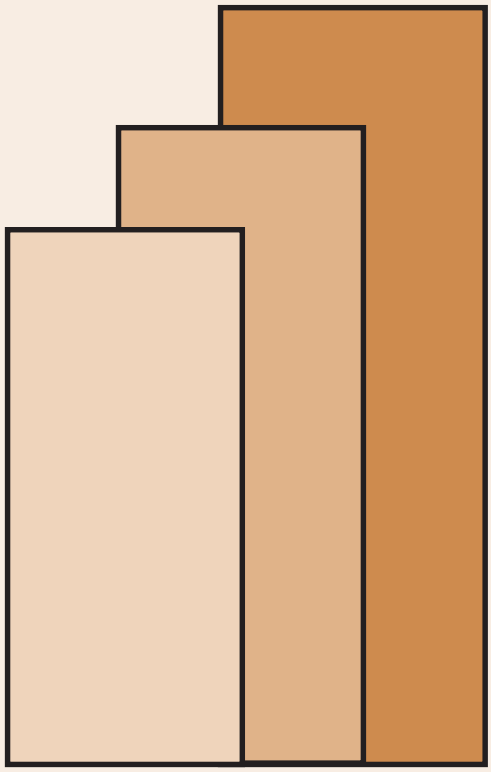
Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Infrastructure Development: Experience and Policy Options for the Future

Gilberto M. Llanto

DISCUSSION PAPER SERIES NO. 2002-26

Service through policy research



December 2002

For comments, suggestions or further inquiries please contact:
The Research Information Staff, Philippine Institute for Development Studies
3rd Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: 8924059 and 8935705; Fax No: 8939589; E-mail: publications@pidsnet.pids.gov.ph
Or visit our website at http://www.pids.gov.ph

ABSTRACT

Global markets for goods and services have opened for countries that have made substantial investments in technological innovations in transportation, communications and production techniques, inventory management and the rapid rate of innovation in financial instruments, among others. This study presents in broad strokes a chronicle of infrastructure development in the Philippines in the last twenty-five years. It covers the infrastructure experience across the Marcos regime to the Estrada administration.

The main objective of this paper is to flag those gaps and issues for future research, policy analysis and policy formulation. It calls particular attention to several constraints, e.g., large budget deficits faced by the national government, inefficient government implementation of infrastructure projects, unclear policy and regulatory framework for private participation in infrastructure. Among others, it brings attention to the design of the regulatory framework for infrastructure that would be necessary to motivate private sector participation. It is important to consider an appropriate regulatory framework to ensure fair competition, adequate returns to the private investor and consumer welfare. It is equally important to develop the appropriate incentives that should inform that regulatory framework.

Keywords: infrastructure development, infrastructure policy, regulatory framework, private sector participation, incentive structure

Revised 4/01/03

INFRASTRUCTURE DEVELOPMENT: EXPERIENCE AND POLICY OPTIONS FOR THE FUTURE

Gilberto M. Llanto[1]

I. INTRODUCTION

An economy that fails to adjust and become more competitive in today's emerging world environment suffers the consequences of lost markets and investments, slower growth[2] and higher unemployment levels (Llanto 2000). But if nimble adjustment and competitiveness are key to keeping and opening new markets, generating investments for more growth and a higher employment level in the future what can bring these about?

What then, drives a country's competitiveness in the emerging world environment characterized by highly mobile factors of production, trading rules drastically changed by global economic integration and fierce competition for investment capital? What shall make for a competitive Philippine economy in the global marketplace, a "harsher environment" (De Dios 1996) for business and just about everything else? Paderanga (2000) points out the realities: production and distribution processes are intertwined with cross-border suppliers and contractors defying the old, established rules; components of a product are sourced from different locations, assembled elsewhere and distributed by a product coordinator to web surfers in the cyber world; together with disaggregation in commodity trade comes a parallel disaggregation in the type of financial capital deployed.

The answer seems to be that global markets for goods and services have opened for countries that have made substantial investments in technological innovations in transportation, communications and production techniques, inventory management and the rapid rate of innovation in financial instruments, among others. This presupposes a stable macroeconomic environment that encourages domestic resource mobilization. To do otherwise is to face the consequences of the "harsher environment."

Fabella (1997) citing the successful Taiwanese experience in economic development indicated the importance of upgrading the general economic environment. Upgrading

---

[1] Deputy Director General, National Economic and Development Authority (NEDA) and Vice-President (on-leave), Philippine Institute for Development Studies. The author would like to thank the following staff members of the NEDA Infrastructure Staff for their invaluable assistance: Assistant Director General R. Reinoso, L. Quitoriano, L. Abellera, J. Solidum, R. Guinto, N. Prudente, A. Paglinawan, F. Medina and other staff members. G. Laviña (PIDS), L. Calima (PIDS) and R. Morales (NEDA) contributed to section 2 of the paper and provided excellent research assistance. The views expressed in the paper are solely the author's and do not represent those of PIDS and NEDA.

[2] Habito and Lanzona (2002) caution about the danger of "jobless growth."

consists of: (a) macroeconomic stability and (b) the provision of competitive infrastructure. Competitive infrastructure is of two types: hard and soft. The former refers to infrastructure in the form of roads, ports, telecommunications and shipping. Soft infrastructure consists of peace and order, that is, governance and human infrastructure in the form of skilled and educated labor force in a predictable labor market. Thus, Fabella's hypothesis is that once international factor mobility is assumed, inter-country differences spelled out by soft and hard infrastructure determine where factors of production will choose to be employed. The implication is that the drive for competitiveness is motivated by the availability of "immobile factors with which mobile capital combines to produce value added" (Fabella 1996).

The paper does not deal with "soft" infrastructure[3] but focuses on the country's experience in the last twenty-five years on infrastructure development and options for the future. An understanding of the experience helps identify directions for research and infrastructure policy and institutional responses in the future. The paper has four sections. After a brief introduction that lays down the motivation of the study, the paper discusses infrastructure development in three parts.

Section II presents in broad strokes a brief chronicle of infrastructure development in the last twenty-five years. The main objective of this section is to flag those gaps and issues for future research, policy analysis and policy formulation. Using available data, it starts with the Marcos administration and ends with the report on infrastructure development in the Socio-Economic Report 2001 of the current Arroyo administration. It also provides an outline of the outstanding issues in each sub-sector. An obvious limitation of the section's analysis is the non-availability of consistent time series data on the different sub-sectors of the infrastructure sector[4]. Where data are available, they are sometimes inconsistent, owing partly perhaps to change in definition, etc.

Section III provides a summary assessment of the performance in the last twenty-five years. It calls attention to several constraints to infrastructure development, e.g., large budget deficits faced by the national government, inefficient government implementation of infrastructure projects, unclear policy and regulatory framework for private participation in infrastructure. Space, time and information limitations prevent a detailed and comprehensive discussion of each sub-sector.

---

[3] Dr. Aniceto Orbeta deals with this in his paper "Human Resource Development and Labor Markets" also in the Symposium Series on Perspective Papers.

[4] Since the scope of the study stretches from 1977 to 2002, the first difficulty encountered was finding documents published in the late 1970s'. No government institution or library had a complete series of publications like the Philippine Development Plan, the General Appropriations Act, the Budget of Expenditures and Sources of Financing, the Philippine Yearbook, the Philippine Statistical Yearbook and the Philippine Development Report. Data and policies for the study period were sourced from the libraries of the UP School of Economics, NEDA, PIDS, ADB, NSCB and Malacañang. Secondly, some statistical tables were not complete for the twenty-five year period, i.e., they lack continuity. Lastly, infrastructure expenditures sourced from the BESF did not tally with infrastructure appropriations in the GAA, despite computational advice from the technical staff of DBM. A possible explanation why expenditures are greater than appropriations could be the pork barrel funds of legislators. These funds are not included in agency appropriations.

Section IV analyzes the infrastructure policy, financing, regulatory and institutional issues and options for the future. This section starts with a discussion of the changes in infrastructure policy during the period covered by the review and highlights the shift in government thinking on infrastructure development. The fundamental shift in thinking occurred in 1986. The government started to think in terms of providing a conducive policy environment for infrastructure development in place of the simplistic view that provision, financing and maintenance of infrastructure is a purely public sector effort. The budget constraint faced by the government was instrumental in the shift in thinking but a remarkable phenomenon is the view that private sector resources and expertise may be more efficient and effective in addressing the infrastructure needs of the country.

Thus, from a situation of heavy government involvement in financing, provision, operation and maintenance arose the view that the private sector may have the comparative advantage in all or several of these activities. At present there is great interest in greater private sector participation in infrastructure development as indicated by the Medium-Term Philippine Development Plan 2001-2004 which states that "the government adheres to the primacy of the private sector in the provision of infrastructure through the use of build-operate-transfer and its variant modes. This will enable the government to devote a greater amount of resources for basic services and rural infrastructure which may not be financially viable for the private sector. " . . . The private sector involvement in the financing, provision and operation of infrastructure projects shall be expanded with the government providing a competitive environment." (MTPDP 2001-2004 pp. 80-81)

Section V brings our attention to the design of the regulatory framework for infrastructure[5]. If private sector participation will be the wave of the future, then it is imperative to consider an appropriate regulatory framework to ensure fair competition and consumer welfare. The shift in infrastructure policy initiated by the Aquino administration and made the bedrock of infrastructure policy by subsequent administrations has now made it crucial to appreciate the incentives that should inform that regulatory framework. Direct provision by government remains an attractive avenue for non-profitable segments of the infrastructure sector, e.g., rural power for remote barangays or the so-called missionary areas; however, the other side of the argument is that adequate incentives can be provided to motivate private participation in those areas.

Regulation refers to a situation where private firms supply the consumers the demanded infrastructure good or services and the (government) regulator acts to ensure fair competition and consumer welfare and interest. Laffont and Tirole (1993) pointed out several incentive schemes, e.g., price caps, incentive regulation, hybrid price-cap-incentive regulation and cost-of-service regulations that merit close study and scrutiny by researcher, policy analysts and regulators. The current lack of understanding of those incentives and their impact on regulation as well as the need for a good regulatory design motivates the research and policy analysis in the future.

Section VI provides concluding remarks and points out areas for future research and policy analysis in the infrastructure sector.

[5] In this paper, infrastructure includes utilities.

