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Notes on Infrastructure: Then, Now, and Tomorrow

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Abstract

The Notes are an extended set of observations based on a review of Philippine public infrastructure. Philippine infrastructure development dating back to 1966 reviews various accomplishments in infrastructure investment. The record of infrastructure investment from 1966 to 1983 is very impressive. For almost one decade afterwards, infrastructure investment had not grown. Renewal of investment occurred during the 1994 to the present. The infrastructure development records of recent Philippine presidents are compared, excepting the current incumbent. The contributions of Ferdinand Marcos and Fidel Ramos represented the largest surge in infrastructure construction. The discontinuity of investment in infrastructure was caused by a mistake in failing to commission the nuclear power plant. Discussion of why the record in infrastructure was achieved is based on firsthand introspection of the author. In the past, much of infrastructure development was financed with the help of official development assistance and development loans from multilateral institutions. The current climate dominance of BOT-financing for infrastructure poses new challenges and opportunities. These are discussed in relation to procurement issues, the reduction of risk and contingent liabilities. Finally, the author adds some of his field notes on travel on road infrastructure throughout the country to round up the discussion.

Key words:
Infrastructure, Philippine economic development, private financing of public investment, official development assistance.

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1 Introduction

The present Notes constitute an expansion of the commentary in my review of the paper on infrastructure development by Dr. Gilbert Llanto (2002), who is the current Deputy Director General of the NEDA. His paper is comprehensive and covers a good range of the subject, especially in relation to past efforts and current issues regarding infrastructure development and its financing. The prospective aspects of that paper are elaborated in the government's medium-term economic for 1999-2002.

The enormous amount of information contained in the Llanto study provided the incentive to review the record more deeply. The paper hit a familiar chord in my trove of personal experience and it is basis of the thoughts that it inspired in several directions outlined below.

First, there is a gap in knowledge that needs to be filled to complete the historical record in relation to the country's development. The starting phase of the Llanto's review coincides with the celebration of the year of founding of the Philippine Institute for Development Studies (PIDS). It is unnatural for the review of infrastructure development because that year was part of a continuum in historical time that began in 1966.

Second, the process of achieving the record of infrastructure investment that was reported was as important as the results that are reported. This is where introspection, it is hoped, could help to shed light on that process to explain why the record was achieved.

Third, infrastructure investment requires enormous buildup of internal capacity on the part of government to undertake the investment. Despite the fact that public investment could be executed well with private participation, the necessary internal organization of the government is critical to the success of the program. The governmental structure in public works and highways, despite the problems often associated with the criticisms of these two bureaus, was the reason for the immense accomplishments in the past in infrastructure. This requires explanation about why the accomplishments in infrastructure construction were extraordinary during some periods and not in others.

Fourth, the lack of infrastructure development during some phases of the country's history cannot simply be ascribed to the crisis environment of the transition from Marcos. This must be part of the explanation, but it is important to make full accounting of critical mistakes that were committed to cause the discontinuity in infrastructure development in the succeeding periods. Such mistakes aggravated performance of the overall economy and accountability for that has to be assigned.

Fifth, the comparison of the climate for financing and procuring supply of contracts has to be distinguished between the present and the earlier times. Today, the role of official development assistance

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*The following notes represent an extended paper arising out of earlier comments made on the presentation and paper of Gilbert Llanto, "Infrastructure Development: Experience in the Past Twenty Five Years and Options for the Next Twenty Five Years." The occasion was a perspective seminar paper on the subject, on the occasion of the 25th Anniversary Celebration of the Philippine Institute for Development Studies (PIDS), at the Romulo Hall, August 20, 2002, NEDA sa Makati Building, Makati City.

has given space in favor of market-based access to the supply of private sector financing of infrastructure projects. The major challenge that the government faces in this new environment is how to put in place a strong process for screening onerous contracts and how to hedge or put a limit to contingent financial liabilities.

Finally, since 1998, I have amassed field experience travelling on Philippine road infrastructure. Sharing a few of these could be of use to others and even the general public. The Notes end with these field notes.

2 Public infrastructure

Public infrastructure is critical to economic development. Without the appropriate infrastructure, development would be choked. The costs of private investments would be more costly to undertake. Domestic investors face a cost penalty that reduces their potential competitive position. One of the first questions that foreign investors ask when they consider investment in a given country is related to an assessment of the state of public infrastructure. Aside from undertaking calculations about the cost of labor, the quality and reliability of the labor force, and the nature of business dispute adjudication process, they ask about the cost of power, whether transport systems in the area are adequate, telecommunications are satisfactory, and so on.

A trade theorist today would call most of the services and output derived from infrastructure as investment in non-tradables. These would refer to those services that are designed mainly to make economic activity worthwhile doing at home – the generation of energy, the delivery of water, the construction of internal transport and communications, the improvement of leisure and investment in buildings and facilities at home. There are, however, infrastructure investments that facilitate trade and which add to value added in international trade – like investments in ports and communications essential to foreign trade.

With advance planning in infrastructure, we can ease the development process by facilitating the growth of production, trade and commerce. As I write this, I am reminded of my old professor at MIT, Paul Rosenstein-Rodan, whom I first encountered in class once upon a time a long time ago, in 1960.

He wrote a paper in 1943 on the reconstruction and development problems of Europe after the war. He observed that northern Italy could grow faster and attract more investments than southern Italy because of the existence of a large amount of infrastructure investments in the north. Those investments that were already in place enabled scale economies to proceed so that costs of production arising from new investments would be less and new investments could lead to rapid increase of output. That country showed the contrasts of development. In the north, there was Milan, the seat of the industrial center and of the grand opera house La Scala. In the south, there was Naples and Sorrento, famous for rustic life and easy life of songs. That observation led to terms that are common today, for instance, North-South problems of development, infrastructure investment.

In developing countries like ours, infrastructure is often thought of as structures that are seen and above the ground. The word infrastructure itself means structures under or within. Rosenstein-Rodan thought of infrastructure to include the large amounts of investments that are hidden from public view and are even costlier to construct as a result. These are the sewers and drainage systems, the subterranean transport systems for people and for utility services that include the enormous channels of telephone cables, water lines, gas lines, and so on. These early observations would later inspire him to emphasize the discontinuities and lumpiness inherent in the provision of infrastructure.

Recently, the new Metropolitan Manila Development Authority Chairman Bayani Fernando responded to a comment by a television interviewer that one of the causes of flooding in the metropolitan

area is the frequent diggings that other companies keep undertaking. These destroy the roads and create dangerous obstructions to roads and are a major cause of flooding and even danger to life. The chairman's reply was matter of fact. Unlike in New York City, he said, where utility companies could use the existing underground utility systems for laying cable lines, in Metro Manila the utilities have to dig up along the existing road networks if they are to lay their cables and undertake their own improvement projects.

Fifty years of development has added a new dimension to the investment needs of the country. Some of the cities, metro Manila in particular, has reached a stage when the infrastructure investment that is required has become more capital intensive. This would be the only recourse to de-choke Manila and other growing cities that have enormous bottlenecks in infrastructure deficiency. Infrastructure now covers large capital-intensive projects, both underground, on the ground and over ground. The need for highway structures above ground to de-clog motor vehicular and people traffic in intersections of highways and to create smooth flowing traffic indicates that more projects of these types are needed in Metro Manila alone.

3 The record

The examination of the record of infrastructure construction begins in 1977, the starting year of the review for this topic because this coincides with the birth year of the PIDS, for which this lecture series is being commemorated. Tables II.1, II.2, II.3, and II.4 of Llanto are reproduced as Table 1 in the appendix. These tables show a convenient summary of road building efforts during the terms of office of the presidents during this period – Marcos, Aquino, Ramos, Estrada, and Macapagal Arroyo. The incumbent president is dropped from any comparison as this is premature since the data are too recent.

