in air like CO, CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub> in almost Viet Nam's cities exceeded permission standard.

In Hanoi, only Hai Ba Trung district, there are 3 industrial zones which being heavily polluted they are resident surrounding factories in Mink Khai, Mai Dong, surrounding 3 Nhat chemical factory and Surrounding Wine, beer factory in Hanoi. Dirty concentration in a part of Bach, Khoa district doubles 4-16 times of permission standard, Mink Khai-Mai Dong area doubles 8-16 times, surrounding 3 Nhat Chemical factory double 3-8 times. CO concentration in surrounding 3 Nhat Chemical factory doubles 16-20 times of permission standard, Mai Dong Mink Khai area double 5-15 times of permission standard.

Air environment situation in Hai Phong and other urban areas in the North is similar to Hanoi, but slighter. Only in Ho Chi Minh City, air environment is worse and worse in alarming level and impacting directly to resident's health.

Survey result on air environment quality in Ho Chi Minh City shows that concentration SO<sub>2</sub> / year oscillates around 0.10-0.55 mg/ m<sup>3</sup>, concentration NO<sub>x</sub> per year is 0.06-0.195 mg/ m<sup>3</sup>, dirty concentration oscillates 0.20-1.30 mg/ m<sup>3</sup>, average lead concentration in observation station oscillates 200-300 g/ m<sup>3</sup>.

The above mentioned data shows that environment situation in city being polluted more and more by industrial waste. Noted that, especially pollution level in areas surrounding industrial product zones is much higher than others.

## 3. Refuse treatment situation & solid waste

Refuse quantity & solid waste in Viet Nam's cities are about 9,100 m<sup>3</sup> daily but in which only 4,000m<sup>3</sup> (44%) being collected. In large cities like Hanoi, Hai Phong, Ho Chi Minh City, refuse collection rate is higher (oscillating 70-90%). The rest is discharged into lakes, ponds or blank land areas in cities causing severe environment pollution.

Solid waste & refuse of cities usually gathered and discharged into large refuse station, uncovered and not-treated by any technology (except two small refuse factories in Hanoi & Ho Chi Minh City). Treated refuse rate and solid waste in Ho Chi Minh City occupies only 37% total refuse daily.

## III. Situation of environment pollution In some Viet Nam's industries

We will overview orderly the industry, assess pollution resources in important industries causing pollution in Viet Nam.

### 1. Energy industry

Total Viet Nam's electric capacity now is about 4,000 MW, in which hydro-electricity:66% thermo-electricity:21%, diesel and gas turbin:13%.

By statistic of last 5 years, hydro-electric product in Viet Nam increased fastly, annually average growth rate of 13.3%.

Nowadays, thermoelectric factories in Viet Nam's North still uses coal as major material for running electric creation machine. According to expert's accounts, coal spend in these factories is high as outdated technology & equipment (Pha lai thermo-electric factory:0.473 kg/ 1kWh, Ninh Binh electric plant:0.808kg/ 1KWh, Clong Bi electric plant :0.742k / 1KWh). In 1993, coal quantity using for these 3 electric plants is nearly 480 million ton. So, with sulphur concentration about 0.74%, these plants discharged to air 6,713 ton of SO<sub>2</sub>, 2,724 ton of NO<sub>x</sub>, 278,000 ton of CO<sub>2</sub> and 1,490 ton of dirtiness. 203,500 ton of coal's refuse. In 1995 coal use level for 3 above plants doubles 2 times in 1993, so toxic air also increases relatively. Although these three plants used dirty get-rid-of equipment, it's still no ability to get rid of toxic air like SO<sub>2</sub>.

In recent years, Viet Nam concentrated to build hydro-electric plants in 3 regions of the country like: Hoa Binh, Da Nhum, Tri an, Yaly Hinh.

Regarding to air liquid & solid pollution waste as other industries hydro-electricity is the industry with high cleanliness.

But in natural destruction aspect, ecological environment, enviciation, flood, under-ground water environment destruction of hydro-electricity is very huge which not accounted up to now. So, it needs to consider when decision of hydro-electric construction.

## 2. Metallurgical industry

Metallurgy in Viet Nam is only constructed & developed in sectors of cast iron, steel and some colour metals with small size.

Because of size technology being small old, incompletely investment, so environment in steel smelting industry is in alarming period, especially concentration metallurgical zones like Thai Nguyen Bien Hoa, Nha Bi cast iron and steel zone. Dirtiness & toxic substance in waste air of cast iron, steel smelting, CO, CO<sub>2</sub>, SO<sub>2</sub>, Phenol SO<sub>x</sub>, etc. are mainly resources causing pollution but still assessed fully. In only Thai Nguyen area, there is annual 11,115 ton of solid waste and 14,712,000 m<sup>3</sup> water, steel quantity of the past period increased dramatically, reached 40,000 ton in 1995. All foundations smelted steel from import steel embryo (steel original).

Colour metallurgical industry is the most severe pollution industry as airy & solid waste containing heavy metal. Especially, recent handicraft gold exploitation is out of control of the Government, also using old technology like using mercury, cyarma as smelting substance, caused water pollution because these exploitation points lying in the right water resources.

## 3. Exploitation Industry

Viet Nam has huge potential on minerals. However, exploiting Viet Nam's minerals in last years lead to environment impact as followings :

In process of exploitation, in-land and land surface is destroyed severely. In Cao Bang tin mine, have 2,986 ton of ore pure, nearly 3 million m<sup>3</sup> land and solid are bring, dug. For exploiting pit-coal, land and solid rate is 5.6 m<sup>3</sup>/ ton. Waste water of exploitation technology is usually much including waste water of coal or ore cleanliness. In these waste water contains usually heavy metal and other chemical substances with high toxic level. Waste air is relatively little, mainly dirtiness flowing with air, partly mine air and solid mine air.