II. THE INFRASTRUCTURE SECTOR AFTER TWENTY-FIVE YEARS[6]

A. TRANSPORTATION[7]

An efficient transportation sector is crucial to a country's economic and social development since it underscores the mobility of goods, services and people and the functioning of markets. Historically, transportation systems have played a central role in opening up new areas for development. They have been a catalyst for economic activity and have served as a key factor in enhancing economic productivity. Transportation investments influence to some extent where economic growth happens and how much growth occurs.

Although all five administrations included in this paper had different thrusts in developing the transportation sector of the economy, all aimed to use it as a means to further economic development.

The medium-term transport development plan of the Marcos Administration for the period 1978 to 1982 sought to accelerate the realization of an integrated, efficient, and service-oriented inter-modal transport system. It aimed to facilitate the movement of people, goods, and services to support the government's overall social and economic plans and objectives. Consistent with these was the aim to make the cost of transportation reasonable so that targets in the production of food, farm crops and manufactured goods would be achieved. Likewise, the programs of the sector accommodated those of the tourism industry for a more balanced distribution of industries and population.

For the period 1984 to 1987, the transportation plan was to support the economic recovery program and the economy's main thrust of balanced agro-industrial development. It is noted that the Philippines underwent a very severe economic and financial crisis following the assassination of Senator Aquino in 1983 that happened at the time that global financial markets were buffeted by debt default by some developing countries. Thus, the cash-strapped government had no other choice except to give priority to maintenance over construction of new roads, railways, ports and airports. Emphasis also shifted to the development of feeder roads and small ports in depressed areas with low road densities.

President Aquino's Medium-Term Philippine Development Plan of 1987-1992 envisaged the transport sector supporting agricultural production. Rehabilitation, improvement and expansion of the feeder and secondary road network were given greater attention to achieve this goal. The MTPDP policies in this period include the objective of reducing interregional socioeconomic gaps and strengthening inter-sectoral linkages by moving products from excess production areas to those in deficit.

---

[6] This section was written with the assistance of Lorelie Calima, Ruzette Morales and Gabrielle Laviña.

[7] Responsibility for the development of the Philippine transportation sector lies with the Department of Transportation and Communications. It was mandated to "be the primary policy, planning, programming, coordinating, implementing, regulating and administrative entity of the Government in the promotion, development, and regulation of dependable and coordinated networks of transportation."[7]

Under the Ramos administration, the transport sector was envisioned to strengthen inter-regional and urban-rural linkages as indicated by the Medium-Term Philippine Development Plan of 1992-1998. Again, the maintenance of existing facilities was of prime concern over the construction of new ones.

In the short-lived Estrada administration, the transport plan consisted of improving existing services by making available alternative choices of transport at competitive prices. Again, the transport sector was to support the government's overall economic and social development plans.

In the Macapagal-Arroyo administration's MTPDP (2001-2004), the transport infrastructure will support modernization of agriculture, development of tourism, improvement of peace and order, decongestion of traffic and development of information and communication technology. The overall road framework plan for each region shall be consistent with the Agricultural and Fisheries Modernization Act particularly for the identified Strategic Agricultural and Fisheries Development Zones.

1. Road Transport

Marcos Administration

For the period 1978 to 1982, the road transport strategy centered on the intensive construction of feeder and farm-to-market roads. Priority was likewise given to depressed areas like Samar and many parts of Mindanao. During this period, road transport dominated the land transport mode and carried 80% of total passenger flows and 45% of freight movements. The Marcos administration allocated a sizeable portion of public funds for road construction and rehabilitation. This resulted in the substantial expansion and improvement of the highway network. In 1977, there were 117,700 kilometers of roads or 2.69 road kilometers serving every 1,000 inhabitants. This represented 0.39 kilometer per square kilometer of the country's land area. This was impressive considering that there were only 55,178 kilometers of roads in 1965 and 89,416 kilometers in 1972 (Table II.1).

From 1984 to 1987, although rehabilitation, restoration and maintenance of existing roads were the main concerns, the development of the feeder road network still continued to reduce high transport costs that had restricted production in the countryside. By 1986, the road network covered 158,499 kilometers, a thirty-five percent (35%) increase over the 1977 figure. Fifty-five percent (55%) of this network was barangay roads, 18% was provincial, 16% was national and 11% was municipal and city roads. According to surface type, 80% was made of macadam while the rest were of concrete (6%), asphalt (8%) and earth (6%). Roads were 0.52 kilometer per square kilometer of land area and 3.02 road kilometers per 1,000 inhabitants. The administration's target was 0.54 road kilometer ratio the 1984-1987 Development Plan.

Among the main deficiencies of the road network at this time were the following: (a) less than 50% of the total road network was considered as all-weather road, and (b) many barangay and provincial roads and some national road sections were in poor condition due to low design quality, substandard construction, inadequate maintenance and damage from heavy vehicles.

Aquino Administration

Aquino continued Marcos' strategy of developing the countryside by improving the feeder road network from 1987-1992 by converting them into all-weather transport facilities. Another concern was the adjustment of truckload limits to match road design standards and the revision of road user charges to reflect road maintenance costs. For toll ways, private sector financing was used to extend the toll highway systems in Luzon.

Total road network during this administration increased only by 1.48% to reach 160,843 kilometers which represented 0.54 kilometer per square kilometer of land area or 2.51 road kilometers per 1,000 inhabitants. By system classification, this translates to 55% barangay roads, 18% provincial, 17% national and the remaining 10% are municipal and city roads. By surface type, macadam-paved roads have the largest percentage at 79% followed by concrete (8%), asphalt (8%) and earth (5%).

By 1992, sixty-four percent of the total road network had been upgraded to all-weather use. Paved road ratio was 0.16 (Table II.4).

Ramos Administration

Ramos focused on the upgrading of national arterial and secondary roads to all-weather roads and the conversion of all bridges along these into permanent structures.

By 1998, the overall road network measured 199,950 kilometers or a road density of 0.66 kilometer per square kilometer of land area. Although there was an increase of 24% in road network, only 2.73 kilometers of roads served every 1,000 inhabitants. Like in the past years, barangay roads comprised the majority of this network at 61% followed by national and provincial roads at 14% each while the remaining 11% were municipal and city roads combined. Paved road ratio for national roads stood at 0.60. Eighty-four percent of the national roads was now viable for all weather use. Total paved road was at 20%.

Estrada Administration

Under the Estrada Administration (1998-2000)[8], overall road network measured 200,187 kilometers, an increase of less than one percent from the road network of 199,950 kilometers by the end of Ramos' term of office. These translate to a road density of 0.67 km. per square kilometer of land area or 2.62 kilometers of roads serving every 1,000 inhabitants. Rehabilitated and upgraded roads were 29,878 kilometers of the national road system, improving the national paved road ratio to 0.62 compared to 0.60 in 1998 and all weather roads to 88% compared to 84% also in 1998.

Barangay roads comprised 61% of road network while national, provincial, city and municipal roads had shares of 14%, 14%, 3% and 8% respectively. By the end of 2000, total paved road ratio was 0.21.

[8] Mr. Estrada was elected for a six year term (1998-2004) but was booted out of office in early January 2001 due to corruption and bribery charges

Arroyo Administration

The current administration is focused on road investments in regional growth centers, key tourism development areas and in economically lagging regions. Special mention is Mindanao where road densities and paved road ratios are way below the national average.

In 2001, the highest priority was the maintenance of the existing road network. Improved and constructed were 1,300 kilometers of national roads and 19,771 lineal meters of bridges. Among these were parts of the Pan-Philippine Highway, West Leyte Roads, Bohol Circumferential Road, Rosario-Pugo-Baguio Road and Kennon Road. Farm to market roads with a length of 1,267 kilometers were improved or built under various programs of the Department of Agriculture and Department of Agrarian Reform.

This administration also succeeded in the computerization of the Road Information and Management Support System (RIMSS) under the Department of Public Works and Highways (DPWH). Procurement of bid forms and inspection of progress payments by contractors have been made easier. This has also led to the establishment of a DPWH website containing bid procedures, schedules, advertisements and results making the whole bidding process more competitive and transparent.

Tables II.1 and II.2 present a summary of road statistics and road contribution per administration, respectively. Table II.3 shows the current road network while Table II.4 tells paved road ratio. Lastly, Tables II.5 and II.6 display the number and length of national bridges and the types of national bridges respectively.

Table II. 1: Summary of Road Statistics

	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
road density	no data	no data	0.39	0.52	0.54	0.66	0.67

Source: Medium-Term Philippine Development Plan, various years

Table II. 2: Road Contribution per Administration

	Marcos	Aquino	Ramos	Estrada	Arroyo
years in office	20	6	6	2	2
annual average kilometers of roads built	5,166	391	6,518	119	824
Kilometers of road built	103,321	2,344	39,107	237	1,647
% increase over past administration	187.00	1.48	24.31	0.12	0.82

Source: Medium-Term Philippine Development Plan, various years

Table II. 3: Road Network by System Classification and Surface Type (in km)

Item	1978		1982		1986		1992		1998		2000	
By System												
Total	125,135.79		154,473.30		158,498.91		160,843.42		199,949.80		201,994.00	
National	22,790.47	18%	23,783.44	15%	26,229.68	16%	26,554.43	17%	28,162.04	14%	30,013.00	15%
Provincial	28,243.32	23%	29,544.18	19%	28,333.87	18%	29,156.25	18%	28,502.99	14%	27,136.00	13%
Municipal	9,524.12	8%	12,141.55	8%	12,841.33	8%	12,819.48	8%	15,816.15	8%	15,804.00	8%
City	3,133.10	2%	3,740.52	2%	3,986.58	3%	3,949.28	2%	5,766.72	3%	7,052.00	3%
Barangay	61,444.78	49%	85,263.61	55%	87,107.45	55%	88,363.98	55%	121,701.90	61%	121,989	60%
By Surface Type												
Total	125,135.79		154,473.30		158,498.90		160,843.43		199,949.80		201,994.00	
Concrete	6,170.97	5%	10,649.52	7%	9,365.56	6%	13,388.59	8%	27,013.47	14%	28,922.00	14%
Asphalt	15,330.37	12%	17,598.54	11%	11,933.78	8%	12,864.47	8%	12,540.14	6%	13,230.00	7%
Macadam	54,205.29	43%	71,465.78	46%	127,515.37	80%	126,086.68	78%	103,584.08	52%	102,929.00	51%
Earth	49,429.16	40%	54,759.46	35%	9,684.19	6%	8,503.69	5%	56,812.11	28%	56,913	28%