The tables are an eye opener. This is especially for many who have had amnesia about the past before the time of Mrs. Aquino's presidency. Most of the infrastructure investments in the past have been made during the time of Marcos. This extends from road building, bridge building, airport construction, irrigation expansion, and rural electrification. Energy development deserves an extended discussion in view of major omissions and because of the great troubles we suffer today as a nation about the cost of energy. Access to water supply of the population is not clear, but the problem here is the vagueness of statistics not the accomplishments.

Marcos record in road building

The accomplishments of Marcos in infrastructure construction are not adequately reflected by these statistics. The current assessment in this paper is simply based on an artificial initial period because the Llanto study is focused a review of years that do not coincide with the Marcos period.

The Llanto study starts with 1977 as the initial year. Marcos began the presidency in 1966, thereby there is an informational black box covering 11 years of his presidency to 1977. In February, 1986, he was toppled by EDSA people power. For all intents and purposes, infrastructure construction during the 1980s stopped when Ninoy Aquino was assassinated in August 1983. That was when the political crisis made the economic crisis graver. Incidentally, 10 months of 1986 should be associated with Mrs. Aquino who had taken power by then and not to Marcos. The record shows that infrastructure investment essentially resumed again when Ramos took over in 1993 when the next surge of infrastructure investments took place.

Table 2 (also in the appendix) is a reconstruction of the statistics reported on road building in this study. The roads that were left at the end of Diosdado Macapagal's administration were 55,178 kilometers. During the first term eight years of his president (two elected terms), Marcos constructed 34,438 kilometers of roads. During the next few years until 1977, he built another 28,238 kilometers. From 1977 until his fall, he added another 40,799 kilometers. Actually, the road-building efforts stopped

essentially by the crisis of 1983, and not in 1986 when his fall from power took place. Constructing an index using the end of D. Macapagal's term as the base (1965=100) to the present, by 2000 the road length index was 363 index points. But in 1977, this index was already 287 index points high.

Reverting to an index with the end of Marcos' term as the base period (=100), the amount of roads in existence by 2001 is 124 index points (just indicating a growth of about 24 percent in lineal kilometers. In short, Marcos multiplied the length of roads in the country by almost 3 times (2.87 times to be more exact by 1986) while his three successors from Aquino, Ramos, and Erap just added about 25 percent. In terms of lineal kilometers, Marcos added 103,321 kilometers while the three only 41,688 kilometers. The Marcos record in road infrastructure was not only due to trunk roads. It included provincial roads, including farm to market roads.

Ramos record

It was Ramos who continued the Marcos tradition of road building. It was under his watch that another 25 percent of road kms. was added during his 6 year term. In terms of per year record during years of service, Ramos was built on the average 6,517 kilometers, better even than Marcos' annual record. He built 94 percent of the roads accounted for by him, Mrs. Aquino and Erap. It is also to be noted that during Marcos' time, new roads were being constructed so that new lineal kilometers of roads were being constructed in new areas of the country.

In the later times following, a lot of the additional lineal kilometers were in the form of road widening of existing roads. On the basis that Ramos' record is that of widening and not opening up new roads, the record of Marcos would be extraordinary.

Marcos record in other infrastructure

School building

The statistics are not available in the Llanto study for school-building construction. The first two terms of Marcos especially focused also on school building construction and continued to the end of his regime. Today, some of the Marcos-type school buildings are in need of repair badly. But in his days, many school buildings were new constructions of schools across the country. His program introduced standardization and cost cutting in school construction that led to more schoolhouses being built and being done so more quickly, too.

Rural electrification

The massive rural electrification program began in that period. Before that time, many rural communities did not enjoy electricity service. The establishment of the National Electrification Administration (NEA) in the early 1970s spurred the creation of rural electrification cooperatives. These cooperatives obtained financing from the NEA. US Agency for International Assistance (USAID) lent the seed money for rural electrification to the government through NEA at very soft terms. In turn, this enabled soft loans given to rural electric cooperatives for the construction of the retail distribution service of electricity.

The electrification cooperatives were also able to provide a useful social and economic outlet for spreading social benefits of the electricity distribution service. For they provided opportunities for mass ownership of distribution of electricity services instead of control of the utilities by individual families, as was the case with public utility franchises. The rural electrification program is well recorded as an important phase of improving the lives of the people in the rural sector. See Cabrera (1992).

Waterworks systems

In the case of the waterworks systems, the achievements are not recorded in the study. Unfortunately, the improvement of rural waterworks was also a major part of the effort. The rural waterworks system is glossed over in the Llanto report probably because of the sparseness of statistical information. This was a period of the reorganization of the relatively inefficient NAWASA and its breakup into the Metropolitan Waterworks and Sewerage System (MWSS) and Local Waterworks and Utilities Administration (LWUA). This separated the responsibilities for the two systems.

With the creation of LWUA, the emphasis on the investment and improvement in rural water systems was given attention. The transfer of works also from the public works bureau and other organizational changes might have messed up the monitoring of the statistical system, and a good picture of the early years is not available. Investment in rural and community waterworks were facilitated by this administrative reorganization during the 1970s. LWUA was given the focus to promote and undertake active development of community waterworks in the same way that NEA took care of the rural electrification drive.

Irrigation

The emphasis on food production required enormous resources in road building and in the expansion of the country's irrigation network. All these underwent extensive expansion during the Marcos years. The investments in irrigation networks and the improvements of old, dilapidated systems led to an enormous improvement in rice farm productivity and the achievement of self-sufficiency in rice production by 1981 and relative prosperity in the countryside. Extension of irrigation networks was undertaken in tandem with building farm to market roads. Of course, this was with the help of other economic measures. But since then, investments in irrigation have fallen badly and accounts for the stagnant growth of rice farm productivity since the time of Aquino. Further aggravated by unstoppable population growth rate, despite expansion in land cultivation, rice has become a major import item.

By 1977, the country's total irrigated areas stood at 1,120,000 hectares. (A great deal of these irrigation was contributed during the period 1966 to 1977. The baseline numbers are not available, but just as an example, the Upper Pampanga River Basin irrigation system was built and further expanded during this period, contributing enormously to the growth of farm productivity in the Central Luzon rice growing regions. By 1983, the irrigated areas stood at 1,500,000 hectares. In 1995, the amount of irrigation land was 1,500,000. The amount of irrigated lands in 2001 is 1,519,000 hectares. After almost twenty years, there has been hardly an increase in irrigation hectarage in the country. (See Llanto's Table II.15, reproduced in the appendix).

Infrastructure record was a product of coordinated management

These infrastructure achievements were not undertaken by separate programs that produced results because they were the accidental thrusts of sector efforts to raise infrastructure. They were undertaken with a concerted effort at the level of government coordinating several parts of the system.

Strengthening capacity at technical and operational agencies

There was a conscious program to strengthen the technical capacity of both the bureaus of public works and of highways. Technical assistance resources were devoted toward agency strengthening – bringing up technical capacity at the level of the central ministries so that pre-feasibility and technical feasibility studies could be undertaken. These were the preliminary studies that were critical towards bringing the public works and road construction programs to a point when their financing could be

discussed with international development agencies that were tapped to help finance road infrastructure programs.

My awareness of these programs was first hand. From July, 1970 I was Chairman of the National Economic Council. From 1973 to 1981 (June), I was Director General of the National Economic and Development Authority (NEDA) and Minister of Economic Planning. The National Economic Council was the government's national planning office until the NEDA was made to strengthen the planning machinery. NEC and NEDA were officially located at the center of making the recommendations and making decisions on the delegated authorities for major allocations of technical assistance resources. Actually, by the time that I joined the government (during the second term), there was already some accumulation of experience through the Presidential Economic Staff (PES) in the Office of the President in relation to the strengthening of the infrastructure projects pipeline. When NEDA was established in 1973, the PES was absorbed into the NEDA.

The major effort of the government planners was to strengthen consciously the development of infrastructure projects within the departments of governments in charge of the program delivery. This pointed towards support of the public works, public highways, and agriculture departments. The central planning office supported the creation of a pipeline of projects that, eventually, would have to be identified from the implementing departments whose works were intimately connected with the existing infrastructure and the need to further strengthen it. A culture of projects development was being built within the government. Effectiveness of that effort began with a central effort to guide the development of the infrastructure projects pipeline from the center.