In oil survey and exploitation, main wastes are from oil operation including boring mine and boring solution, industrial waste water, waste air, cruel oil and oil product. On waste water. Bach Ho mine produces water-bed of 3,370 ton/ day, domestic waste water of 53,529 m<sup>3</sup>/ year, solid waste of 616 m<sup>3</sup>/ year. Waste air is mainly from the burning air when exploiting, in 1994 the burning air in Bach Ho mine of 1.380 million m<sup>3</sup>/ year, in which including CO<sub>2</sub>, CO, NO, SO<sub>x</sub>, The more Gas Oil exploitation tempo increases, the more waste does too.

## 4. Chemical industry

Chemical industry develops diversified including many products but leaves adversely effectiveness to current environment.

Chemical fertilizer : Viet Nam now produces only three chemical fertilizer types and Urefertilizer, phosphoric fertilizer Supe and laked phosphoric fertilizer, recently with NPK mixed fertilizer.

Environment pollution as producing these fertilizers as followings :

In Ha Bai nitrogen fertilizer factory, Ure fertilizer is produced from technology of 1970. Pollution here includes : waste air containing CO, CO<sub>2</sub>, NH<sub>3</sub>, SO<sub>2</sub> (capacity 212,000 m<sup>3</sup>/ h); waste water including phenol, NH<sub>3</sub>, AS, P, Gaudron oil (6,000 m<sup>3</sup>/ h) and solid waste (coal-bed).

Capacity of Lam thao phosphate supe factory is 160,000 ton H<sub>2</sub>SO<sub>4</sub> / year and 500,000 ton phosphate supe/ year.

This is the area with the bigger pollution resource in Viet Nam. Waste air contains SO<sub>2</sub> (& SO<sub>3</sub>) releasing into the air of 8,700 ton/ year. Waste resource contains annually 7,573 ton, partly used to produce Na<sub>2</sub>SiF<sub>6</sub>, but as unstable Na<sub>2</sub>SiF<sub>6</sub>, consumption, so sometime discharging into the air. Bed-mud part and coal-bed is annually 105,846 ton, in which sulphur : 6,097 ton. As: O<sub>2</sub>, fluo, selen..... Waste of the factory is 48,000 m<sup>3</sup>/ day (wasting 600 ton H<sub>2</sub>SO<sub>4</sub>/ year).

So far, total design capacity of Van Dun, Thans Hoa, Ha Bac baked phosphoric fertilizer factories is 240,000 ton/ year. These factories produce waste containing fluo (151.1ton/ year).Liquid waste contains fluo of 1,568 ton/ year. Currently, fuel use level over 1 product ton of these factories is high compared to the world's level (Uke : energy 150 KW/ Ure ton. 1.7 water steam ton/ ure ton, the water for cooling of 200 m<sup>3</sup>/ ure ton, while the relatively world level of 17 kwh, 0.98ton and 80 m<sup>3</sup>).

Basic chemical, resource causing pollution is expressed in three type : waste water, waste air and solid waste. Typically, it is Tan Binh chemical factory. With major products of sulfuric acid, alluvium fridroxit and sulphur and boxit major material, this factory caused pollution for water resource, air surrounding region, impacted much to the region as waste air of SO<sub>2</sub>(1-2mg/ m<sup>3</sup>). In the time of high degree of humidity or rainy season, this air created sulfuric acid burning surrounding vegeable. Waste water of the factory with floating remainder is very high (3,000-4,000mg/ m<sup>3</sup>) mude red in canal where discharged by waste water.

Latex of rubber free manufactural industry : Major polluting substance from waste resource of this industry is COD, concentration to 26,000 mg/ l and VFA concentration to 1,500-4,000 mg/ l polloted severely to water resource discharged by it. Impact of this waste caused death of any aquatic animal.

Washing poder industry : contributes considerably substances causing pollution with high toxic characteristic like water-glass, surface destruction substances. Most washing powder factories discharged waste water into regional water resource and complained many times by the resident in the area.

## 5. Construction material industry

Like thermo-electricity presented, construction material industry (comprises of industry producing cement, brick, roay, lime, glasses, construction glass...) pollutes severely to the air, total pit-coal using in construction material industry is 1.85 million ton/ year. For this industry, substance causing pollution in waste air includes : SO<sub>2</sub>-24,900/ ton/ year, CO<sub>2</sub>-3,500ton/ year. CO-3,870 ton / year. NO<sub>x</sub>-9,026 ton / year and dirtiness releasing with smoke-125,000 ton/ year. This resource creates SO<sub>2</sub> & NO<sub>x</sub> acid rains. Equipments refining electricity is now using in construction material manufacturing factories treated only part of dirtiness in smoke and not treated yet toxic air components.

## 6. Light industries

Major sectors impacting to the environment as following textile sector : In the country There are now 32 textile enterprises belongs to Ministry of Heavy industry with designed manufacturing capacity of 300 million m<sup>2</sup>/ year and local foundations of 100 million m<sup>2</sup>/ year. Product in 1995 in 221 million m<sup>2</sup>. For this sector, considerable factor is waste water. Water and waste water standard of Viet Nam dye-textile sector is now 2,500 m<sup>3</sup>/ million m<sup>2</sup> clothes. If accouding total, annually waste water is 552.500 m<sup>3</sup>. Dye-textile industrial waste water pollutes severely to living condition and land fertility because of exception usual substances like NH<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, contain largely other toxic substances. As usual, about 25% dye-stuff is discharged with waste water. Surface substance's volume is rather high so when discharging into water resources like river, canal, dyke created floating thin layer on the surface, blocked oxy in environment causing damage to aquatic animal activity. In addition, poisoned substances can damage directly to resident's health surrounding regions.

Paper industry : The country's paper product increase quickly in the last years (in 1995 reaching to

203,900 ton, increasing 32% compared to 1994). There are large foundations like : Bai Bang, Viet Tri, Phu Tho (in the North) Tan Mai, Dong Nai (in the South) paper factories and many small manufacturing foundations colying in Sugar factory or in big cities. Paper industry causes two major pollution types like green pollution (destruction of forest) and brown pollution (chemical in waste of the factory).