* figures may not add up due to rounding
Sources: Philippine Yearbook, various years; DPWH

Table II. 4: Paved Road Ratios

Classification	1972	1978	1982	1989	1992	1997	1998	2000	2001
National Roads	0.36	0.45	0.07	0.48	0.51	0.57	0.60	0.62	0.63
Arterial	no data	no data	no data	no data	no data	0.67	0.68	0.70	0.69
Secondary	no data	no data	no data	no data	no data	0.44	0.42	0.51	0.53
Provincial Roads	0.1	0.11	0.02	0.12	0.11	0.21	*	0.21	0.21
City Roads	0.27	0.23	0.66	0.67	0.67	0.70	*	0.77	0.77
Municipal Roads	0.08	0.1	0.26	0.26	0.26	0.34	*	0.34	0.34
Barangay Roads	0.06	0.11	no data	0.01	0.04	0.06	*	0.07	0.06
Total	0.17	0.17	0.13	0.14	0.16	0.20	0.20	0.21	0.21

(*)no figures were available at the time of data gathering
Source: DPWH

Table II. 5: Number and Length of National Bridges

Year	Number	Length (lineal meters)	Meters Added
1977	7,578	196,685.00	
1986	7,379	230,226.35	25,906.35
1992	7,031	250,191.15	19,964.80
1998	7,400	266,833.00	16,641.85
2000	7,306	271,293.00	4,460.00

Source: Philippine Statistical Yearbook, various years

Table II. 6: Type of national bridges

Year	Total	Permanent	%	Temporary	%	Unit
1977*	337,191	166,596	49	170,595	51	LM
1986	230,266.34	172,611.44	75	57,654.90	25	LM
1992	246,083.29	201,706.06	82	44,377.23	18	LM
1998	266,833	237,704	89	29,129	11	LM
2000	280,599	251,102	89	29,497	11	LM
2001	283,536	256,228	90	27,308	10	LM

* available data for 1977 includes provincial, municipal, city and barangay bridges
Source: DPWH

A cursory examination of Table II.1 reveals a dramatic increase in total road network by 1986 from 55,178 kilometers in 1965. This is an increase of 187% in road network over the twenty year period of the Marcos dictatorship. However, despite these achievements, road quality was poor. The same observation also held true for the succeeding administrations. Aquino and Estrada had negligible accomplishment in road building. However, Ramos built more roads on the average than any other president during the period considered (1977-2002).

With respect to system classification and surface type that reflect road quality, nothing much has changed over the past twenty-five years. Roads are mostly macadam type surfaces that are not capable of bearing the wear and tear imposed by an increasing number of vehicles. These roads are no match to vehicles that have also grown in size and weight over the years. Barangay roads comprise a majority of total roads but only around 6% of these are paved as of 2001 (Table II.4). The paved road ratio was 0.63 in 2001 compared to 0.45 in 1978, reflecting an incremental improvement in all road classifications.

There is lack of data or very limited information on bridges. Tables II.5 and II.6 indicate data only on national bridges. The number of bridges seems to fluctuate across the different administrations with additional lineal meters seen to be going down, perhaps a reflection of the lower priority given to building and maintaining bridges. Quite noticeable is the 35% decrease in total length of bridges (measured in lineal meters) from 1977 to 1986 (Table II.7). It should be noted that permanent bridges have a minimum life span of 50 years while temporary ones can last from 10 to 15 years.

2. Railways

There are three railway lines in the country. These are the Philippine National Railways (PNR) in Luzon, and the urban mass transit composed of the Light Rail Transit (LRT) and the EDSA Mass Rail Transit (MRT) in Metro Manila. Created in 1984, to provide a nationwide railroad system, PNR handles the Mainline North, Mainline South and the Metro Rail Commuter.

Marcos Administration

Rehabilitation of the main South and North lines of the Philippine National Railways was the focus of the Marcos administration from 1978-1982 while the full rehabilitation of the Naga-Legaspi line and Manila-Sucat line was planned from 1984-1986.

According to the development plan of 1978-1982, the Philippine National Railways has been operating in deficit since the early 1970s' and has suffered from insufficient government financial assistance. From 1972-1977 50 kilometers of tracks and five stations were rehabilitated while 3 kilometers of new tracks were constructed. Fifty units of passenger cars and 20 locomotive cars were acquired in the same period. The deplorable state of the Philippine National Railways in the early 1970s' was indicated by the following: (1) the immobilization of 2 locomotives; (2) the burning of 11 railcars beyond repair; and (3) the damage of 8 passenger cars due to derailment, of which only 2 cars were put back into operation (1974-1977 Philippine Development Plan).

In 1977**,** the P36 million worth Main South Line rehabilitation project was done. This included 47.90 kilometers of track ballasting, the installation of crossings, 75 spans of bridgework and 781.92 kilometers of communication systems. Completed projects were the construction of stations in España, San Lazaro and Sucat; the installation of the first automatic block signaling system between Paco and Bicutan; and the double railway tracking from Bicutan to Sucat. Aside from these, four long distance trains were restored, 30 new coaches were acquired and the Bicol Metro Rail Commuter Service was introduced.

By 1986, rail transport included 474 kilometers for the Main Line South from Manila to Legaspi, an accomplished target of the 1984-87 development plan and 266 kilometers for the Main Line North from Manila to San Fernando, La Union.

Aquino Administration

Aquino continued the rehabilitation of the Main Line South and tried to revitalize the operations of the Metro Manila commuter operations. However, neither new coaches were acquired nor equipment upgraded during this period; thus, long-distance passenger and freight services suffered a decline in patronage. The Philippine National Railways operated at a loss and was heavily subsidized by the government.

Ramos Administration

The Ramos administration's main achievement was the completion of the rehabilitation of the PNR Main Line South. Emphasis was also given to the rehabilitation and possible extension of the Northern Line in Luzon.

Estrada Administration

Estrada envisioned the construction of the PNR Southern Line and Northrail through private sector participation. He also planned a study on the feasibility of Mindanao, Sorsogon and Panay Railways. Sole achievement in this area was the completion of the modernization of the Commuter Line South Project. In 2000 the rehabilitation of PNR's rolling stock was implemented. Among those repaired or rehabilitated were 16 passenger/baggage cars, 2 locomotives, 4 railcars and 5 freight cars.

Arroyo Administration

The Arroyo administration's plan is to restructure the Light Rail Transit Authority and the Philippine National Railways for more efficient operation. Among the problems faced by the Philippine National Railways are lack of rolling stock, insufficient capacity, poor ridership, inefficient ticketing system and dilapidated stations.

The MTPDP 2001-2004 called for legislation to restructure the Philippine National Railways. On this, Congress approved House Bill 5051 (the "National Railways Act") abolishing the Philippine National Railways and the Light Rail Transit Authority to give way to the National Railways Authority. This office will absorb the assets and assume the functions of the abolished agencies. In line with this, construction of the North and South Lines will begin simultaneously in January 2003. However, Senate action was lacking to pass the bill.

Among the proposed projects are the route alignments of existing lines like the Main Line North, Main Line South, San Jose Branch Line, Cabanatuan Branch Line, Batangas Branch Line and Santa Cruz Branch Line. Proposed Lines include the San Fernando, La Union to Laoag, Ilocos Norte; San Jose, Nueva Ecija to Tuguegarao, Cagayan and Comun, Darag, Alabay to Matnog, Sorsogon.

In freight train operations, it is envisioned that joint-venture arrangements with the private sector will be undertaken to rehabilitate freight wagons which have been inoperable since 1992.

3. Urban Transport[9]

Serving the mass transit needs of Metro Manila are the Light Rail Transit (LRT) and Mass Rail Transit (MRT) systems. Two lines comprise the Light Rail Transit: Line 1 has 18 stations running from Baclaran in Parañaque City to Monumento in Kalookan City. The EDSA MRT, on the other hand, runs from Taft to North Avenue along EDSA.

Marcos Administration

The thrust of the urban transport system from 1978-1982 was traffic management improvement, the provision of higher occupancy vehicles and the construction of selected highway projects in Metropolitan Manila and other growth centers like Cebu and Davao. There remained as main concern the rationalization of bus and jeepney routes in inter-urban and intra-urban areas.

In 1980, several studies were done to improve the traffic condition in Metro Manila. These were: the Metro Manila Route Reallocation Project, Light Rail Transit (LRT) System, Traffic Engineering and Management (TEAM) Project, Metro Manila Urban Transport

[9] The responsibility for traffic management in Metro Manila lies with the Metro Manila Development Authority created in 1995 under RA 7924. As a traffic management and enforcement unit, it coordinates the implementation of traffic and transport management and engineering plans, programs and projects of the national government agencies and the local government units in Metro Manila.

Improvement Project and the Provincial Bus Rationalization Program. One end result was the construction and operation of LRT's south line from Baclaran to Central Terminal in Manila.

Aquino Administration

In Metro Manila, traffic congestion continued to be a problem despite the traffic management and engineering measures implemented. The use of private vehicles was discouraged in favor of high-occupancy public transport. Initiated during the period was the deregulation of interurban road transport fares that led to lower rates and the construction of flyovers in Metro Manila choke points.

Ramos Administration

In order to alleviate traffic congestion Ramos opened up private subdivision roads in Metro Manila to public transport in coordination with local government units. Transport was liberalized and modernized by making it possible for the private sector to field more air-conditioned buses, taxis and provincial buses, resulting in better public transport facilities. The Metro Manila Development Authority (MMDA) was created in 1995 under RA 7924 to handle the deteriorating traffic situation in Metro Manila. In 1997 the Presidential Task Force on Traffic Improvement was established to harmonize traffic and transportation management nationwide.

A major portion of the southern segment of Circumferential Road 5 (C5) and four Epifanio de los Santos Avenue (EDSA)/C5 interchanges were completed. Projects under Build-Operate-Transfer and joint venture schemes were started, specifically the Metro Manila Skyway and the Manila-Cavite Toll way.

Estrada Administration

Estrada started work on Line 2 (C.M. Recto Avenue to Santolan, Pasig City)[10] and planned another line running through Quezon Avenue (Line 4) and the extension of Line 1 from Manila to Zapote in Bacoor, Cavite to decongest Metro Manila traffic. Putting-up demand-actuated traffic signal systems in Metro Manila and other mega-centers was also planned.