Implementation, coordination and monitoring

At implementation stage, the monitoring of the infrastructure efforts was a major element of the project efforts. The monitoring was conducted through the NEDA Projects office, it was based on the reporting efforts of a network of government agencies engaged in implementing the program. By the mid-1970s, the monitoring effort was regionally made sensitive, with all the projects listed by regional subdivisions. The creation of NEDA's regional development staff had strengthened the process, although some of that monitoring was coordinated from the central offices, including coordination of information coming from the project implementation agencies. The monitoring focused on infrastructure projects, but it extended to social development programs and projects as well.

These monitoring reports represented a mandate that was taken seriously. The reports were made to the President, but they were directly shared with the implementing agencies. In fact, the reports originated from the work of the implementing agencies. The reports indicated project status. Aside from project description, they contained brief information on: start-up and target duration; estimated costs; amount expended so far; status indication as to percentage accomplishments relative to cost estimate, accomplishment rate, and slippage. A final column indicated remarks related to the project, whether the project was on-time, delayed, suspended, specific reasons (such as right of way problems), or any other reason. Some examples of monitoring reports are added in the references under the entry for Republic of the Philippines, NEDA (1976 and 1978).

Focus on major development projects in the public sector was a large element of the plans and programs that were integrated to the medium term development plan. Within the planning effort, the strategy for action and the search for financing of infrastructure and utilities occupied a major part of the work of NEDA. During the mid-1970s, for instance, the strategy for action on infrastructure investments and utilities was prepared as part of the on-going efforts on this field. Such documents were made integral to the development plan and the perspective plans that were prepared during that period. The focus on

infrastructure and utilities specifically dealt with the transport sector, telecommunications, power and energy, and water resources.

Official development assistance (ODA) and technical assistance

Technical assistance resources, of course, were from development assistance agencies and bilateral partners. Most significant among these were particularly the United Nations Development Program (UNDP), US Agency for International Assistance (USAID) and from Japan, Japan International Cooperation Agency (JICA) and then Overseas Economic Cooperation Fund (OECF, which has now become the Japan Bank for International Cooperation [JBIC]). More important, the use of official development loans from the World Bank and the Asian Development Bank accelerated during these periods, making the financing of infrastructure construction possible. During the latter part of the period, support from other bilateral agencies like Canada, Australia, and European countries would also come, although these were less significant in volume.

To match those technical assistance resources, there had to be domestic budgetary allotments to strengthen the project development offices of the infrastructure agencies. The links to projects financing from the World Bank and the Asian Development Bank, which together supported a lot of the projects in road building, irrigation construction, and energy investment, was from the use of technical assistance and the bilateral assistance programs from Japan and the US. As an instance, when the NEDA was given the mandate to create regional development offices, we decided to allocate some UNDP resources to fund a regional development project.

Simply undertaking the choice of executing agency was a problem in the politics of aid administration. We insisted on executive administration of the project through the World Bank, rather than use the UNDP or some UN agencies administer the project. To some extent, this created some ruffled feelings within the UN system because the agencies compete for the administration of UNDP-funded projects. The reason for this insistence was that the World Bank had a direct connection with the identification of projects and then the financing of the projects for potential future investment. Also, the training programs for staff that we could undertake prepared them immediately to ask questions about projects to be identified. This sensitized new staff to the gaps in investments at the regional and provincial level. Of course, we recognized that a lot of the regional development effort was also tied towards institution building of staff capacity and links to the offices of provincial governments.

Even though many of these projects were foreign assisted, they were not totally constructed with long-term borrowed resources. In fact, close to one-half of the costs of these infrastructure projects was financed with the use of local resources in the capital budget of the government. In short, there was a domestic cost using Philippine peso resources to finance infrastructure projects.

Recently, I saw evidence of these efforts of the past through visits in three regions.

On recent travels to Cebu and to Iloilo, the seats of Region VI (Western Visayas) and VII (Central Visayas), I witnessed what this early project had done to improve awareness in regional planning efforts. Many projects that were identified then had been undertaken as investment projects. Moreover, active issues that were discussed then continue to be actively pursued today, with many of them at higher stages of discussion because earlier ones had resulted in investment projects. Some success in regional development investments can trace their roots to the regional planning efforts from this project and support from the center in Manila.

Projects in Region VI and Region VII led to investments in road construction and road improvements, health services, power construction, and school-building in these two regions were partly

traceable to these activities. In the end, it was not only the World Bank that led to the finance of these projects. The regional planning efforts fostered new interest from other development assistance cooperators. This explains the variety of donor support to some of the projects. The road infrastructure of these islands is quite good, as a result of long term investment in road improvements and construction. Irrigation projects were also undertaken to expand the amount of land devoted to rice crops and other agriculture.

Projects in Region V (Bicol) would have been one of the most extensive. They were building up for the Bicol River Basin Development projects that would have transformed agriculture in that region especially for rice and other crops. Local political issues and various technical problems would delay the investment projects from getting realized, but these were next in line for major efforts by the time the 1980s began and crisis put a hold on it. Today, the set of Bicol Basin projects remains a dream, but it was close to implementation stage in the early 1980s. However, the road building program in this region was integral to the Pan-Philippine Highway and the road systems developed was increased and the network improved immensely. Programs related to power construction were extensive.

Local government infrastructure was heavily supported

There was another major component of the infrastructure building program – and that was to strengthen the project and investment implementation capacities of the provincial governments. During this time, too, there was a Provincial Development Assistance Program (PDAP) that was supported by the USAID. This technical assistance program was multi-faceted but its central thrust was to strengthen the capacity of the provincial governments to improve their capacity for public works construction and maintenance. This included the construction of provincial farm to market roads, rural electrification, efforts to build schoolhouses, family planning an health services, and other programs designed to raise local resources to improve resource generation. Many of the provinces that benefited from this program were the spearheads for pushing the local government reform program that was later to push for greater decentralization of government powers.

This program created greater awareness – as well as actual additions to road and other infrastructure networks within the provinces – of the need to strengthen local capacity. The program of rural electrification was further accelerated because of these efforts.

The PDAP program partly provided a magnet for the support of other development assistance sources. Many of the subsequent infrastructure programs that were linked to the bases rentals were used to help finance local infrastructure developments. Of course, these programs would help to strengthen experience in terms of new projects developed with the World Bank and the Asian Development Bank related to the financing of projects with local government impact. When Australia, for instance, decided to provide infrastructure construction works on the suggestion of the government, it supported new road construction projects in the most rural places of the country – in Samar and in Zamboanga del Sur. These projects further added to the new road kilometers by the late 1970s and early 1980s. European assistance, though modest, was focused on Western Visayas provinces in health related and road infrastructure projects.

4 Energy infrastructure and the origins of high energy costs

It is in the area of energy where Marcos' program would have been outstanding. It was one that truly responded to the challenge of the energy shocks of the 1970s when oil prices quadrupled and then doubled further, all in a period of less than eight years. An energy development program was developed and the full blueprint for the diversification of energy sources, together with domestic energy exploration activities, took on a large focus.

A key element of this government response was the creation of the Department of Energy and the creation of the National Oil Petroleum Company. That program put in place a comprehensive program that would shift the dependence of the country from imported energy to indigenous sources, thereby curing in part the problem of energy dependence that the country was exposed to during the 1970s. The fact that today the current level of dependence on volume from imported energy that was very high (around 95 percent then) to now around 60 percent in 2000 was due in large part to that planning and effort undertaken during that program.

Nuclear power plant

One of the key projects of that era was the nuclear power plant in Bataan. Midway through the construction of the nuclear plant the famous Three Mile Island accident in the US and the Chernobyl disaster in the Soviet Union occurred, creating safety concerns about nuclear power plants. The issue was further complicated by domestic politics and by allegations of corruption that, as PCGG records and other unearthed information after the fall, might have been true.