Nowadays, norm of the whole industry consumes 8 ton of wood, bamboo, dried bamboo/ 1 paper ton, means occupying 2 ha forest/ 1 paper ton. So, each year paper industry reduces forest resources about 282,000 ha. Waste water standard is 500 m<sup>3</sup>/ ton of paper while in the world only 70-80m<sup>3</sup>/ 1 ton. The whole industry wastes 70.5 million m<sup>3</sup>/ year. In waste water contain organic sulfure, NaOH, Cl<sub>2</sub>..... These substance are rather toxic.

#### 7. Foods and foodstuff processing industry

This is the industry with large network and many products recently growing high speed. Characteristic of this industry is to waste huge quantity of organic waste. Now, the development of this industry not complies with planning and all foods factories not treated by any process due to sharply competition on product's price. The result is to pollute severely to surrounding environment.

In short, industry of Viet Nam developed rapidly in recent periods with all sectors. With no-high product but as old technique, outdated equipments so high waste rate and formed dangerous partial pollution zones, especially in concentration industrial zones. Some industrial manufacturing sectors will be mentioned below that having much waste or containing toxic factors impacted adversely to ecological environment and public living condition, requiring necessary measures in the coming time. They are : chemical industry, exploitation and metallurgical industries, energy industry, construction material industry, foods processing industry, paper & textile industry.

### IV. Measures implemented and to be implemented in the future for the treatment of industrial pollution problem

Viet Nam Government realized important role of environment protection and began to have treatment measures for pollution in many provinces, towns. There are two industrial pollution treatment measures as :

- Treat directly by technology, change input material resources with polluting capacity.
- Treat indirectly by control system and state management in order to raise effectiveness in using material, energy, natural resources and environment protection

In the last year, Viet Nam tried to coordinate two above measures to solve pollution. On measures treating industrial waste by technology, only in the period of 1991-1995, Viet Nam has 17 study projects on environment protection in which five projects on industrial environment, 1 on clear industry. In poor Viet Nam's economic condition, many hot socio-economic issues need to be solved. immediatly implementation of clean manufacturing technological measures is not feasible. However, the above study project contributed considerably on environment protection in general and industrial pollution treatment in separated as:

- Assessed Viet Nam industrial environment situation, being bases for the government creating relevant measures to solve industrial pollution issues
- Arranged priority issues in industrial environment solution
- Planned some feasibility measures to reduce minimum pollution for some technologies causing major pollution

On state management for industrial environment, environment protection Law issued in 1994 determinded clearly the content of state management for industrial environment.

In addition, in the past, Viet Nam implemented some surveys, assessments for pollution waste in some foundations and areas, but generally this still scattering, not usual and no becoming a system. There is no specific strategy in Viet Nam to reduce industrial pollution, although in Decree No 175-CP, this issue

mentioned as government task.

Up to now, measures to solve environment pollution in Viet Nam based on mainly legislative documents and regulations bearing command administrative characteristic. Viet Nam has not applied economic tools to solve environment issues while they are relatively effective in many countries in the world.

Environment protection and especially industrial pollution treatment and prevention are the most important, requiring relevant attention of the state and Viet Nam in the coming time. When Viet Nam changing new period of new course for modernization and industrialization, objectives developing rapidly the economy will combine adverser environment effectiveness in the future. Experiences of many countries showed that environment effective solution is very difficult, cost or can not be solved. In low technological skill condition and united fund capacity, Viet Nam can not certainly solve immediately the environment pollution issues due to industrial development, but necessary issues need to be solved in priority and construct long-term solution for industrial pollution issue. If can present some measures necessary to implement in the many time in Viet Nam.

- Combine harmoniously regional development planning and sectoral development with accounting to environment impact,

- In master planning construction developing industrial zones and cities, it needs to develop also infrastructural system like : refuse treatment, solid waste, urban water supply, urban transport management, pollution treatment of lakes, ponds, canals in the cities....

- For industrial pollution issue, need to concentrate and solve by two directions :

For factories will be constructed : Viet Nam government now determines new investment project (both external & internal investment fund ) have to assess the impact of the project to environment and treatment measures. However, attention that if so, still not safe enough for these factories will not cause adverse impact to ecological environment. Viet Nam must have usual and period control network on environment pollution situation in industrial zones, determine the standard of permission pollution level and supervise the implementation of pollution preventative measures in factories after coming in operation.

For factories are now implementing : Treating industrial pollution in current operation factories is rather complicated and can lead other effectiveness on socio-economy like : employment, income of resident and local authority (if required the heavy polluting factories to be closed). However, urgent measures to implement are specific assessments of pollution in focal zones, finding out of resources causing pollution, there by drawing treatment measures for each specific situation.

## **V. Environment management legislative framework, agencies responsible for environment protection management**

Viet Nam Government promulgated environment protection Law (in 1993) was the most important step in the past environment protection aspect in which determined clearly the content of state management on environment protection including :

(1) Promulgate & implement legislative documents on environment protection, environment standard system.

(2) Form, manage the implementation of strategy, environment protection policy, degeneration prevention plants of environment, environment pollution and environment incident.