Concluded projects during this administration were Phase 1 of MRT Line 3 along EDSA (i.e., Taft Avenue to North Avenue), the Metro Manila Skyway from Bicutan, Parañaque to Buendia, Makati and four EDSA and C-5 interchanges. Also finished was the 50% capacity expansion of Line 1 (LRT).

Arroyo Administration

The Arroyo administration made urban transport plans closely related to land use development, emphasized inter-modal systems and rail transport over road transport.

[10] Line 2 is under construction and has 11 stations starting from Barangay Santolan in Pasig City and ending at C.M. Recto in Manila.

Work on MRT Line 2 has continued to enable the operation of Phase 1 (Santolan-Cubao route) by April 2003. The 530 lineal meter Commonwealth/Batasan Interchange and the 545 lineal meter Southbound EDSA Flyover of the EDSA/Quezon Avenue Interchange were completed. The implementation of the South Extension project of LRT Line 1 from Manila to Zapote in Bacoor, Cavite has been approved under a joint venture agreement with SNC Lavalin (Canada) of the private sector. Under consideration are the following projects: South Luzon Expressway extension to Lucena City; Manila Bay Expressway along R-10/C-3/R-9; NAIA Terminal 3 Access Expressway, and MRT 3 Phase II from North Avenue to Monumento, Caloocan City.

Created under RA 8794 in 2001, the Road Board has approved a program for preventive maintenance of national roads. Funds are to be sourced from the Special Road Support Fund and from the General Appropriations Act.

In mid-2002, President Arroyo approved the Manila light rail project that will link up the two Metro Manila light rail systems. The Metro Rail Transit Corp. will build a 5.12 kilometer extension to converge with the northern end of the Light Rail Transit Line 1 system, that is, from North Avenue to Monumento in Caloocan City.

4. Air Transport and Air Navigation[11]

Table II.7 shows the number of registered airports in the country. Philippine airports are classified as:

Regular international airports. These are used for international air navigation. Their basic runway dimensions are 3,354 meters by 60 meters. Presently, there are only two of this type, the Ninoy Aquino International Airport in Metro Manila and the Mactan International Airport in Cebu.
Alternate international airports. These are intended for use in lieu of regular international airports.
Trunk line airports serve principal commercial centers and primarily cater to medium-size jets.
Secondary airports serve principal towns and cities without regular traffic air densities.
And lastly, *feeder airports* serve towns and rural communities with limited passenger traffic.

Table II. 7: Number of Registered Airports

Year	Total	National	Private
1986	230	87	143
1992	216	86	130
1998	167	92	75
2000	172	85	87

Source: Philippine Statistical Yearbook, various years

[11] Management of the country's national airports lies with the Air Transportation Office (ATO) but construction of runways and terminals is the responsibility of the Department of Public Works and Highways. Prior to the deregulation of the air transport industry, the sole airline in the country was the Philippine Airlines. Currently, there are three more domestic carriers operating in the country. These are Cebu Pacific Air, Air Philippines and Asian Spirit.

Marcos Administration

Improvement of international airports was the main concern during the 1978-1982 period while increased efficiency in the management of airport operations took center stage from 1984-1987.

Completed in 1977 were the improvement and upgrading of runways, the expansion of aprons in 9 airports and the construction of terminal buildings in two Mindanao airports. In addition, major trunk line airports were expanded and terminal buildings were constructed in Manila, Daet, Ozamis and San Fernando. Roughly 953,246 square meters of concrete, asphalt and gravel runways were built and 4,933 square meters of terminal buildings were constructed.

Secondary and tertiary airports had substandard landing aids in 1977. The Airport and Air Navigation Program for the period 1978-1982 sought to address this by allocating P243 million for the purchase and installation of air navigational aid facilities. The Updated Philippine Development Plan 1984-1987 included the continuation of upgrading navigation facilities for safer and more efficient air transport operations.

In 1986, the country had 87 national airports with 2 serving international flights, 4 being alternates and 11 as trunk lines. The air navigational system was claimed to be relatively adequate in the Medium Term Philippine Development Plan for 1987-92. Although there was no mention of the standard the system was described as relatively adequate.

Aquino Administration

Emphasis was given to the integrated planning of airport and air navigation facilities between government agencies and carrier operators. Most accomplishments were in general airport improvement. Airport terminals were constructed while runways were strengthened and extended. Modern air navigation and communications facilities were installed in 52 airports and sites while fire-rescue equipment were bought for 45 airports.

Master plans for the Ninoy Aquino International Airport (NAIA) and the Mactan International Airport (MIA) were completed and approved along with a civil aviation master plan. On August 1988, Executive Order No. 333 was issued revoking the one-airline policy allowing a healthy and regulated competition in the industry (Austria, 2000).

Ramos Administration

The activities under this administration included intensification of transport safety program, upgrading of NAIA and exploration of former military base lands for use as potential site for transport-related industrial complexes.

Executive Order 219 (issued in 1995) deregulated the air transport industry by eliminating restrictions on domestic routes and frequencies and government controls on airfares. The following year four new airlines entered the market. These were Cebu Pacific Air, Air

Philippines, Asian Spirit and Mindanao Express. As a result of lower airfares and more flights, domestic air travel grew rapidly. However, although EO 219 called for the selection of two international carriers to be official carriers for the country, PAL remained as the de facto official carrier.

Among the major infrastructure projects implemented were the Mactan-Cebu, General Santos, Subic and Clark Airports. During this period, the first BOT project in Philippine aviation, the NAIA International Passenger Terminal (Terminal 3) was awarded to private investors.

Safety in air travel was boosted because of the completion of packages for air navigation modernization projects.

Estrada Administration

Upgrading of thirty-seven airports to international standards was given priority and so was the development of aircraft movement areas, terminal buildings and air navigation facilities. Construction of NAIA Passenger Terminal 2 was finished. The runway of the Davao International Airport was upgraded and extended to 3,000 meters. NAIA International Passenger Terminal 3 started construction and the modernization of 18 airports under the Air Navigation Facility Project was completed.

Arroyo Administration

Modernization of airside safety aids and acquisition of new terminal radar for NAIA was prioritized by this administration. ODA financing for the implementation of the New Communications, Navigation Surveillance and Air Traffic Management Systems Project was secured in 2001.

The improvement and expansion of six airports in Southern Philippines (Pagadian, Butuan, Cotabato, Dipolog and Sanga-Sanga in Mindanao and Puerto Princesa in Palawan) was scheduled.

5. Water Transport

Because the country is an archipelago, inter-island mobility largely depends on water transportation since it costs less than air travel. Forming the backbone of sea transport facilities are port networks spread across the country. These operate under the Philippine Ports Authority which plans, develops, finances and maintains operations of ports and port districts in the entire country. National ports are operated by the national government while municipalities operate municipal ports under the PPA. Basically, ports are classified as fishing ports, feeder ports or commercial ports.[12] Municipal or regional fishing ports function as the main collection and distribution center of marine harvest while feeder ports link neighboring small islands and serve small passenger and fishing vessels. Private or

[12] Israel, Danilo S. and Roque, Ruchel Marie Grace R. 2000. Analysis of Fishing Ports in the Philippines. PIDS Discussion Paper No. 2000-04, Makati City: Philippine Institute for Development Studies.

public commercial ports cater to the needs of their owners or provide services to the general public and vessels weighing more than 30 tons respectively. Facilities found in ports include berthing, storage and other port structures.

Marcos Administration

From 1978-1982, inter-island transport focused on the construction of national and regional seaports, trunk lines and complementary ferry services. However, from 1984-1987, concern shifted to the development of regional fishing port complexes to develop the fisheries sector by enhancing production and distribution of fish.

Memorandum Circular No. 11 issued in 1977 controlled route licensing. The following year, MC No. 16 was issued declaring a policy to protect established shipping companies already providing adequate service from undue competition. MC No. 26, issued in 1982, introduced the rationalization of the inter-island shipping operations. The circular required all operators (i) to observe their authorized routes, sailing frequency and schedules; any deviation from such without appropriate authority shall be penalized; (ii) abandonment, withdrawal or suspension of service was not allowed without authority from the Board of Transportation; (iii) vessel rerouting is discouraged and becomes illegal if pursued without an amendment of the certificate of public convenience (CPC);[13] and (iv) acquisition of new vessels was regulated, limiting it only to the modernization of tonnage in the route and giving priority to existing operators.[14]

Physical accomplishments in 1977 were the construction of 977 lineal meters of seawalls for shore protection, 229 lineal meters of rock bulkhead and the reclamation of 1.461 hectares of port area. Dredged volume for the year was 887.986 cubic meters.

Seaports network in 1986 was composed of 622 public ports and 314 private ports. Public ports consisted of 19 base (national) ports, 75 sub ports (national/municipal), and 528 other minor municipal ports.

Aquino Administration

For better access between rural areas and markets the improvement and rehabilitation of the feeder port system was a main concern of this administration. Only a few regional fishing port complexes were given attention.

Completed projects dealt with the construction, rehabilitation and minor improvements of small ports, fishing ports and lighthouses. Major civil works were started at the Manila International Container Terminal and at the Manila North and South Harbors. Studies on roll-on, roll-off (RORO) transport, inter-island shipping, ship repair, maritime safety, and bulk terminals were done and deregulation of shipping passage rates were initiated.

---

[13] A CPC is an authorization for the operation of a public service.

[14] Austria, Myrna S. 2002. Philippine Domestic Shipping Industry: State of Competition and Market Structure. PASCN Discussion Paper No. 2002-04, Makati City: Philippine Institute for Development Studies.

Ramos Administration

The plan was to develop feeder ports under the Nationwide Feeder Ports Program and the construction of additional ports through the Nationwide Fishing Ports Program.

The rehabilitation of the North and South Harbors of the Port of Manila, Phase I of the Batangas Port Expansion and Modernization Project and improvement of the ports of General Santos, Cagayan de Oro, Davao, Nasipit and Surigao was completed. In Davao and General Santos, new port complexes were constructed under the Nationwide Fishing Ports Program while under the Feeder Ports Program, 33 ports were likewise made.

Executive Order Number 213 deregulated domestic shipping rates in 1994. All freight rates were deregulated, except for non-containerized basic commodities. The Domestic Shipping Consultative Councils (DOSCONs) were also instituted to provide a forum for consultation and negotiations for the implementation of the deregulated rates.