To assure that the safety complaints would be addressed, Marcos appointed former Senator Lorenzo Tanada, well-respected public leader, to head a public hearing. The matter involved not only local oppositors but a wide range of interest groups even in the United States, where nuclear power plant issues became a problem. The delays added uncertainty to the project, leading to cost overruns. But the cost overruns were also due to the addition of further safety measures that arose after the Tanada hearing to assure the safety of the project.

Cory Aquino's big mistake

The project was almost finished by the time of the fall of Marcos. Mrs. Aquino, the successor, decided that the nuclear power plant was not to be commissioned. If it was a project of little economic cost to the nation, this would have been all right. Because she had all the options before her on what to do, she bears the accountability for that wrong decision. She was only to blame for the power blackouts that bedeviled her presidency. But the nation has paid dearly for that mistake and continues to bear the heavy burden of that wrong decision. Resources that could have been put to good use then to improve other aspects of government services had to be used to pay for the servicing of the loans from the nuclear power plant, too.

These facts were known before that decision was taken. First, the construction of the nuclear power plant was under severe supervision of the International Atomic Energy Agency, the UN watchdog that supervised all nuclear power plants, for their safety and other concerns, and that this aspect had been monitored and scrutinized stage by stage by that world agency.

Second, the delays that further raised the costs of the project brought about by the Tanada commission findings and the various complaints of environmental and anti-nuclear groups led to major upgrades of the safety factor that were tied up with the project thereby raising the costs of the project further. By those standards, the project had much more safety precautions than earlier generation power projects of the kind.

Third, nuclear power plant projects constructed during those days with the same technology as the Westinghouse technology were being built and operating safely in other parts of Asia, for instance in South Korea. That country, Japan, and Taiwan have many nuclear power plants that operate safely today. All these countries are located in the so-called geological rim of fire that is used as an argument against nuclear power plants.

Finally, the project had, by the time of near completion – complicated by delays and by upgrades of investment to take care of added safety features – reached over two billion dollars. The National Power Corporation had invested enormous peso resources to finance the construction and foreign debt for the supply of machinery and other materials reached almost one billion dollars. Although the initial investment cost was very high, the unit cost of operation of the nuclear power plants would have been by far the cheapest per unit of kilowatt hour of produced energy on the basis of marginal cost calculations if the were tapped to the full. The fuel source was relatively cheap.

The project would have replaced the aging of the existing power generating plants then even though the initial construction cost of a nuclear power plant was costly. That capacity would have bought time for the next generation of power projects to be installed. In the same moment of pique about the energy sector, Mrs. Aquino abolished the department of energy. This broke institutional memory in a very important part of the government's strategic planning. This decision led to the departure of good technical people who were critical to the energy planning program that had made the Philippine program a model among developing countries, based on assessments of international institutions, beginning with the World Bank.

There is another sidelight to this episode that needs to be recounted, because of today's problems that we face with the energy sector. Saburo Okita, former minister of foreign affairs of Japan, was sent on a mission by his government to explore what Japan might do to help. He sought a meeting with then already former Prime Minister Cesar Virata during the early days of post Marcos transition in 1986 and asked how Japan might help in reconstructing the country after the economic crisis. Virata suggested that perhaps one of the major utilities of Japan could undertake to run the nuclear power plant in order to guarantee its safety and operational service, so that the nation could benefit from that huge investment. This of course was to be done under some arrangement that guaranteed compliance with the law on public utilities.

It was an idea worth trying and Okita went to see Mrs. Aquino to suggest how Japan might be of help to the new government. Needless to say, Okita did not get any helpful response on the nuclear plant issue. In baseball terms, Okita was at bat and the first pitch led to a flyball, the ball was caught, and the batter struck out. End of subject.

Infinite ICOR: high investment with zero electricity output

That wrong decision not only meant that the country would not generate a single kilowatt hour of electricity for a huge investment. The liabilities of the National Power Corporation arising from the project totaled US$2.1 billion by June, 1986, and these were transferred to the Treasury. The country would be saddled with a large amount of liabilities for foreign debt for which no single kilowatt-hour of electricity would be produced. This is a project for which a future generation had to shoulder the cost. It would also presage the power blackouts within two years of that decision which became the cataclysmic main economic event in the country during this period. And it would force the kinds of fast track contract arrangements to generate electric power which would lead to high power price adjustment costs (PPAs) tacked to our electric bills.

5 Current situation and the future

As indicated at the beginning, the current demands of the nation for infrastructure is much larger at present than at any time in the past if the economy has to raise its capacity for growth. That demand even grows more intense as the economy expands. Because of the limitations of the domestic saving rate and, further, the fact that the government is in fiscal deficit, the need for

external finance for public infrastructure construction continues to be dependent on foreign saving.

The major difference today is that, whereas, during the 1970s, much of the substantial sources of public infrastructure investment came from official development assistance and loans from long term multilateral institutions. Today, the main vehicles for financing large public foreign investments require more complicated private sector financing instruments. Of this, build-operate-transfer (BOT) schemes are popular. A law on BOT-financing was passed in 1991 and it was amended further in 1994 to liberalize it.[1] BOT-financed projects have become very significant in the public investments to relieve the electric power projects during the Ramos period.

There are many infrastructure projects that can be financed under the BOT law. The projects that can be financed under BOT arrangements include a long list of generic investments. Without confining itself to the following projects, the law could further add other investment projects: power plants, highways, airports, canals, dams, hydropower projects, water supply, irrigation, telecommunications, railroads and railways, transport systems, land reclamation projects, industrial estates or townships, housing, government buildings, tourism projects, markets, slaughterhouses, warehouses, solid waste management, information technology networks and database infrastructure, education and health facilities, sewerage, drainage and dredging.

New investments in infrastructure will continue to provide the stimulus to productive investments by the private sector in various sectors. In this age of globalization, the expansion of domestic output and trade will be faster only if the investment in non-tradables – mainly what we call infrastructure – takes place.

The financing of public infrastructure – when the project is market-based and financed by the private sector – centers on the integrity and transparency of the procurement process. The premise of private sector financing of public infrastructure is that the contractor is able to recover costs. The other part of that premise is that the lowest possible costs is chosen on the basis of given technology and process of delivering the service.

BOT-financed infrastructure projects

As of March 31, 2002, according to the Llanto's study, the total amount of BOT projects solicited by the government financed projects from the current list of contracts amounts to US$19.7 billion. All these projects are elaborated in Llanto's Table III.a(?) . Another US$5.3 billion is in the form of unsolicited BOT projects. Some of these projects have recently been completed, some are under contract and approved, and some are in the pipeline for possible approval.

A total portfolio of current contracts for infrastructure as of the same date above are: for BOT projects, about US$11 billion, and ODA-financed projects of US$4.6 billion. These projects would amount to slightly above 20 percent of 2001 GDP.

Of course, there are infrastructure projects that are domestically financed projects. Most of these find their way in the capital investment program in the government, financed from budgetary proceeds. Moreover, some ODA projects require local cost financing requirements that are charged to the government as part of counterpart funding for the ODA-financed projects.

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[1] RA 6957 (1991) permitted BOT-financing. This was liberalized by RA 7718 (1994). There are several variants of BOT-financing contracts: BOT (build operate and transfer), BOO (build operate and own), ROM (rehabilitate own and maintain), BTO (build transfer operate), ROL (rehabilitate operate and lease), and OL (operate and lease).

BOT-financed projects are a variant of foreign borrowing. The investment costs are advanced by the private contractor to whom the operations are entrusted who then recover the costs through operation of the project. Productive assets are in the hands and control of the contractor for the time period specified in the project. These projects are, of course, in the nature of long term infrastructure projects.