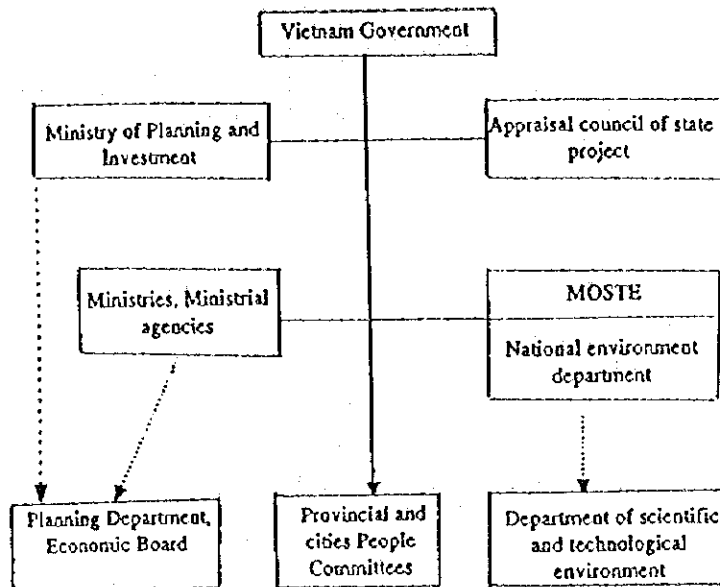
(3) Construct, manage the environment protection works concerning to environment protection

(4) Organize, construct, manage geological system, assess periodly environment situation, forecast environment changes.

(5) Appraise the report of environment impact assessment of projects and manufacturing foundations.

(6) Grant, cover the certificate of reaching environment standard.

(7) Supervise, examine, inspect the implementation of regulation on environment protection. solve



disputes, complaints, denouncements on environment protection, punish legislation violence on environment protection.

(8) Train scientific official on environment management.

(9) Study, apply technological scientific progress in environment protection aspect.

(10) International relationship in environment protection.

To implement State management and environment protection presented the above. The Government promulgated Decree No 175-CP to specifies and guide to implement environment protection Law. Among them, MOSTE is the agency instead of the Government to manage environment protection in the whole country. In addition, Decree No 175-CP determined clearly responsibility of Ministries, Ministerial agencies, agencies under the Government and provincial & city's People Committees under Central in State management on environment protection. It can summarize competent agencies in State management on environment protection and the relationship of there agencies as :

Specific function of MOSTE ministries, Ministerial agencies, provincial & cities' people Committees concern to environment protection determined clearly in Decree No 175-CP specific as:

### 1. Function of National Environment Department

- Study and submit directions, policies, legislative document on environment protection
- Inspect the state on environment law implementation.
- Formulate environment impact assessment reports.
- Control environment pollution.
- Organize, solve issues concerning to environment incidence according to distribution regulations.
- Cooperate international on environment protection according to regulation.
- Guide sectors, localities on environment protection activities
- Organize training courses.
- Organize study on environment management.
- Information, document restore, environment data...

### 2. Function of Ministries, sectors:

(1) Formulate, submit to the Government, promulgate according to competence the documents on environment protection belongs to sectoral scope relevant with regulation of environment protection Law.

Formulate strategy, policy on environment protection of sectors relevant with general strategy, policy on environment protection of the whole country.

(2) Steer and examine the implementation of legislative regulations, plans, measures on environment protection according to direction of MOSTE in own sectoral and foundations scope under direct authority.

(3) Manage constructions concerning to environment protection.

(4) Appraise environment impact assessment reports of projects, manufacturing foundations according to regulation.

(5) Solve disputes, complaints, denouncements, recommendations, legislative violations on environment protection in competent scope determined by the law.

### 3. Function of provincial, cities' people Committees

(1) Promulgate documents according to authority on environment protection in localities.

(2) Steer and examine the implementation in localities regulations of the State, localities on environment protection.

(3) Appraise environment impact assessment reports of projects, foundations according to regulations.

(4) Grant, cover the certificate of reaching environment standard for manufacturing foundation.

(5) Coordinate with Central agencies in inspection, examination, solving Law violations on environment protection in localities, prompt organizations individuals to implement regulation of the law on environment protection.

(6) Receive and solve disputes, complaints, denouncement and recommendations on environment protection according to competence on transferring to competent agencies for solving.

On legislative framework up to now, we have following document:

- Environment protection Law.

- Decree No 175-CP guiding to implement the environment protection Law.

- Inter-ministries Circular No 155-TTLB(4/ 1994) of state Scientific Committee and MOSTE determined temporally on environment planning.

- Circular No 1458-Mtg (12/ 1994) of MOSTE guiding & organizing according to competence & operation scope of inspectors on environment protection.

- Promulgation of environment standard (Decision No 229-QĐ/TĐC)

- Assessment of environment impact (attached series of guidance circulars on environment impact assessment).

- " Report of Viet Nam environment situation " annually submit to the Council & Government ...etc. The above legislative documents will be basics for implementation of environment protection measures, contribution of sustainable development.

## VI. Conclusion

In last recent years, Viet Nam gained inspiration achievements on economic growth, living improvement of resident and stepping into new stage of renovation with industrialization, modernization. Though gained continuous economic growth, Viet Nam faced to severe pollution environment issues. Environment pollution situation in some regions, especially in urban areas and concentration industrial zones caused adverse impact and health of surrounding resident as well as existence & development of mild creatures. Viet Nam is in potential challenge that how to maintain rapid economic growth speed, reduce poor and hunger and at the same time ensure safety for ecological environment.

Some recent years, although poor economic condition and limited budget, Viet Nam Government strived in environment protection. It promulgated many legislative important documents on environment protection and first step formed management agencies on environment protection. However, when Viet Nam continuing to develop the economy according to industrial direction will be appeared industrial zones,



export processing zones, mineral exploitation zones, and big urban areas, tourism areas, services, country side industrial zones, series of infrastructures like transport system, water supply system, electric supply, waste gathering system. In the case of Viet Nam still poor with high population density, limited land stock, that booming will create conflict between development & environment.

To limit potential conflicts, exception of administrative measures & environment manage Viet Nam Government must concentrate to organize effective implementation mechanism of administrative management measures, simultaneously invest relevantly infrastructure for urban and big industrial zones. Practice showed that if only attention of government not ensure enough for environment protection measures, which coming into reality, the more important is awareness of resident and the whole society to environment protection. If only so, Viet Nam could reach high economic growth.

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## 6

# Some Comments on Calculating GDP since SNA Applied in Viet Nam to Date

Nguyen Van Minh  
System of National Accounts General Statistics Office

General Statistics Office is in the process of implementing the UN System of National Accounts (SNA). In Viet Nam, it was not until 1988 that application of System of National Accounts was considered for national accounts. One of the major indicators of SNA is GDP, and its calculation process since 1989 is divided into two phases.