Estrada Administration

The restructuring of port institutions was to be given great importance in Estrada's development plan. Commercial decision-making, planning and management of port operations would be decentralized to Port District Offices and Port Management Offices in preparation for the privatization of individual or groups of ports.

Initial expansion of the Batangas port was finished. The ports of San Carlos, Jolo, Davao (Sasa), Virac, Zamboanga and Pagadian underwent improvements and expansion. A new fishing port complex was finished under Package II of the Nationwide Fishing Ports Program. Thirty-three ports were completed under the Feeder Ports Program. Lighthouses on the highest density Manila-Cebu route were installed under the Maritime Safety Plan.

Government intervention in the rate setting of the shipping industry was lessened in 2000. In 1999, the rules and regulations of Executive Order Number 213 were revised abolishing the Domestic Shipping Consultative Councils and simplifying the adoption of deregulated rates. Under Memorandum Circular Number 153, an operator can simply file a notice of adoption of deregulated rates and, upon approval, will be issued an Order within thirty days of receipt by MARINA (Austria, 2002).

The implementing guidelines for Executive Order 185 were revised under Memorandum Circular No. 161 in providing further dimensions to the liberalization efforts. Specifically, all routes serviced by an operator for at least five years will be opened for entry to additional operators as long as it will not result to ruinous competition. While there are still areas that remain regulated, these can be overcome and can be strategic areas for modernizing the industry (Austria, 2002).

Arroyo Administration

Computerization of all ports in the country is planned for a modernized port system. Economic liberalization and deregulation in shipping will be pursued further.

In 2001, preparations for public bidding of the modernization of the Manila North Harbor and of four Ro-Ro ports (Matnog, San Isidro, Liloan and Lipata) were made. Supply and installation of passenger boarding bridges for the Batangas Port Development Project Phase II was completed. Construction and rehabilitation of the ports of Cuasi, Masbate, Iloilo, Ozamis, and Zamboanga were completed. In addition, Phase B of the Maritime Safety Improvement Project was finished.

Approved for financing was the development of major ports of Zamboanga, Davao, General Santos and Iloilo to enable improved cargo handling and increased domestic and foreign traffic (cargo and passenger). Being arranged for ODA financing, last year, is the procurement of seven 35-to-45 meter-type Multi-Role Responsive Vessels for the improvement of the Maritime Disaster Response and Environmental Protection System Project.

Outstanding Issues in the Transportation Sector

In the road transport sector, focus should be given in improving the paved road ratio of provincial roads to at least 50% from its current level of 21% since agricultural output reach the market economy through these passageways. The government should also put a premium to the maintenance of the road network. Meanwhile, temporary bridges listed in 1992 should be upgraded to permanent structures or be serviced for maintenance.

With regard to rail transport, the Philippine National Railways should first address its problem of dwindling revenue collection either through privatization or a BOT-variant scheme. PNR has had very poor revenue collection since the first quarter of 1998 up to the second quarter of 2002, except for the second quarter of 2001 when collection exceeded target by P10.16 million. In the 17 quarters that the PNR have been operating since 1997, it has lost around P20 million in revenues primarily due to poor ridership and lack of proper maintenance.

Next on the agenda should be for Congress and the national government to find funding for the improvement of the National Railways Act since simultaneous rehabilitation of the North and South Lines is expected on January of 2003.

Table II.8: Philippine National Railways Revenue Targets and Collections

Quarter	Target	Collection	Excess/Shortfall(in millions)
Q1/97	20.70	28.89	8.19
Q2/97	21.10	49.03	27.93
Q3/97	21.00	29.77	8.77
Q4/97	21.13	21.90	0.77
Q1/98	43.57	28.90	(14.67)
Q2/98	44.40	31.36	(13.04)
Q3/98	47.37	21.62	(25.75)
Q4/98	47.97	14.06	(33.91)
Q1/99	60.00	29.79	(30.21)
Q2/99	65.00	33.74	(31.26)
Q3/99	55.00	24.19	(30.81)
Q4/99	61.00	25.88	(35.12)
Q1/00	48.00	24.72	(23.28)
Q2/00	51.00	27.37	(23.63)
Q3/00	44.00	20.70	(23.30)
Q4/00	50.00	11.53	(38.47)
Q1/01	23.74	21.69	(2.05)
Q2/01	23.74	33.90	10.16
Q3/01	31.00	21.91	(9.09)
Q4/01	31.00	25.10	(5.90)
Q1/02	28.00	21.92	(6.08)
Q2/02	28.00	22.89	(5.11)
Net Loss			(295.86)

Source: Philippine National Railways

For urban transport in Metro Manila, much remains to be done: completion of the LRT Line 1 Capacity Expansion Project II, the Metro Manila Strategic Mass Rail Development Project from Santolan, Pasig City to Recto, the LRT Line 1 South Extension Project from Baclaran to Bacoor, the MRT 3 Phase II Project from North Avenue to Monumento and the MRT 4 Phase I Project from Old Bilibid to Quezon Avenue to Batasan.

The status of these projects are as follows:

a) Package A of LRT Line 1 Capacity Expansion II Project-pre-qualification documents have already been released since July of 2002.
b) Package B of abovementioned project-pre-construction activities are already on-going.
c) Metro Manila Strategic Mass Rail Development-accomplishments have been made in depot, substructure, superstructure and systems, vehicles and track works.
d) LRT Line 1 South Extension Project-negotiations for right of way acquisitions are ongoing and so are utility relocations.
e) MRT 3 Phase II-the build transfer draft contract has already been approved by DOTC but it is still being evaluated by NEDA-ICC.
f) MRT 4 Phase I-the proposal is still being updated by the French Consortium and at the same time DOTC re-endorsed the proposal to NEDA-ICC.

Other regional urban centers, particularly in ARMM, Regions XII and III should also be given adequate transportation infrastructure to attract investments in the lagging regions. Table II.9 shows that the structure of investments for national roads will shift in favor of regions with low road densities and low paved road ratios.

Table II.9: Regional Distribution of Investments and Paved National Roads

Region	Percentage Share of Total Investment	Percentage of Paved National Roads
	2000	End-2000
I	4.32	85
CAR	5.73	34
II	5.78	58
NCR	10.43	100
III	3.84	100
IV-A	8.38	75
IV-B	5.83	37
V	8.04	59
VI	6.67	64
VII	7.71	78
VIII	8.62	64
IX	5.42	47
X	5.11	57
XI	6.06	56
XII	3.42	49
XIII	4.19	41
ARMM	0.45	39
TOTAL	100.00	

Source: MTPDP, 2001-2004

Furthermore, incidents like the blockade of the Tagbilaran airport in November 2002 which prevented the landing of PAL flights from Manila should be avoided. Apparently the Department of Transportation and Communications (DOTC) neglected to pay the owner of the lot affected by the runway expansion. Fortunately, the matter was resolved a day after when the DOTC paid the proprietor of the said lot.

According to the 2001-2004 MTPDP, computerization of all marine ports in the country is being considered for a more modern port system. However, Israel (2000) shows that most large fishing ports in the country are underutilized except for the one in Zamboanga. By comparing port usage projections and actual usage, Israel was able to evaluate the utilization of regional fishing ports. If the ratio is less than one, there is underutilization. The nearer the ratio is to one the greater is its capacity utilization. Hence, before the government embarks on the computerization of the country's marine ports, it must first assess where computerization will be most advantageous. In addition, MTPDP stated that development of ports in Davao and Iloilo has been approved for financing. There is need to carefully evaluate the planned port development in Davao and Iloilo. Table II.11 shows that these ports are underutilized. It would be important to determine the reasons for this, e.g. the unavailability of facilities like post-harvest equipment, boat landings, ice storage and freezers.

Table II.10: Actual usage, projected usage and ratio of actual To projected usage in regional fishing ports in the Philippines, 1995

Fishing Port Complex	1995		
	Actual	Projected	Ratio
Iloilo	24,944	87,800	0.28
Zamboanga	19,972	5,767	3.46
Camaligan	2,528	12,010	0.21
Lucena	11,163	33,535	0.33
Sual	431	8,620	0.05
Davao	1,716	15,250	0.11

Source Israel, Danilo S. and Roque, Ruchel Marie Grace R. 2000. Analysis of Fishing Ports in the Philippines. PIDS Discussion Paper No. 2000-04, Makati City: Philippine Institute for Development Studies.

In shipping, liberalization and deregulation should not be undertaken in isolation (Austria, 2002). Despite measures to liberalize the industry, it is evident in its present situation that different degrees of monopoly still exist among competitors, eroding the potential benefits of liberalization. Shipping companies merged and consolidated in response to the competition brought about by policy reforms, increasing their market share and power. What happens is that no substantial competition exists and the larger companies dominate the major routes. According to Austria, a competition policy could ensure that no such abuse of market power would take place.

B. ENERGY

The energy sector literally fuels the productive capabilities of the country. When energy prices go up so do the prices of food, transportation, raw materials and finished products. It, thus, permeates all levels of economic activity. The oil crisis in the 1970s' seemed to have impressed on all administrations the importance of energy self-reliance by developing indigenous sources of energy (Tables II.12 and II.13). The importance of energy self-reliance is indicated by the shift in the dependence of National Power Plants from oil-based plants to geothermal and coal for its energy generation (Table II.11). Table 11.14 chronicles the country's energy consumption.