The area of BOT financed projects has made possible at an earlier time new investment projects that had for many years been on the project pipeline proposals before. The need for adequate feasibility studies and stringent engineering studies once the feasibility issues has never been more important as a way of taking control of the agenda of infrastructure investment. This puts the burden of strengthening technical capacity of the government to a high level of expertise, at least in the process of reviews, contract negotiations, and supervision, as well as financial control. This is a tall technical order that is required if the government is to manage this area well. The world is full of many projects that have used very optimistic projections of benefits and understated estimates of costs, so that many projects have high internal rates of return or benefits-cost ratio that surpass, on proposal basis, the hurdle rate being used.

These are the issues that deserve extended comments below.

Procurement processes for BOT-financed and ODA-financed projects

Multilateral investment processes

During the 1970s, when large infrastructure projects for the public sector were involved, the principal inter-action before the project reached the financing stage was mainly between the government and the official development agencies. The time horizon for construction, estimates of costs and various projects related issues became a series of issues that often led to a very well constructed project loan. This took into account issues related to detailed work on detailed engineering studies, financing, and, of course, contract management. The virtue of this process was the assurance of the presence of a financing package that was designed to match the productivity span of the project. Of course, this was slow, but it is less subject to shortcuts.

The process for the selection of the project contractors is standard and transparent to all participants when the project is financed by the multilateral institutions. Here, the rule is international competitive bidding in the case of the international development agencies like the World Bank and the Asian Development Bank. And the procedures related to the award of projects and any legal contests that might arise during implementation and construction would be covered by the presence of tested procedures that are within the control of both the government and the international development financing agencies.

Bilateral procurement is subject to control of two contracting governments

The procurement process is less complicated than the multilateral contracting process. The procedures involve only any possible conflicts between the two bilateral contracting parties –the single donor agency dealing with their own country contractors and the borrowing or recipient country. In our experience, bilateral financiers were mainly Japan, US, and other countries with development assistance programs. But still, the financial and procedural controls were only from the procurement constraints of the two governments – ours and that of the foreign bilateral agency.

In the aid development playing field, there is a long literature on the problems of tied aid and the absence of competitive bidding. Its main conclusion is that these two factors have made aid relatively costlier even when the rate of interest might for the financing part was very low and the repayment term was soft and long term. Some of that critical discussion in the aid community had, in time, influenced the

procurement and other policies of many governments in the aid field. Those improvements depended mainly on their own political dynamics with stakeholders among interest groups in the respective countries. From the implementation side in the case of the borrowing government, the challenge often arose in relation to the procurement of goods and the problems tied up with the choice of contractors. The quality of the bureaucracy in the executing agency made a lot of difference on the outcome of the project.

Risks involved in the review of BOT-financed projects

With BOT-financed projects, the level of control of the procedures of contracting, review, and operations shifts mainly to the management and technical control of the contracting government. In short, it depends alone of the government system of contracting with the provider of the project. This puts an important burden on the government to put in place a process that protects the general public from contracts that are onerous, imperfect or simply highly risky.

The main actors in the control of the process are within the government. This means, in effect, the agency in charge, and those who are involved in the oversight review of contracts, including the officials who charged with the task of project financing and technical approval. and the project principals.

A variety of risks

There are many risks that are associated with the infrastructure project, and these are listed at different stages the project cycle. Llanto's study spells out these risks and illustrates them in Table III.7. Among them are: project performance risks, project completion risks, input risks (such as raw materials or presence of skilled labor), market risks, payment risks, financial risks, and country or economic environment risks (like political factors, change of legal framework, foreign exchange fluctuations, and so on).

The risks enumerated can be seen from two sides: those faced by the investor and those faced by the government or the public. Any failure of performance affects both sides, and the country's interest is to see to it that exposure to economic and financial risks is least for the country or government. In short, the problem from the government side is to determine that it gets the best term possible from the contract, that it is not caught into long term contracts that become costly financial traps.

But herein lies some of the inherent problems of dealing in large projects. Any negotiation and contract between the government and the investor confers a monopoly position to the investor in a number of cases. This especially arises when a franchise to operate is part of the arrangement of the financing. When a monopoly right is part of the award of contract, the desirability of an open and transparent auction process is in the public interest. A monopoly that arises from a bilateral contractual discussion puts the government under extreme danger of awarding excessive monopoly rents to the contractor. The auction mechanism, when it is done correctly so that the qualified bidders are made to participate in a fair contest, would reduce those monopoly rents when there are other private investors that are allowed to contest the bid.

The design of financing is also a very significant part of making the auction process beneficial to the public. A number of models compete for the financial packaging. A flexible contract could be arranged that enables the contracting parties to stick to specific economic parameters depending on admissible changes in circumstances. Investors wish to avoid these because of fear of opportunistic behavior by the government. On the other hand, the government wants to be sure that it is not made to pay the price of high contract costs.

For instance, because of the emergency nature of the power problems of the early 1990s, the government had to provide the full faith and credit of the republic against the risk of payments default of the National Power Corporation to the power generation investors. The BOT arrangements that happened as a result have been publicly criticized in the country as being costly. The extreme nature of the problems of the power crisis that the nation was faced with at the time justified the extension of guarantees as the quickest way of assuring the availability of power. In that short span of time, another 3,000 megawatts of electricity was made available, thus solving the problem. But that had to come at the cost of waiver of the government's sovereign immunity, accepting even the possibility of international arbitration of any disputes.

It is possible to lessen the content and impact of contingent liabilities, but this requires that the government have a strong bargaining position for extracting good terms. For instance, having a strong macroeconomic fundamental provides vigor to that position. With BOT-financed projects, the country enters therefore a much more sophisticated environment in the management of financing. The present situation requires the extension of some forms of guarantees, but some of the risks of these guarantees could be reduced with appropriate design of contingent liabilities. For instance, the risks to be guaranteed have to be spelled out very carefully and accurately. Even sovereign risks can be unbundled, so that they can be fully specified.

The proper identification of risks and their provision by the government when they become essential is part of the subtleties of BOT-financing. The Philippine experience here is already a matter of record, at least in the identification of core and non-core guarantees and in separating them so that they can be accounted for. Core guarantees of fundamental aspects of a project can be specified. For instance, the following are basic: the terms of concession, expropriation, tariff formula and fiscal incentives, which are all under the control of the government to provide. Less basic but also important to the progress of projects are the assurance of obtaining the proper licenses, permits and rights of way in the case of infrastructure projects. Some types of economic risks would fall as part of core guarantees, for instance the need to provide convertibility of foreign exchange. Although this is not fully under government control, convertibility is a major factor that foreign investors need to be assured with when they bring in resources to invest.

Management of contingent liabilities is an intricate aspect of BOT-financing. Although the extension of guarantees cannot be avoided considering the gravity of the investment needs and the limited saving resources at the immediate command of government, the need for a flexible exit clause from guarantee is an important point discussed in the Llanto paper. This is all the more significant in cases of improvement of the financial picture for the government that could result from growth and productivity in the economy. In addition, a system of providing for sufficient cover or hedge for these contingencies should also be devised. To date, these contingent liabilities are not appropriately hedged. The implication of this is that in a doomsday scenario such as what had happened in 1983-84, they could aggravate a bad situation when the guarantees become real financial liabilities.

Many of these issues are discussed extensively in separate papers collected by Irwin, Klein, Perry and Thobani (1997).

Risk in governance

There is another large risk that is not directly discussed in Llanto but which is in everybody's mind, especially in view of recent discussions to review contracts from BOT-financed contracts[2] that the

[2] The review was required by the electric power industry reform act (EPIRA), which was passed in 2001. The government came back with a report that placed a number of very prominent BOT-financed contracts

government ordered. Recent controversies surrounding several BOT-financed projects had been fed more ammunition by this government report. The fact of life in Philippine politics and in many other similarly situated societies is that whenever business opportunities involving the government are laid open, there are beneficiaries to the procurement aspects of the projects.

Behind every large contract, there are some highly influential and well-connected private or even public persons (politicians) who are pushing the deals for their own reasons. Some of these are legitimate efforts to get a good project implemented. But many others are part of the rent-seeking activity in the processing of giant contracts. In such rent-seeking, often the gravy goes over layers of approvals and follow-ups that make the cost of projects escalate.