### 1. The first phase

The first phase was between 1989 and 1990 when the calculation of GDP was made based on trials of converting some indicators under MPS into GDP. Such GDP figures tend to be estimated lower than the actual economy.

### 2. The second phase

In 1992 it was decided to replace MPS with SNA, and since then GSO has been attempting to use the new account system. GSO carried out two surveys in 1993 and 1995 aiming at more adequate calculation of GDP. Intermediate input by each sector, the key information for the calculation of value added, is estimated based on results of the surveys. GDP calculation has been substantially improved in recent years.

### 3. Some shortcomings

(1) the scope of calculation does not cover all industrial and economic sectors. It excludes production-business activities of the Ministry of Home Affairs and the Ministry of Foreign Affairs and activities of non-profit organizations.

(2) There are shortcomings of the breakdown of GDP. GDP is not broken down by institutional sector. Also, the breakdown by sector is not complete. For example, "fishery" was previously classified in three different sectors : seafishing belonged to Industry, aquaculture in lakes, ponds and rivers belonged to Agriculture, catching crabs and shellfish belonged to other material production sector. In consequence, indicators of gross output, intermediate expenditure, and value added of Fishery have not yet officially been made public.



## Actual Situation of Viet Nam's Macro-economic Statistics and a Number of Issues to be Noted When Using Them

Tran Hoang Kim  
General Statistics Office

### I. Statistical system in transition

- (1) From MPS (Material Product System) to UN SNA (System of National Accounts) but currently only GDP of production accounts is published annually.
- (2) Data collection: from periodic statistical reports to statistical surveys but in a limited manner due to lack of funds and shortage of experts

### II. Current situation of macro-economic statistics

- (1) Data collection - both statistical reports and statistical surveys are used.
- (2) Current situation of macro-economic statistics  
Present statistics have shortcomings reflecting the following:
  - 1) The data are not complete. Data for the period before 1990 are not available.  
Many macro-economic data for the period after 1990 are often not available, and thus they are generated with experts' manipulation.
  - 2) There is inconsistency in definition and scope of indicators in different locations or dates, so data do not allow systematic analysis of trends or comparison.

### III. Issues to be noted when using macro-economic data

#### 1. GDP

- (1) GDP figures are not available before 1989.
- (2) GDP figures after 1991 are not accurate due to failure to collect data on non-state economic sectors, on import and export activities through unofficial channels, and the tendency of local governments to over-estimate their local GDP to exaggerate their localities' achievements.

#### 2. Export and import (trade)

While the volume of trade exchange across the border and that of smuggling is not small, trade statistics do not reflect this, as mentioned above. No survey has been conducted on this aspect.

#### 3. Inflation

Three points have to be born in mind when using inflation rate.

- (1) Retail price index is used instead of consumer price index.
- (2) The index is calculated in comparison with that of the previous December, instead of the average index of the previous year.
- (3) The number of commodities and services included in the calculation of the price index is too small (about 300 items). Furthermore, these commodities and services which were selected in 1989 are no longer appropriate for the present due to changes in consumption structure (motorbikes and air-conditioners are excluded, and rice is heavily weighted).

#### 4. Unemployment (Labor statistics)

The present unemployment rate is between 5-6%. However, this does not reflect the reality. Since there is no unemployment allowance in Viet Nam, everyone has to make his/her living often by sharing work with other people. Even if everyone has work, in fact, the working hours are sometimes very short. Underemployment figures should be used.

#### 5. Income

There have been many surveys conducted on income of people, but the results are different from one survey to another, and are probably lower than the real figures. Due to the fact that one person often has many sources of income which he/she hesitates to disclose, it is difficult to grasp the real picture.

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## **Record of the Vietnamese-Japanese Conferences in Phase 1 of the Study on Economic Development Policy in the Transition toward a Market-oriented Economy in Viet Nam**

### **1. Preliminary Conference in Hanoi for Project Formation (May 1995)**

Main academic members of the Japanese side participated in this conference. It was agreed that the project be proceeded as joint Japanese-Vietnamese study for the two year period ; the first year as Phase 1 and the second year as Phase 2. In this conference, the Viet Nam delegates requested that the Japanese academic members make, in a few months, comments and policy suggestions on the early version of the draft new Five-year Plan, which should be prepared soon. The Japanese side accepted this request, calling it as the request for "Urgent Proposal."

## 2. The First Hanoi Workshop (August 1995)

— Urgent proposal for the Initial Draft of the Five-year Plan and discussion on research topics for joint study project

Monday, Aug. 28 (8th Floor, JICA Viet Nam Office)

<p><b>Opening Sessions</b></p> <ol style="list-style-type: none"> <li>1. Opening remarks             <ul style="list-style-type: none"> <li>Vietnamese side</li> <li>Japanese side</li> </ul> </li> </ol> <p><b>Session 1 (Macroeconomy)</b></p> <ol style="list-style-type: none"> <li>1. On Initial Draft Five-year Plan             <ul style="list-style-type: none"> <li>(1) Feasibility to achieve targets of macroeconomics growth</li> <li>(2) State enterprise reform</li> </ul> </li> <li>2. Vietnamese presentation on the planning model             <ul style="list-style-type: none"> <li>Underlying beneath Initial Draft of Five-year Plan</li> </ul> </li> </ol> <p><b>Session 2 (Industrial policy)</b></p> <ol style="list-style-type: none"> <li>1. Urgent comments on the Five-year Plan</li> <li>2. Comments on Initial Draft of Five-year Plan on ASEAN, AFTA and APEC on the relationship between the economic growth of neighboring countries and that of Viet Nam</li> <li>3. Vietnamese presentation</li> </ol> <p><b>Session 3 (Fiscal and monetary policy)</b></p> <ol style="list-style-type: none"> <li>1. Urgent proposals on Five-year Plan</li> <li>2. Vietnamese Presentation</li> </ol>	<p>Masaru Todoroki Vo Hong Phuc Norio Hattori</p> <p>Shigeru Ishikawa Koji Haruta Nguyen Quang Thai</p> <p>Yasutami Shimomura Shujiro Urata Kenichi Ohno</p> <p>Ryokichi Hirono Toshihiko Kinoshita Lai Quang Thuc</p>
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Tuesday, Aug. 29