Table II. 11: Gross Energy Generation of NPC Power Plants by Plant Type (gigawatts)

Area/Plant Type	1977	%	1982	%	1986	%	1992	%	1998	%	2000	%
Total	11,336		17,413		19,263		25,870		41,578		45,290	
Oil-based	9,154	81	10,016	58	6,970	36	13,939	54	18,190	44	9,185	20
oil thermal	-	-	-	-	-	-	10,057	-	7,207	-	2,560	-
diesel	-	-	-	-	-	-	1,181	-	7,169	-	5,028	-
gas turbine	-	-	-	-	-	-	2,701	-	3,814	-	1,597	-
Hydropower	2,181	19	3,751	21	5,989	31	4,440	17	5,066	12	7,799	17
Geothermal	1	*	3,586	21	4,586	24	5,700	22	8,914	21	11,626	26
Coal	-	-	60	*	1,718	9	1,791	7	9,388	23	16,663	37
Natural Gas	-	-	-	-	-	-	-	-	20	*	17	*

- no data

* insignificant amount

Source: Philippines Statistical Yearbook, various years

Table II. 12: Historical Performance in Oil & Gas Exploration & Development

Year	Number of Wells Drilled			Discovered Well	Crude Oil Production (M Barrels)
	Onshore	Offshore	Footage		
Total	56	143	1,612,144	33	50.54
1973	-	2	20,996	-	-
1974	1	2	25,320	-	-
1975	-	10	88,001	-	-
1976	3	5	81,882	2	-
1977	6	9	127,332	3	-
1978	5	7	89,012	1	-
1979	6	18	172,252	2	8.57
1980	7	14	173,455	5	3.62
1981	2	15	119,230	3	1.86
1982	2	11	83,769	3	3.57
1983	3	2	22,986	-	4.87
1984	1	1	33,473	-	3.89
1985	-	-	-	-	2.89
1986	-	-	-	-	2.52
1987	1	3	27,489	-	2.04
1988	2	5	164,670	3	2.18
1989	3	5	48,984	2	1.88
1990	2	2	24,776	3	1.73
1991	2	8	69,804	4	1.09
1992	-	5	43,699	-	3.26
1993	-	4	39,316	1	3.32
1994	3	8	75,033	1	1.67
1995	6	3	43,307	-	0.95
1996	1	2	27,655	-	0.33
1997	-	2	13,782	-	0.30

Source: Philippine Yearbook, various years

Table II. 13: Yearly Performance of Geothermal Resources Development

Year	Number of Wells Drilled	Total Well Capacity (MW)	Installed Capacity (MW)	Million barrels of fuel oil equivalent
1977	56	253	3	-
1978	88	430	-	0.01
1984	12	1348	110	7.81
1985	13	1485	-	8.53
1986	6	1448	-	7.89
1992	24	1470	6	9.83
1996	11	1900	254	11.27
1997	12	2043	-	12.81

Source: Philippine Yearbook, various years

Marcos Administration

Total installed capacity in 1977 was 3,288 Megawatts (MW) due to the operation of ten major generating units. Thirty-two power plants and 2,555 kilometers of transmission lines over Luzon, Cebu and Negros were constructed while 182,000 additional households had access to electricity during the year.

Two additional oil wells (South Nido and Cadlao I) were discovered in 1977 which brought to four the number of oil wells in the country. Intensified search for oil led to the drilling of thirteen wells which produced a total footage of 127,332 feet.

Coal production reached 284,554 metric tons. Drilling of 21 geothermal wells was completed during the year with initial power capacity estimated at 88.75 megawatts. Eight wells were in Tiwi, Albay, nine in Makiling, Laguna and four in Leyte.

The main objective of the 1984-1987 Medium-Term Philippine Development Plan was to reduce dependence on imported energy, particularly on crude oil energy. Among the more important strategies supporting aforementioned objective were: a) diversification of geographical sources of petroleum supply; b) accelerated diversification to alternative sources of energy; and c) promotion of research and development for indigenous energy resources.

Oil import dependence was reduced to 56.14 percent in 1984 from 81.03 percent in 1977 due to the development of indigenous energy sources. In 1985, the 620 MW nuclear power plant was constructed in Bataan. The plant did not operate and was mothballed by the Aquino government when it took power from the Marcos regime.

Electrification reached 1,270 municipalities/cities, 19,680 barangays and around 2.7 million households in 1986 which represented 45.6 percent of total households.

Aquino Administration

The Aquino administration continued the diversification of fuel sources and the development of indigenous resources started during the previous administrations. Concern focused on the rehabilitation of existing oil-fired plants and the restructuring of the power rates to reflect the financial and economic costs of providing power. In 1989, the National Power Corporation finalized the implementing the rules and regulations of Executive Order 215. During this period, private capital was invited to participate in the construction and operation of energy projects through the "build and operate" scheme for new power plants and joint ventures for coal and geothermal development projects.

Despite the attempt to develop indigenous energy sources, by 1992 the dependence on imported energy was at a level of 70.7 percent. Oil use in power generation reached 54 percent in the same year due to the commissioning of gas turbine units.

Three oil wells and a natural gas well were discovered in northwest Palawan. The period also witnessed the establishment of a small-scale coal-mining program and the first Solar Energy Cooperative in Masbate.

Severe power supply shortages were experienced from 1989 until the end of the Aquino administration. There were daily brownouts that lasted up to 12 hours in 1992, the last year of the Aquino administration. The main reasons for the power supply shortfall were: (a) limited hydropower capacity due to prolonged dry spells, (b) breakdown of existing facilities and (c) the failure of the government to develop new power projects, e.g. lack of substitution to the mothballed Bataan Nuclear Power Plant.

On the other hand, despite financial difficulties, Rural Electric Cooperatives (RECs) were able to raise rural electrification level to 50 percent in 1992 covering 3.5 million households.

Total installed capacity in 1992 was 6,949 megawatts.

Ramos Administration

Ramos considered the lack and inefficiency of power as the major infrastructure problem during his term. The three main objectives in this period were: a) the provision of adequate and reasonably priced energy to households and productive sectors; b) the promotion of efficient use of energy resources; and c) the minimization of ecological damage in the design and implementation of energy projects. Private sector participation in the energy sector was further enhanced with amendments to the Build Operate and Transfer Law.

RA 7638 created in 1992 the Department of Energy to coordinate the implementation of energy development policies and programs. The Electric Power Crisis Act was enacted in 1993 to grant the President emergency powers to negotiate contracts for the construction,

repair, rehabilitation and maintenance of power plants, projects and facilities. This resulted in seven fast-tracked projects which ended the power crisis in the same year.

The Downstream Oil Industry Deregulation Act (RA 8180) was enacted in 1996 but a year later it was declared unconstitutional by the Supreme Court because of the following provisions: (a) four percent tariff differential between imported crude oil and refined petroleum product; (b) the requirement of minimum inventory; and (c) predatory pricing as a prohibited act. It was replaced by another oil deregulation law, RA 8479 which took effect on February, 1998.

Total installed capacity by 1998 was 12,067 MW, an increase of 73.7 percent from 6,949 MW in 1992. Forty-seven percent of this figure was contributed by the private sector. Meanwhile, the country's transmission lines reached 17,978 circuit kilometers with the construction of an additional 3,494 circuit kilometers. The following interconnection projects were also completed: Negros-Cebu, Leyte-Cebu, Leyte-Luzon, Samar-Leyte, Negros-Panay and Negros-Cebu.

Dependence on indigenous energy increased to 40.7% as of December 1998 compared to 29% in 1992 due to the vigorous exploration of oil, gas, geothermal, coal and hydro power. Among these, geothermal energy accounted for 21% or 8,914 GWh of the total energy generation of around 41,578 GWh in 1998.

The country's three oil fields have produced 9.832 million barrels of fuel oil equivalent saving US$144.6 million worth of oil imports since June 1992. The San Antonio Gas field saved US$2.82 million by displacing 0.17 million barrels of fuel oil equivalent since starting operations in 1994. In 1992, the Camago-Malampaya gas field was discovered in Palawan. It was estimated to have 26 to 59 million barrels of oil and 3.2 trillion cubic feet of gas.

Geothermal energy, on the other hand, displaced 65.2 million of fuel oil equivalent to foreign exchange savings of US$1,126.2 million. Coal production from 1992-1998 displaced 23.2 million barrels of fuel oil equivalent, saving the country US$ 398.8 million. Hydro-power displaced 64.6 million barrels of oil corresponding to savings of US$1,104.8 million.

New and renewable energy sources made up 28.8 percent of the country's energy consumption with wind power being identified as having a potential as source of energy. In June 1997, a pilot wind turbine generator unit with a capacity of 10KW was installed in Pagudpud, Ilocos Norte.

For rural electrification, electric cooperatives constructed 14,223 kilometers of distribution lines while a total of 5,144 kilometers were rehabilitated. As a result, 4.4 million (60%) of households, 1,450 (100%) municipalities and 24,719(69%) barangays had access to electricity as of end-1997.

Estrada Administration

Energy policies during this period were geared to support the administration's pro-poor policy and the restructuring of the energy sector. Strategies included the restructuring of the

power sector to improve efficiency and accountability and the expansion of electrification to non-viable areas through electric cooperatives.

The country's energy self-reliance level was 44.85% in 2000 compared to 40.7% in 1998. The share of geothermal energy in the country's power generation mix climbed from 8,914 gigawatt-hours(GWh) in 1998 to 11,626 Gwh in 2000 because of the completion of the Leyte-Luzon interconnection project and the commissioning of the 48.25 MW Mindanao II geothermal plant. Hydro power also increased from 5,066 GWh to 7,799 Gwh in the same period because of the commissioning of the Bakun I hydro power plant.

Table II. 14: Historical Energy Consumption by Source (in million barrels of fuel-oil equivalent)

	1977		1982		1984		1986		1992		1998		2000	
PARTICULARS	volume	%	volume	%	volume	%	volume	%	volume	%	volume	%	volume	%
Indigenous Energy	17.02	18.97	30.21	31.61	39.11	41.7	41.34	44.32	38.01	29.3	97.93	40.7	111.89	44.85
I. Conventional	4.25	4.74	16.96	17.75	24.1	25.69	25.13	26.94	22.69	17.5	29.25	12.21	36.82	14.76
oil	0	0	2.95	3.09	3.54	3.77	2.85	3.05	0.54	0.42	0.27	0.11	0.32	0.13
gas	0	0	0	0	0	0	0	0	0	0	0.04	0.02	0.04	0.02
coal	0.91	1.02	1.11	1.16	3.65	3.89	4.02	4.31	4.99	3.85	4.84	2.02	4.4	1.76
hydro	3.34	3.72	6.65	6.96	9.1	9.7	10.37	11.12	7.33	5.65	8.74	3.66	12.33	4.94
geothermal	*	0	6.25	6.54	7.81	8.33	7.89	8.46	9.83	7.6	15.37	6.4	19.73	7.9
II. Non-conventional	12.77	14.23	13.25	13.86	15.01	16.01	16.21	17.38	15.32	11.81	68.68	28.52	75.08	30.1
bagasse	7.59	8.46	7.35	7.69	6.57	7.01	4.09	4.39	6.08	4.69	10.17	4.24	10.68	4.28
agriwaste	5.18	5.77	5.82	6.09	8.25	8.79	11.65	12.49	8.83	6.81	58.42	24.25	64.22	25.74
others	0	0	0.08	0.08	0.19	0.21	0.47	0.5	0.41	0.32	0.06	0.03	0.18	0.07
Imported Energy	72.71	81.03	65.37	68.39	54.67	58.3	51.93	55.95	91.66	70.7	142.33	59.3	137.57	55.15
oil	72.71	81.03	69.37	68.39	52.64	56.14	49.76	52.57	88.97	68.61	128.93	53.77	113.3	45.42
coal	0	0	0	0	2.03	2.16	2.17	3.39	2.69	2.07	13.40	5.5	24.28	9.73
Total Energy	89.73	100	95.58	100	93.78	100	93.27	100	129.67	100	240.23	100	249.47	100

Note: Columns may not add up due to rounding
Source: Philippine Statistical Yearbook, various years

Transmission lines reached 20,500 circuit kilometers because of the additional 407.5 circuit kilometers installed and the completion of Phase I of the Leyte-Bohol grid. As of 2000 installed generating capacity was 13,196 MW, of which 59.7% were privately operated. Table II.17 lists aggregate installed generating capacity since 1977.