The opportunities for mischief are enormous, as evidenced by the controversy surrounding the third Manila International Airport Terminal Building project that is known as the PIATCO contract. Based on the findings (reported in the newspapers) in this case, it appears that the offending contract clauses were the result of contract revisions that had taken place long after the original signing and approval of the project. The danger of capture of the government processor is very high when a system of review for contract revisions is not appropriately put in place and when there is an element of political patronage that supervenes over the process.

There is need for a process of contract award, revision, and approval that is transparent and clearly delineated. A set of rules for contract award, reviews and revisions would lead to very careful presentation of proposals and it would also help to weed out revisions. The rules to be adopted should make room for competition to play a major role in the award of projects. This implies the use of competitive bidding as the general rule, with the bidders appropriately screened for their capacity and track record. In such a two-step bidding process, the financial and technical capability of the interested parties could be determined first to make way for qualified bidders.

The use of negotiated contracts should be discouraged, unless the party involved in that negotiation had been chosen from a competitive bidding process that was designed to choose a contracting party. This type of contract could arise in the case of projects that the government had put in the priority list of projects so that it is the government that is soliciting the investment participation. According to the statistics on the current set of BOT projects, about one-fifths of the projects are in the nature of unsolicited projects. Unsolicited projects are offers to undertake infrastructure projects that are directly proposed by private parties, perhaps from the list of projects that are already in the pipeline but not necessarily identified as high in immediate priority. Essentially unsolicited projects are in the nature of negotiated contracts.

In general, the use of competitive processes in the award of contracts is essential in safeguarding the public from onerous contracts. This is a topic that will become more important as the scope, magnitude and number of BOT-financing of projects rises in the future.[3]

A strong technical capacity to evaluate contracts

The need for a strong technical capacity to review and evaluate BOT-financed projects cannot be over-emphasized. This comment is not to be interpreted as a recommendation for a specific agency of government. In fact, the review process moves across a spectrum of agencies, each with a specific public

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having onerous contract provisions that are disadvantageous to the nation. The report has intensified public debate and investigations in Congress of some of the contracts.

[3] See E. Medalla (2002) and Engel, Fischer, and Galetovic (1997), for discussion of procurement, franchising, and other issues.

mandate. The network of agencies dealing with the subject needs to be manned by capable technical personnel who are confident in their work and who recognize the need for specific external expertise when the subject matter exceeds their competence. This is what is meant by the requirement of a strong technical capacity. The issue is fundamentally one of strengthening technical capacity over a continuous period of time, not training personnel who have high turnover because salary is inadequate. It suggests that financial salaries that are competitive or high enough to make the system retain good technical people for a career in the government. The same kind of attention applies to the strengthening of the regulatory agencies of the public utilities.

The specter of an underpaid, relatively less skilled lawyer or technician facing the sophisticated, well-paid lawyer or technician of the regulated company is frighteningly true in many situations. This is a recipe for capture of the regulator or the analyst by the proponent. This points to another area of reform that the government faces as it tries to manage the deepening work to build more infrastructure for the country. The idea that the agencies with the power to regulate or evaluate being less equal to the technical prowess of the regulated can be solved, but it requires the government to face reforms in the civil service and in institutional governance that have long been pointed out in the past.

Privatization and public utility operations

Two points that are briefly discussed below: privatization as a relief to the budget and second, privatization and public policy on the operation and regulation of public utilities.

Revenues from privatization

First, privatization, which began extensively under the Aquino administration has practically stopped since the end of the Ramos administration. It was, in Ramos' time, a major source of revenue to strengthen the budget. In 1994, privatization revenues reached 1.8 percent of GDP. Of course, privatization is a temporary source of revenues. The fact that it has stopped producing anything does not mean that there are no more government assets to sell.

The problem had been that attention to this area of public effort has not been given the same attention as before. The privatization of port operations was already undertaken for the port of Manila, but the projects related to the further privatization of operations of the larger port operations has not taken place as predicted. Other port privatizations have also been postponed.

The next stage of privatization would be undertaken with the sale of assets of the National Power Corporation. The process appears to be stalled in part because of some issues that could require an amendment of the law if the sale of assets to reputable operators is to be consummated.

The first types of privatization undertaken involved the sale of state assets and private enterprises that were acquired by government financial institutions because of inability to pay their obligations. This involved the early privatizations of the late 1980s and the earlier ones during the 1990s, which included large industrial enterprises that were owned by the government. The sale of state assets involved government sequestered assets and large tracts of military lands in the located in the city, like the Fort Bonifacio land on the fringes of Makati and Quezon City.

From 1987 to 1998, privatization proceeds produced 185 billion pesos of proceeds. Of these, 44 billion pesos (or 24 percent of total) was in the sale of assets government acquired through the the APT (Asset Privatization Trust); 25 billion (13.5 percent) from the sale of contested assets under the PCGG (Presidential Commission on Good Government); 75 billion (40.7 percent) from the sale of government corporations; and 39 billion (21.2 percent) from the sale of military lands under the BCDA (Bases Conversion Development Authority).

Public utilities in the private sector

Traditionally, the public utilities model in the Philippines had been to have the private sector undertake the retail aspects of selling services. This was the model of public utility regulation under which PLDT and MERALCO thrived before independence. The mandate of the Public Service Commission was to regulate public utility franchise holders.

The model changed in some ways when the government undertook to produce some public services through state-owned enterprises and this practice broadened. As a result, the National Power Corporation (created in the late 1930s) became a mammoth state corporation engaged in electricity generation. A number of state corporations have been created to manage various parts of the public sector for the administration of utilities and the provision of public goods. The Philippine Ports Authority, the National Irrigation Administration, the National Food Authority, the Metropolitan Waterworks and Sewerage System, are the Local Water Utilities Administration some of the significant government enterprises engaged in the sale of public services.

The reversal in state philosophy had followed a worldwide trend in privatization of many state corporations. This had been a reaction to the enlargement of the state and also the inefficiencies experienced with many public enterprises whether in developed countries, such as Britain (where privatization as a movement in the 1980s too off) or in developing countries. With operational constraints affecting government finances, the move to transfer other utilities to the private sector became a matter of urgency in the Philippines too.

Public utility regulation is premised on the capacity of the regulatory to discipline the public utilities to become efficient and to regulate industry pricing such that monopoly rents are minimized to the required level stated by public policy. In the country, public utilities are allowed a rate of return of 8 percent on the basis of capital invested, such capital valued according to recognized asset valuation. State monopolies could be transferred to the private sector as part of the privatization process to improve management and to reduce the burden on the public fiscal deficits when the state corporations incur operational deficits that are due to pressures to postpone tariff rate increases.

The privatization of public utilities are set to follow the first set of sales of assets to the private sector.

Water privatization

The privatization of the water sector was driven by the need to improve the service and the operational efficiency of the water systems. In the case of the water public utilities, the government corporation retains ownership of the underlying assets of MWSS but it issues a long-term concession to two private concessionaires, including the provision for investment obligations, to improve and maintain the public provision of water and other services to consumers.

From a social welfare viewpoint, privatization succeeds if the private concessionaire improves the service and maintains the facilities well. The general consuming public ends up with improved and reliable service made available at reasonable price. The process for selecting bidders began first with the pre-qualification of the best operators on the basis of guidelines that were drawn with professional advice.

The biggest case of privatization of a large operating publicly owned utility was done with the water agency – the MWSS. The assets of the water agency was divided into two concession areas and two private companies were chosen to operate these after a careful process of bidding in which guidelines for the qualifications of the operators were foremost enforced before the bids for privatization of the water systems were entertained. This experience is very vital because it could show the way with future privatization of similar utilities in the country.

The problem is essentially on the rate of water charges at retail to the consumer. The current problems that are presently encountered with the water privatization demonstrate a class of problems that is applicable to all public utility operations. It refers to the issue of a fair rate of return that is guaranteed to the private operator that is allowed for a public utility to recover its investments. Who bears the burden of these observable costs is the critical problem of all public utility operations in the country. Of course, the determination of the final burden depends on the provisions of the original concession agreement.