<p><b>Session 4 (Agricultural and rural development)</b></p> <ol style="list-style-type: none"> <li>1. Urgent proposals on Five-year Plan</li> <li>2. Vietnamese presentation</li> </ol> <p><b>Session 5</b></p> <p>Discussion</p> <p><b>Session 6, 7</b></p> <p>Discussions</p> <ul style="list-style-type: none"> <li>-With the aim at clarifying priority of joint research work during phases 1 and 2</li> <li>-Questions</li> </ul>	<p>Yonosuke Hara</p>
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**3. The Consultation Meeting in Tokyo on Research Designs (November 1995)**  
 — Discussion on the sub-topics for research groups of the joint study

Monday, Nov. 27 (Meeting Room C, 27th Floor, Shinjuku Mitsui Building)

1. Opening remarks and introduction of the members and other attendants of Japanese side	Shigeru Ishikawa
2. Introduction of the members of the Vietnamese side	Nguyen Thai Nguyen
3. Introduction of the New Five-year Plan of Viet Nam	Nguyen Quang Thai
4. Question & answer	
5. Consultation on the topics and research plan of the study (1) Review of the prior consultation of 22nd October (2) Vietnamese comments on the Japanese proposal on the research plan	
6. Presentation on the research plan & preparation of each sub-committee (1) Macroeconomy (2) Fiscal and monetary policy (3) Industrial policy (4) Agricultural and rural development (5) Question & answer	Shigeru Ishikawa Ryoichi Hirono Yasutami Shimomura Yonosuke Hara
7. Presentation by the Japanese side on the final research plan	

Tuesday, Nov. 28

1. Sub-committee of macroeconomy (1) Growth, inflation and deficit of international balance of payment – Analysis by standard type models (2) Development and environment in industrializing Asia : An economic point of view	Mitsuo Ezaki Shigeaki Fujisaki
2. Sub-committee of agricultural and rural development (1) Viet Nam : Agricultural and rural development (2) Issues of rural finance – Examples of Japan and Thailand	Yonosuke Hara Yoichi Izumida
3. Sub-committee of fiscal and monetary policy (1) On the foreign saving mobilization, management of foreign debts and control of exchange rate (2) A research plan for two phases (3) Economic transition and fiscal management of Viet Nam – Further issues to be discussed	Toshihiko Kinoshita Shinichi Watanabe Eiji Tajika
4. Sub-committee level discussion on the research plan	
5. Sub-committee of industrial policy (1) Proper choice of industry and technologies and the dualistic economy (2) Relation between Vietnamese economy and participation to AFTA and APEC	Masahiko Ebashi Koichi Ohno
6. Wrap-up session (1) Discussion and agreement on the fiscal research plan (2) Consultation on the additional comments on the New Five-year Plan of Viet Nam (3) Any other matters relevant to the subject	

#### 4. Tokyo Workshop (January 1996)

— General comments on the Draft Five-year Plan (CG Version) and agreement on Sub-topics of the joint study

Sunday, Jan. 28 (Meeting Room A, 27th Floor, Shinjuku Mitsui Building)

<p>1. Opening remarks and overview  Introduction of the members of the Japanese side</p> <p>2. Introduction of the members of the Vietnamese side</p> <p><b>Introduction</b></p> <p>1. Comments on Five-year Plan</p> <p>2. Selected issues in the New Vietnamese Five-year Plan : Experiences of Japan and China</p> <p>3. Disparity issues — Experiences of integrated regional development planning in Japan</p> <p><b>Macroeconomy</b></p> <p>1. Issues on macroeconomics in Viet Nam</p> <p>2. Simulation analysis on growth versus stabilization</p> <p>3. Recommendation on industrialization and the protection of environment to Viet Nam  — Based on Japanese experience</p> <p>4. Discussion</p> <p><b>Fiscal and monetary policy</b></p> <p>1. Fiscal and tax reform towards year 2000</p> <p>2. Mobilization of domestic savings</p> <p>3. Economic transition and fiscal management of Viet Nam : Further issues to be studied</p> <p>4. Research on mobilization of domestic savings</p> <p>5. Medium and long term finance in Viet Nam  — Situation analysis and approach towards improvement</p> <p>6. External debt and FDI</p> <p>7. Discussion</p>	<p>Shigeru Ishikawa</p> <p>Le Duc Thuy</p> <p>Le Duc Thuy  Shigeru Ishikawa  Ryoichi Yamagishi</p> <p>Le Duc Thuy  Shinichi Watanabe  Masashi Hattori</p> <p>Tran Van Ta  Ryokichi Hirono  Eiji Tajika  Shinichi Watanabe  Kazuyuki Mori</p> <p>Toshihiko Kinoshita</p>
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Monday, Jan. 29

<p><b>Industrial policy</b></p> <p>1. On some issues of industrial development orientation in Viet Nam</p> <p>2. Comments on the selection of the five capital intensive industries</p> <p>3. Outlook of the international market conditions and issues related to investment into the five capital intensive industries</p> <p>4. Impact on Vietnamese economy by joining in AFTA</p> <p>5. Future direction of APEC after OSAKA meeting : Implication for Viet Nam</p> <p>6. Discussion</p> <p><b>Agricultural and rural development</b></p> <p>1. Vietnamese problems in agricultural sector and the possible measures</p> <p>2. On improvement of agricultural productivity in Viet Nam</p> <p>3. Financial organizations in rural area : Asian experience and its possible application to Viet Nam</p> <p>4. Discussion</p>	<p>Pham Quang Ham  Yasutami Shinomura  Koichiro Fukui</p> <p>Koichi Ohno  Masahiko Ebashi</p> <p>Nguyen Xuan Thao  Yonosuke Hara  Yoichi Irunoda</p>
<p>1. Remarks</p> <p>2. Wrap-up and closing remarks</p>	<p>Vo Hong Phuc  Shigeru Ishikawa  Le Duc Thuy</p>