The tow-out of the concrete gravity structure from the Subic Bay Freeport to Palawan for the Malampaya Deep Water Gas-to-Power project was completed. Some 504-kilometers of pipeline were laid from the offshore field to the Tabangao onshore gas processing plant in Batangas.

In 2000, 27,879 barangays had access to electricity bringing the electrification level to 80.1% vis-à-vis 76.9% in 1999.

Arroyo Administration

Major thrust of the current government is the electrification of all barangays in remote and marginalized areas using solar and wind power. This is consistent with the strategy of self-sufficiency through the use of sustainable and renewable energy sources.

A major accomplishment in the restructuring of the energy sector was the passage of the Electric Power Industry Reform Act in 2001. It provided for the privatization of the National Power Corporation and the unbundling of electric power sector into generation, transmission and distribution by the private sector. It aims to strike a balance between greater competition while protecting consumer welfare in the power sector. This act provided that power-generating companies sell their electricity to the Wholesale Electricity Spot Market. Then, power supply is bid out to distribution utilities through their brokers for eventual sale to retailers. The WESM is a stock market for electricity wherein daily buying and selling of energy by all electric-power generating companies will lead to lower electric prices for the consumers.

Total installed capacity in 2001 amounted to 13,252 megawatts which is 0.57% higher than that of 2000. The operation of two hydro plants with a combined capacity of 77 MW contributed to this increase. Transmission lines totaling 225.71 circuit kilometers were constructed. Barangay electrification level reached 83.1 percent which is equivalent to 34,890 barangays enjoying electric power. Tables II.17 and II.18 show the status of access to energy of different parts of the country.

Future plans for the energy sector include efforts to access local energy sources or a total of 1,933 million barrels of fuel oil equivalent from the period 2002-2011. It is hoped that at the end of the said period the country's energy self-reliance will rise to 50%. For this to happen, an average of 37 geo-thermal wells will have to be drilled annually to meet the 3,484 MW steam requirement by 2011. Gross generation is expected to increase from 8,940 GWH in 2002 to 25,233 GWH in 2011. This will make the country number one worldwide regarding installed generating capacity from geothermal sources. Currently, the Philippines is second to the United States in this aspect.

Table II. 15: Status of Energization, by Region and Province

	Municipalities					Barangays					
	1977	1986	1991	1998	2000	1977	1986	1991	1993	1998	2000
Philippines	541	1270	1303	1450	1454	5,736	19,680	21,393	22,857	25,893	27,879
CAR				73	73					825	894
Region I	108	142	146	116	116	1,367	3,069	3,244	3,341	2,939	2972
Region II	21	93	97	97	97	196	1,376	1,575	1,732	1,732	1,887
Region III	87	91	91	91	92	1,283	1,732	1,823	2,150	1,962	2,021
Region IV	57	145	150	148	148	564	2,419	2,653	2,547	2,687	2,907
Region V	65	98	100	112	113	471	1,964	2,036	2,143	2,430	2,566
Region VI	59	128	128	132	132	480	1,832	2,070	2,289	2,810	3,053
Region VII	19	120	120	121	121	145	1,528	1,703	1,809	2,099	2,268
Region VIII	27	110	114	143	143	228	1,599	1,836	2,057	2,744	3,076
Region IX	18	65	70	80	80	147	762	822	927	1,133	1,230
Region X	14	112	113	67	66	142	1,422	1,522	1,612	1,164	1,229
Region XI	19	72	80	79	65	124	659	764	880	989	980
Region XII	44	94	94	31	45	539	1,318	1,345	1,370	406	610
Region XIII				73	73					964	1,094
ARMM				87	90					1,009	1,092

Source: Philippine Yearbook, various years

Table II. 16: Access to Electricity by Households

	1977	1986	1991	1993	1998	2000
Philippines	652,554	2,731,680	3,187,069	3,564,962	4,738,648	5,300,056
CAR					135035	159718
Region I	119,503	370,721	421,302	460,457	479,803	526,825
Region II	15,883	166,092	199,530	228,422	306,445	346,525
Region III	188,165	384,930	431,985	545,903	602,875	662,151
Region IV	90,844	412,909	464,990	420,837	516,688	582,714
Region V	58,310	267,185	303,615	337,633	429,435	474,286
Region VI	48,207	250,131	289,885	336,732	480,092	542,774
Region VII	12,087	152,023	199,511	235,209	344,414	399,149
Region VIII	28,318	140,853	172,934	203,342	304,468	333,984
Region IX	23,344	118,479	139,668	159,269	219,972	242,967
Region X	16,927	206,660	240,541	268,290	221,714	243,383
Region XI	18,821	166,654	210,671	245,721	317,517	322,055
Region XII	20,050	95,039	112,837	123,290	89,205	136,475
Region XIII					225,646	250,662
ARMM					65,339	76,388

Source: Philippine Yearbook, various years

Table II.17: Energy Summary

	1977	1982	1986	1992	1998	2000	2001
Generation by Plant Type (in gigawatts)	11,336	17,413	19,263	25,870	41,578	45,290	
oil-based	9,154	10,016	6,970	13,939	18,190	9,185	
coal	no data	60	1,718	1,791	9,388	16,663	
hydropower	2,181	3,751	5,989	4,440	5,066	7,799	
geothermal	1	3,586	4,586	5,700	8,914	11,626	
Consumption (million barrels of fuel-oil equivalent)	89.73	95.58	93.27	129.67	240.23	249.47	
conventional oil	0	2.95	2.85	0.54	0.27	0.32	
imported oil	72.71	65.37	49.76	88.97	128.93	113.3	
conventional coal	0.91	1.11	4.02	4.99	4.84	4.4	
imported coal	0	0	2.17	2.69	13.19	24.28	
hydropower	3.34	6.65	10.37	7.33	8.77	12.33	
geothermal	0	6.25	7.89	9.83	15.36	19.73	
non-conventional sources	12.77	13.25	16.21	15.32	68.68	75.08	
Access to energy							
number of households	652,554	no data	2,731,680	no data	4,738,648	5,300,056	
number of barangays	5,736	no data	19,680	no data	25,893	27,879	34,890
Total Installed Generating Capacity (in megawatts)	3,288	5,148	6,503	6,949	12,067	13,196	13,252
oil	2,543	3,277	2,741	3,399	5,704	5,201	
coal	0	50	530	405	2,200	3,825	
hydropower	742	1,262	2,147	2,257	2,304	2,304	
geothermal	3	559	894	888	1,856	1,863	
non-conventional sources	0	0	191	0	0	0	
natural gas	0	0	0	0	3	3	

Note: columns may not add up due to rounding off
blanks are due to unavailability of data

Source: Philippine Statistical Yearbook and Philippine Yearbook, various years

Outstanding Issues in the Energy Sector

The main concern right now is the efficient implementation of the Electric Power Industry Reform Act of 2001. The bill provides a framework for the restructuring of the electric power industry by dividing the industry into four sectors, namely, generation, transmission, distribution, and supply.

The main challenge is to have an efficient privatized NPC in contrast to the debt-laden and inefficient government-owned and controlled NPC. The missionary areas will continue to be served by the small power utilities group such as the rural electric cooperatives.

In the new organization of the electric power industry, generation of electric power will not anymore be considered as a public utility while the transmission of electricity will be a regulated common electricity carrier business. A company who wishes to engage in the generation of electricity needs only to secure a certificate of compliance from the Energy Regulatory Commission (ERC).

Electrical transmission will be done by the National Transmission Corporation (TRANSCO) which will be wholly owned by the Power Sector Assets and Liabilities Management Corporation (PSALM). PSALM is a government-owned and controlled corporation which shall takeover all existing NPC generation assets, liabilities, Independent Power Producers (IPP) contracts, real estate and other disposable assets. It is tasked with the privatization of the NPC assets and IPP contracts and the liquidation of debts and stranded contract costs. The law also created an inter-agency committee which will undertake a thorough review of all IPP contracts. If a contract is found to be grossly disadvantageous to the government, the PSALM Corporation will file an action under the arbitration clauses provided in said contract.

The distribution of electricity, which means providing transmission service to the generating resources and delivering power to distribution utilities and directly connected customers, will also be a regulated common carrier business requiring a national franchise. Private distribution facilities, cooperatives and local government units can engage in this function.

To supply electricity means to harness energy from energy sources for consumption. Similar to the distribution sector, all suppliers of electricity need a license from the ERC to operate.

C. WATER SUPPLY, SEWERAGE AND SANITATION

One of the most basic and most vital elements for life and human development is water. However, it is often the poor who have minimal access to safe water supply. They either are underserved or unserved which render vulnerable their only capital, human capital.

The water sector covers three areas of responsibility: (1) Metro Manila; (2) provincial urban areas; and (3) rural areas. Water supply in Metro Manila is currently provided by the Metropolitan Waterworks and Sewerage System (MWSS) through its two concessionaires, Manila Water Company Inc. and Maynilad Water Services, Inc. Water supply in provincial urban areas are provided by the local water districts, local government units, and private utilities while provincial rural areas are served by the Rural Waterworks and Sanitation Associations (RWSAs), Barangay Waterworks and Sanitation Associations (BWSAs) and Local Government Units (LGUs).

The Manila Waterworks Authority, established in 1878, evolved into the Metropolitan Waterworks and Sewerage System in 1971. It had been a government corporation until it was privatized in August 1997. It is responsible for the water supply of 37 cities and municipalities in Metro Manila and two adjoining provinces.