Electricity privatization

The next big wave of privatization will be in the electricity sector. But this wave is not likely to come until after the 2004 elections, because it is likely to produce controversial issues, as privatization is always a very sensitive program with definite winners and losers.

The privatization of the Transmission Company is likely to take place ahead of the energy generation sector. This is the transmission monopoly that will take over the transmission lines of the National Power Corporation. Other large privatization activities that will take place is when the NPC begins to sell some of the generating assets of the corporation. The prospective issue of privatization is touched upon in Sicat (2002).

What privatization can do

When the government owned the utility, the government could keep postponing the rate increase, and the financial deficits of the firm would be financed from outside sources. The traditional source was foreign borrowing and advances from the Treasury. So, in the past, many government owned utilities were allowed to pass on indirect consumer subsidies because the government (under political pressure not to raise prices) would not allow the charge of the full cost of recovery (plus a fair rate of return) by withholding a rate increase. If the company were in the process of expansion, such extra financing of consumer subsidies could be fudged because cash resources flowed into the firm in the form of newly borrowed resources.

Privatization could solve some of the inefficiency of the government agency (poor productivity of workers, service losses, poor maintenance of existing facilities) if the regulators exact high standards of performance from the concession operation. The other gain from privatization is that it forces the government to face the issue of consumer subsidies more squarely because the pressure for price adjustment comes from private parties and from the application of guidelines likely to arise from the concession agreement. Thus, the government is forced to face the transparency of the pricing issue. The covenants with the private operators in a privatization contract will include fair and relatively fast reaction on pricing issues.

As a matter of fact, this has arisen in the case of the problems associated with CERA and PPA, two initials that the water consumers and electricity consumers know only too well. CERA stands for an automatic "currency exchange rate adjustment" and PPA for "power price adjustment." They are one and the same issue. One arises in the billings of the water companies in Metro Manila and the other from MERALCO. They arise from the inadequacy of the tariff rate officially allowed as a tariff charge. The price adjustments linked to the servicing of the external debt provide some recognition of costs arising from the peso costs of foreign debt amortization. In the absence of the postponement of tariff adjustments based on a rate base of 8 percent rate of return, such price adjustments serve as temporary price relief.

This problem stands at the heart of all the foreign financed projects especially in the face of foreign exchange rate uncertainty for the peso. And it leads us to the discussion of the most important economic problem faced by the Philippine economy – the low rate of domestic saving to which I might

add a few points of discussion because it is relevant to the subject of financing public infrastructure. Fluctuations in the peso exchange rate could of course work in both directions. However, since the peso exchange rate has deteriorated in view of the Asian financial crisis. This brought about an unexpected rise in the peso costs of servicing dollar loans. The question is about the party that would face the burden of the price increase the operator, the government, or the general public?

Macroeconomic aspects of infrastructure finance

The capacity to finance infrastructure investment would be higher if the domestic saving rate could be made higher. Alas, however, over the course of many years our saving rate has been one of the weakest in the region. Ranging between 20 percent to 25 percent of GDP, the saving rate falls far short of the range of saving among other Asian countries. If in the past the country had been able to correct its wrong industrial policies of heavy protection of non-competitive industries that dominated resource allocation in the country, this low saving rate would have permitted efficient use of investment resources. In part, the low domestic saving rate is due to the relatively low rate of growth, which fails to allow a higher rate of marginal saving from increased growth in the GDP. Our neighbors in Asia before the Asian crisis have done much better, and if they restore their growth rates of the past or near that, they are likely to raise that capacity for saving.

The low saving rate has been in part caused by the high fiscal deficit in the public sector. The government sector has been unable to create an operational surplus. The other part of it that has weakened the budgetary picture is that many government corporations, instead of producing operational surplus, are themselves in deficit. The government has over the years allowed the agencies to be in deficit because of the lack of timely support to have their tariff charges raised according to principles of cost recovery. As a result, the same corporations are forced to go to the market to finance their deficits.

The right principles for raising public tariff charges on services sold by the government corporations would improve their cash position and make them less dependent on the Treasury for their financial support. Among the government corporations that have become notoriously unable to raise their financial positions from deficits are NPC, MWSS, NIA, LWUA, NEA, and other trading corporations, including the NFA.

Privatization for some of these agencies is one outlet, and the recent privatization of MWSS into two concessionaires, detailed in the discussion of the paper, is one avenue. Recently, too, the NPC has been put towards that path, but it appears that the privatization of NPC, or parts of it, still awaits some new developments. Privatization would provide temporary increase in government revenues, and in the long run it would contribute to the trimming of the government fiscal deficit thus potentially adding to government saving.

As long as the saving rate is relatively low, the government's infrastructure program would be precariously anchored on a dependence on foreign borrowing or variants of it. And excessive dependence on foreign saving implies that any developments that causes a depreciation of the peso exchange rate could raise the cost of servicing the dollar loans incurred to finance investment. It is some kind of chicken and egg problem.

6 Field notes on road infrastructure, including a tour of the country

A number of useful field notes (including impressions about regional development), on my experience and tentative observations on the road, are presented below. These notes might be of interest to a wide range of audience, not only to economists.

Since 1998, I have made it a regular part of my personal diversion to travel around the country by car whenever I could schedule it. As a result, I have practically covered (with my driver on the wheel) the main trunk roads of Luzon among the provinces twice over, covering the main roads from Manila to the Ilocos regions to Aparri, Cagayan in the north and Matnog, Sorsogon in the south and along the Zambales roads on the west to Pangasinan and the road to Infanta, Quezon on the east. I have crossed by ferry to Samar and drove to Leyte and by ferry from Liloan, Southern Leyte to Surigao. I have driven around Mindanao, too, from Surigao to Cagayan de Oro via the southern part of Mindanao through to Davao, General Santos, Kidapawan, Cotabato and Iligan. And recently, I covered roads from Butuan to Bislig and to Surigao. Whenever I am in an island province, I make it a point also to travel beyond the city. This way, I have traveled extensively in Iloilo and the southern loop around Samar province.

Here are some eye openers.

- We have good roads in most parts of the country. The trunk roads are in fine shape. Provincial roads have been extended, and inter-provincial roads have been created over time through the opening of farm to market roads. There are some spotty areas, but in general, the trunk roads are excellent for motoring by normal car. One of the surprises I have experienced was that while some roads at one time were in terrible shape because they were being upgraded, by the next pass (about a year later), they were in excellent shape. This was true of my second pass along the parts of the Pan-Philippine Highway from Manila to the Ilocos region and to Aparri to Tuguegarao, for instance, and some roads along the Bicol Region, near Naga City. I made the mistake of travelling to Baguio using Marcos Highway during December of 1998 to find the road works a virtual disaster for travel. But it is today the best route to get to Baguio.
- Still, regular road maintenance appears to be a major agenda that needs to be put in the front burner of some parts of the system. One of the worst kept maintenance and very slow improvement is the North Expressway. The road needs expansion, but the government has not been able to speed up the concessionaire. The rains and floods do a lot of damage to roads because of the amount of rains during the rainy seasons. But another major cause of road damage is bad engineering in some patches of roads, where drainage systems are not properly constructed beside the main roads.
- Regular maintenance works is a problem especially in the mountain roads. Hardly any work is undertaken during good construction months. Poor workmanship also is a cause of a lot of roadslides. The Kennon Roads and the roads to Banawe are dangerously impassable after a major rainfall.
- The mountain roads across the Cordilleras are said to be impassable by ordinary motor car, and so I have missed crossing the mountain roads along the Cordilleras from Cagayan and to Baquio and Banawe. During the 1970s, I succeeded in doing this, but it was a very rough ride even on a reliable four wheel drive. Connecting the lowlands of western Luzon across the Cordilleras to the Cagayan are is likely to bring enormous benefits to the two sides of the lowlands, but these have been neglected over many years. Recently, I tried to take the road from Tuguegarao to Tabak, but I had to give up after two-thirds of the way when the town of Tabak was clearly in view from the mountainside, although the gravel part was not totally impassable by car. I decided not to subject my Toyota Corona to further abuse.
- When the roads had been constructed or upgraded with foreign development assistance, the quality of the works is very high. Such high quality could be observed, first, with the feel of the travel on the road surface. Also, the paint dividers on the roads and the road signs on curves are of good quality. The standards used in these foreign-assisted road projects have, I am sure, given an idea to local contractors about the art of the possible. But the quality of the

locally constructed roads is of poor workmanship. This hints a lot of problems about governance issues in contracting roads, in the quality of supervision, and finally in the low standards used within construction industry of locally financed projects. I would venture to add that this is aggravated by the pork barrel system that has returned in the politics of the nation with a vengeance. The new mountain road across Central Cebu is very poorly constructed, and it has many danger points.