5. The Second Hanoi Workshop (March 1996)  
 — Discussion on results of the Joint Research

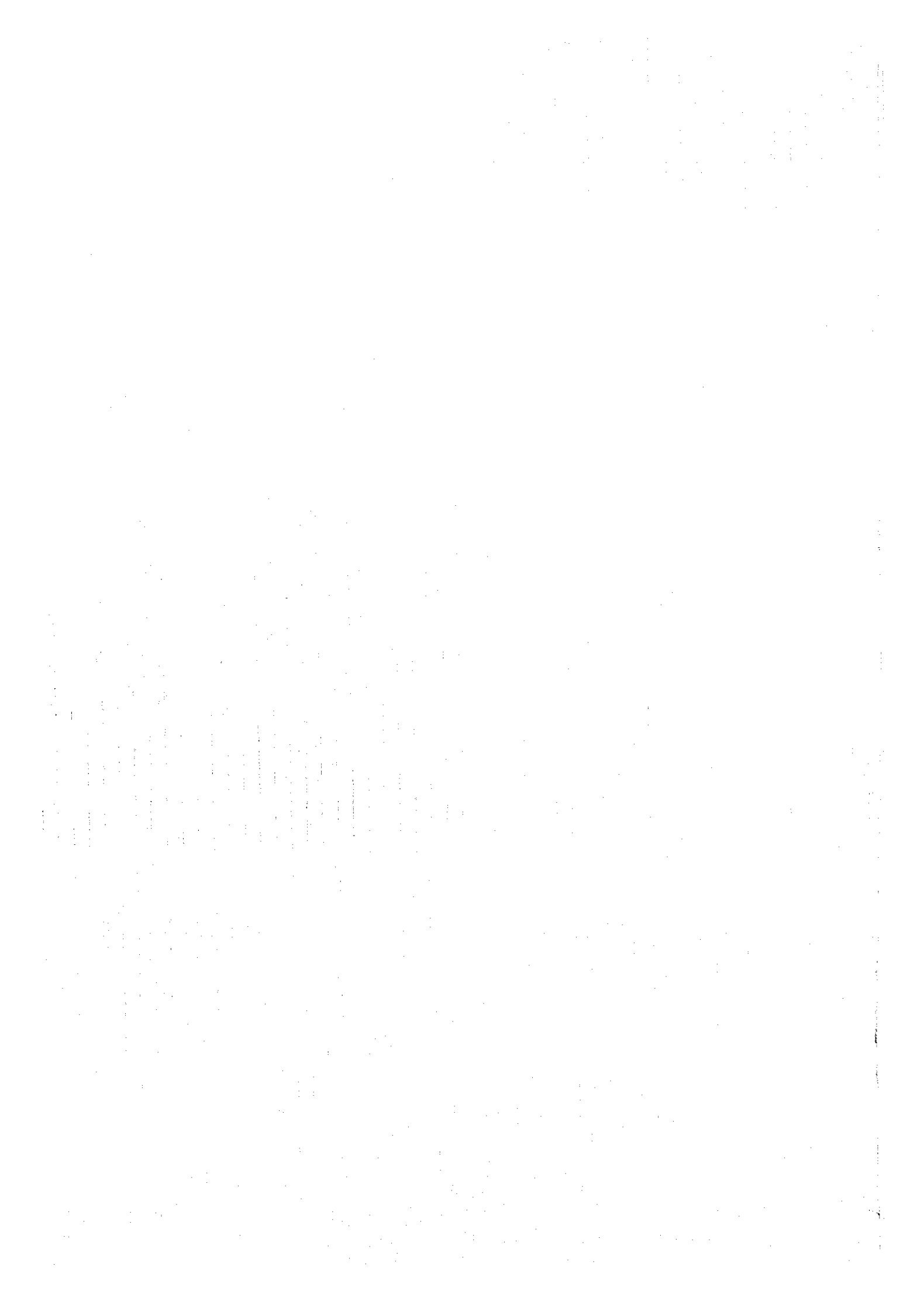
Friday, March 1 (MPI Training Center)

<p>Opening remarks</p> <ol style="list-style-type: none"> <li>1. MPI</li> <li>2. Embassy of Japan</li> <li>3. JICA</li> </ol>	<p>Vo Hong Phuc            Shiro Sadoshima            Masaru Todoroki</p>
<p>I. Macroeconomy</p> <ol style="list-style-type: none"> <li>(1) Macroeconomy and poverty in Viet Nam                Comments</li> <li>(2) Macroeconomy and regional development                Comments</li> <li>(3) Result of macro model analysis (Growth and stability)                Comments</li> <li>(4) Environmental problems in Viet Nam                Comments</li> <li>(5) General discussion</li> </ol>	<p>Shigeru Ishikawa            Nguyen Quang Thai            Nguyen Quang Thai            Shigeru Ishikawa            Shinichi Watanabe            Nguyen Buu Quyen            Le Dang Doanh            Shigeaki Fujisaki</p>
<p>II. Industrial policy</p> <ol style="list-style-type: none"> <li>(1) Some issues on industrial policy                Comments</li> <li>(2) Participation in AFTA and APEC                Comments</li> <li>(3) Small and medium size enterprises and agricultural industry                Comments</li> <li>(4) General discussion</li> </ol>	<p>Pham Quang Ham            Kenichi Ohno            Koichi Ohno            Ho Quang Minh            Nguyen Dinh Phan            Masahiko Ebashi</p>