- We need standardization of road signs and the highways people should work out a system of devising guides for unfamiliar drivers on how to get out of major towns, by indicating whether one is going towards the center of town or outward from it. I have been lost trying to get out of relatively simple but growing towns like Dagupan, Tarlac City, Angeles City, Tuguegarao, Davao and General Santos. The concrete road posts that contain kilometer indicators on the road to Banawe from the lower plains of Nueva Vizcaya are written vertically rather than from left to right, as in the normal way. After spending money on these kilometer markings, it is difficult to read the numbers, for they are written as in Chinese writing, from north to south. Can you read 234 from top to bottom?
- Inter-provincial connections in Luzon by the normal trunk roads are generally passable. Some of these roads are good. Many small barrios have concrete roads in Central Luzon and in the Ilocos.
- The country is connected by the Pan-Philippine highway from two sides of Luzon island and the road stretches from Aparri in the north to General Santos in South Cotabato in the south. Two ferry sides – in Sorsogon to Samar and Southern Leyte to Surigao del Norte –connect the road systems across the main islands of the country to comfortable roads.
- The ferry rides, especially the one in Matnog to Samar, are in need of competition (in terms of transport companies undertaking the service) and of improvement in terminal facilities and services. The ferry waiting areas are not only inconvenient but they need sprucing up, especially the common areas that all travellers need to pass by to attend to nature's call. The poor organization of crowded waiting in the Matnog ferry is very conducive to organized mulcting of the passengers and car owners. The vendors instead of helping to clean up the place are not disciplined to make the place clean.
- It is possible to find clean and inexpensive business or travel hotels along the way in major towns anywhere in the country. But looking for them before darkness sets would be the best time, as it is difficult to find one's way around in strange towns with relatively poor lighting.
- The progress of the Calabarzon region is a very evident. From among the regions around the country, it seems to be the most vibrant. The new toll express road linking Calamba to Batangas is very critical to the fast growth of the region in view of the increasing importance of the port of Batangas, which has taken a lot of traffic from Manila's port.
- The wide expanse of lands in Cagayan Valley, Bicol Region, and Mindanao provinces provide a promise that is still relatively untapped. Investment in land is required to make these areas productive for agriculture. But such investment is missing and renders a lot of land in the country somewhat unproductive.
- Directional signs are important for travellers. It cannot be assumed that only locals are passing through. My driver missed a fork after Kidapawan on my planned trip to Cagayan de Oro via Bukidnon coming from Davao, and we ended up in the unstable areas of Lanao del Sur on the road, passing through truce zones of the military, the MNLF, and the MILF, at a time when that problem had just recently been pacified. But truce zones had heavily armed soldiers or rebels at every check points then.

- The relatively depressed areas of Bicol are evident when one visits the major towns and cities. The commercial areas are mixtures of old structures and a few relatively new structures. The road infrastructure, however, is in good shape. The bypass road to Naga from the northern part of Camarines Norte has made the mountain road along Camarines Norte (through Daet) less traveled. The landscape of Camerines Norte is very picturesque coming through the longer road. Sorsogon is one of the most picturesque provinces in Luzon, and the extensive road network of the province is surprisingly mostly passable.
- Soon after the deregulation of energy, many gasoline companies have put up new gasoline stations in various parts of the country. The dominant companies – Petron, Shell, and Caltex – together with a number new participants have been slugging it out in the retail market especially near centers of population, indicating how vibrant is competition when the right policies are in place. But there are at least three other newer names of gasoline companies selling at retail and serving different areas of the country. A side effect of this is that it is now more convenient to make pit stops in general than in the past. Some fairly good pit stop gasoline places that I have encountered, however, revert back to poor habits of the past.

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Appendix. Tables

Table 1. Summary Tables on Road Infrastructure -- from Llanto's study

A. Summary of Road Statistics (Llanto's Table II. 1).

	1965	1972	1977	1986	1992	1998	2000
total road network(km.)	55,178	89,416	117,700	158,499	160,843	199,950	200,187
km./1,000 popn	no data	no data	2.69	3.02	2.51	2.73	2.62
km./sq.km.land area	no data	no data	0.39	0.52	0.54	0.66	0.67

Source: Medium-Term Philippine Development Plan, various years

B. Roads per Adminisitration (Llanto's Table II. 2)

	Marcos	Aquino	Ramos	Estrada
km. Built	103,321	2,344	39,107	237
% increase over past administration	1.87	0.01	0.24	0.00

Source: Medium-Term Philippine Development Plan, various years

C. Road Network by System Classification and Surface Type (Llanto's Table II.3)
(in kilometers)

Item	1986	%	1992	%	1998	%
By system						
Total	158,498.91		160,843.42		199,949.80	
National	26,229.68	0.17	26,554.43	0.17	28,162.04	0.14
Provincial	28,333.87	0.18	29,156.25	0.18	28,502.99	0.14
Municipal	12,841.33	0.08	12,819.48	0.08	15,816.15	0.08
City	3,986.58	0.03	3,949.28	0.02	5,766.72	0.03
Barangay	87,107.45	0.55	88,363.98	0.55	121,701.90	0.61
By surface type						
Total	158,498.90		160,843.43		199,949.80	

Concrete	9,365.56	0.06	13,388.59	0.08	27,013.47	0.14
Asphalt	11,933.78	0.08	12,864.47	0.08	12,540.14	0.06
Macadam	127,515.37	0.80	126,086.68	0.78	103,584.08	0.52
Earth	9,684.19	0.06	8,503.69	0.05	56,812.11	0.28

Source: Philippine Yearbook, various years

D. Number and Length of National Bridges (Llanto's Table II.4)

Year	Number	Length (lineal	Meters
1986	7,379	230,226	
1992	7,031	250,191	19,965
1998	7,400	266,833	16,642
2000	7,306	271,293	4,460

Source: Philippine Statistical Yearbook, various years

Table 2. Comparison of Infrastructure Construction in Roadbuilding During Marcos, Aquino, Ramos and Estrada

PRESIDENT --->	D. MACAPAGAL	FERDINAND MARCOS			CORY AQUINO	FIDEL RAMOS	JOSEPH ESTRADA
DESCRIPTION	1961-65	1966-72	1973-77	1978-86	1986-92	1993-98	1998-2001
Analysis	1965	1972	1977	1986	1992	1998	2000
Index of Roads (100=End of Macapagal Presidency)	100	162	213	287	292	362	363
Index of Roads (moving period-to-period growth index)		100	162	177	101	124	100
Index of Roads (100=End of Marcos rule)				100	101	126	126

PRESIDENT --->	D. MACAPAGAL	FERDINAND MARCOS			CORY AQUINO	FIDEL RAMOS	JOSEPH ESTRADA
DESCRIPTION	1961-65	1966-72	1973-77	1978-86	1986-92	1993-98	1998-2001
Cumulative roads at end of period -- kms.	55,178	89,416	117,700	158,499	160,846	199,950	200,187
Net addition to roads -- kms.		34,238	28,284	40,799	2,347	39,104	237
Number of years		8	5	9	7	6	2
Average record per year -- kms.		4,280	5,657	4,533	335	6,517	119