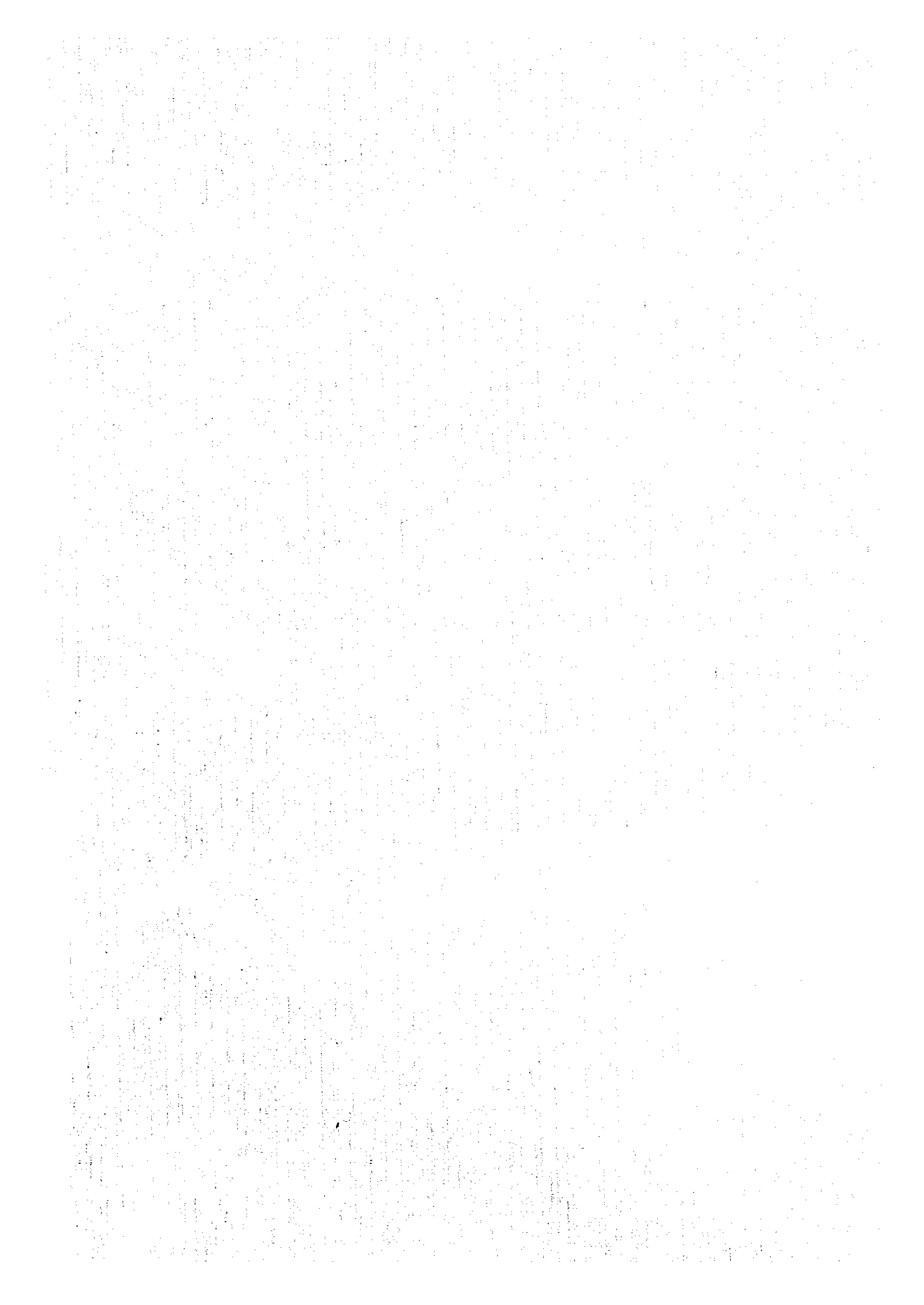
Saturday, March

<p><b>II. Industrial policy (Cont'd from March 1)</b></p>	
<p>(5) Five capital-intensive industries and possible problem for new investment Comments</p>	<p>Koichiro Fukui Ngo Dinh Giao</p>
<p><b>III. Fiscal and monetary policy</b></p>	
<p>(1) Financial reform toward 2000</p>	<p>Lai Quang Thuc</p>
<p>(2) Taxation reform in Viet Nam</p>	<p>Tran Van Ta</p>
<p>(3) Comment on fiscal and monetary policy</p>	<p>Vo Dai Luoc</p>
<p>(4) Comments by Japanese experts</p>	
<p>(4) - 1 Overall comments</p>	<p>Ryokichi Hirono</p>
<p>(4) - 2 Comments on the management of foreign capital mobilization</p>	<p>Toshihiko Kinoshita</p>
<p>(4) - 3 Comments on the domestic saving mobilization</p>	<p>Shinichi Watanabe</p>
<p>(4) - 4 Comments on the fiscal mobilization</p>	<p>Kazuyuki Mori</p>
<p>(5) General discussion</p>	
<p><b>IV. Agricultural and rural development</b></p>	
<p>(1) Diversification of agriculture in Viet Nam</p>	<p>Nguyen Xuan Thao</p>
<p>Comment : with special emphasis on the development of food crop</p>	<p>Seiji Shindo</p>
<p>(2) Development in the rural credit system of Viet Nam</p>	<p>Dang Tho Xuong</p>
<p>Comments from the perspective of the cooperatives and rural credit system</p>	<p>Yoichi Izumida</p>
<p>(3) Comments on agricultural improvement</p>	<p>Yonosuke Hara</p>
<p>Proposal of agricultural policy comments</p>	<p>Yunio Sakurai</p>
<p>(4) General discussion</p>	
<p><b>V. Discussion</b></p>	
<p>Conclusion</p>	<p>Shigeru Ishikawa</p>
<p></p>	<p>Nguyen Quang Thai</p>
<p>Closing remarks</p>	<p>Vo Hong Phuc</p>









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