Sewerage is defined as "public facilities that collect wastewater form residences and establishments usually piped and conveyed in structures (sewers, pump stations) for eventual

central treatment and safe disposal. Piped sewerage includes a collection system (street laterals) and a conveyance system (trunk sewers and pump stations)" (Philippines Urban Sewerage and Sanitation National Strategy and Action Plan, 1994). Sewerage facilities are supposed to be provided by the water supply facility operators themselves. However, due to the prohibitive investment requirements of establishing a sewerage system, only a portion of the total population has access to sewerage facilities. Thus, households either dump wastewater in septic tanks or water suppliers collect and dispose untreated household wastewater into available water canals and rivers.

The World Bank (2000) cited two main points that can provide an impetus for the improvement of water supply in the Philippines. First is the establishment of a single, independent water regulatory agency; next is the proper pricing of water supply.

Private sector participation can improve and expand water supply facilities. It has been used by various countries to bridge the technological, financial, and technical gaps that hinder the development of water supply facilities (ADB, 2000).

In the Philippines, private sector participation in water supply activities is in the form of franchises, privatized water districts and water concessions. Under the Public Service Act, private sector investors could construct, operate and maintain waterworks systems in provincial urban areas, after securing a legislative franchise from Congress and water permits from the National Water Resources Board. Other newer modes of private sector participation in the water sector are concession agreements and Build-Operate-Transfer (BOT) variants.

Marcos Administration

In 1978, PD 1345 put the centralized water supply system in residential subdivisions under MWSS' jurisdiction. In the same year, the Local Water Utilities Administration (LWUA) chartered under PD No. 198 (also known as "Provincial Water Utilities Act of 1973") was amended through PD No. 1479 to introduce direct government support to non-viable water districts. The National Water Resource Council (NWRC) was created in 1978 to coordinate policies affecting water resources.

Under the 1977-1982 Five-Year Philippine Development Plan, the government planned to intensify the organizations of Water District Boards and involve barangays in water utility operations through cooperatives.

The Marcos administration gave priority to highly industrialized and commercialized, and densely populated areas (Medium Term Plan [MTPDP] 1978-1982). However, in 1980, the administration decided to expand water supply provision and give attention to rural areas as well. Through Executive Order (EO) 577, the Rural Waterworks Development Corporation (RWDC) was formed. The corporation was meant to intensify water supply provision in areas not covered by the MWSS and LWUA through the creation of rural water supply associations which would "construct, operate and maintain water supply systems in the rural areas" (SER, 1980).

The MTPDP for 1984-1987 stated that water supply service levels shall depend on the technical and economic stature of the service area. The government envisioned bringing water supply services to 70% of the total population by 1987 and 90% by 1992. By the end of the Marcos administration, it was reported that 49.2% of the total Metro Manila population under MWSS coverage was served with water supply while 73% and 53% of total population were served with water supply in the urban and rural areas, respectively. According to the 1977-1982 Five Year Philippine Development Plan, only 5% of the Philippine population was served with public sewerage systems. Marcos planned to expand the coverage of the public sewerage system to 37% of the population by 1987 (see table below). However, by the time Marcos was booted out of office by the People Power Revolution in early 1986, only Metro Manila, Baguio City And Zamboanga City had central sewerage system (MTPDP 1987-1992).

Table II.18: Actual and Programmed Population Served with Public Sewerage System

Percent of Population served by Public Sewerage System	Actual	Programmed	
	1977	1982	1987
Metro Manila	18	18	35
Rural	2	2	32
Other Urban	5	5	50
Total (Philippines)	5	5	37

Source: 1978 - 1982 Five Year Development Plan

Aquino Administration

The Aquino administration sought ways to avoid overlapping of functions of water agencies. In 1987, LWUA absorbed the responsibilities of the Rural Waterworks Development Corporation (RWDC) to avoid overlapping and duplication of functions between these agencies (SER, 1985). In 1989, NEDA Board Resolution No. 5, Series of 1989, was issued which delineated the water supply provision functions of the Department of Public Works and Highways (DPWH) from that of the LGUs and LWUA. DPWH, in cooperation with the LGUs, was made to implement Level I water systems while LWUA was made to handle Levels II and III water supply projects.

Compared to the highly centralized system of the Marcos administration, the Aquino government started the decentralization of authority over projects. Certain infrastructure functions of agencies were devolved to Local Government Units (LGUs). Consequently, Memorandum Order 175, which provided the guidelines for the implementation of local infrastructure projects by LGUs funded by the national government. The LGU Code gave authority to barangays, municipalities, provinces, and cities to maintain and/or finance and/or provide water supply systems.

Under MTPDP (1987-1992) the government planned to make water supply services reach 70% of the total population by 1992. In 1992, about 66% (42.6 million) of the total population had access to safe water supply, posting a 5 percentage point increase from 61% in 1986. About 61% or 5.98 million of total households in Metro Manila had direct service

connections under the MWSS. Forty-seven percent (47%) of the total urban residents not covered by MWSS services had access to public faucets and household connections (Water service levels II and III, respectively) while 80% of the total rural population was provided with water service level I (MTPDP 1983-1998).

Ramos Administration

To facilitate water supply development, NEDA Board Resolution No. 4 encouraged local government participation in water supply and sanitation. NEDA Board Resolution No. 5 approved a national policy, strategy and action plan for the development of urban sewerage systems and sanitation. This resolution emphasized three key areas: (1) the strengthening of the National Water Resources Board; (2) the rationalization of financial functions of LWUA whereby only viable water supply projects will be given financing opportunities; and (3) the privatization of local water districts. (Socio-Economic Report, 1994).

The enactment of RA 7718 ("Amended BOT Law") and RA 8041 ("National Water Crisis Act of 1995") were the keys to the privatization of large water districts and encouraged private investors in the water sector. The former made legal other BOT variants that helped widen opportunities for private sector participation while the latter addressed issues and concerns on water distribution, finance, asset privatization, protection and conservation of watersheds and water pilferage. Executive Order No. (EO No.) 37 (1997) reiterated guidelines for the privatization program of not only roads and ports but also water supply facilities and services. RA 8041, RA 7718 and EO 37 all encouraged the privatization of the water districts and other water services.

A noteworthy accomplishment of this administration was the planning, preparation and implementation procedures for the privatization of the MWSS (please see Box II.1).

On June 1994, the MWSS underwent reorganization through Executive Order No. 963. Letter of Instruction (LOI) No. 1388 instructed "owners and/or users of unregistered and unauthorized water/sewer connections, devices or instruments to comply with MWSS rules, without penalty" (SER 1994). Both laws were expected to improve water supply services of the MWSS.

The government recognized the need for an integrated approach towards water management in the country. A major concern was weak interagency coordination. To address this, the Master Plan on Water Resources Management Study and Executive Order 374 were formulated and issued, respectively. Executive Order 374 created the Presidential Task Force on Water Resources Development and Management, which was tasked to ensure efficient use of water resources. The same task force proposed the creation of the Water Resources Authority of the Philippines (WRAP), which would be the regulatory body for the overall management and development of water resources.

Ramos carried the same basic thrust of previous administrations - to expand water supply coverage and sanitation services throughout the country. The target was to increase the number of population served with adequate potable water to 71% (9.1 million) of Metro Manila population, 71% (15.5 million) of the population residing in areas outside of Metro Manila and 85% in rural areas. By end of 1997, 53.6% of the total 12.14 million population

covered by the MWSS service system have gained access to water supply. Meanwhile, 31 million residents in rural areas served by LWUA and 12.5 million residents in urban areas had access to water supply. Rural areas were served with levels I and II water service.

Some 3.9% of the population within MWSS coverage areas have access to sewerage facilities; no data on sewerage facilities were recorded for areas outside MWSS service coverage (MTPDP 2001-2004). MTPDP 1993-1998 and Updated MTPDP 1996-1998 planned for the gradual and phased development of sewerage facilities because of the prohibitive costs of putting up sewerage facilities.

BOX II.1 The Privatization of the Metropolitan Waterworks and Sewerage System

In 1995, with a US$1 million grant for technical assistance from the French Government, MWSS sought the services of the International Finance Corporation (IFC) to become the lead adviser of the study. Its mandate was to:

> *"…evaluate and recommend the transaction structures for privatization in the light of government objectives, sector requirements, water resources, and projected demand, labor considerations and operational, legal and financial constraints."* (ADB,2000)

Via RA 8041 (National Water Crisis Act), IFC was able to comply with the selection and hiring of consultants not connected with IFC without going through a bidding process. In the course of study formulation, it was found best to implement water supply services privatization through concession agreement. This contract was formulated on the premise that concessionaires will only operate and manage existing facilities, but MWSS will preserve its ownership of the fixed assets. Essentially, MWSS would retain its responsibility of providing water to its designated service area. The agreement followed IFC's study which suggested that MWSS should have a regulatory office which was to be housed within MWSS but should be independent of MWSS activities. This regulatory office should be composed of five members and a chief regulator, all reporting to MWSS Board.

Transaction cost of the privatization process amounted to a total of US$5.8 million, of which, $3.8 million was paid as consultancy fees while the remaining $2 million was treated as a success fee paid by the winning Concessionaire to IFC.

The MWSS service area was divided into two zones: the East and the West Zone.

Zonal Boundaries with Corresponding Winning Concessionaire

Zone	Population 1995	Water Supply Coverage 1995	Facilities	Name of Concessionaire	Consortia
EAST	4.5 million	71%	Balara I and II treatment plants Makati City & Quezon City Sewerage Systems	Manila Water Company (MWC)	Ayala Corporation/ Bechtel
WEST	6.3 million	63%	La Mesa I and II treatment plants Central and Dagat Dagatan Sewerage Systems	Maynilad Water Services	Benpres Holdings Corporation/ Lyonnaise des Eaux

Source: ADB, 2002

Estrada Administration

MTPDP 1998-2004 sought to promote efficient and effective water resource use. Estrada's MTPDP's simple objectives were to: (a) create an independent authority that will formulate policies on water management, regulation, utilization planning and conservation; (b) develop a pricing mechanism that will consider cost recovery and internalize externalities in the use of water resource; (c) tighten implementation of watershed rules; and (d) encourage private sector participation in the water resource administration through promotion of market-based incentives for water conservation.

The Water Resources Management Study was funded by a grant from the Japan International Cooperation Agency (JICA), in cooperation with the National Water Resources Board (NWRB) to address two main concerns: (a) absence of line agency in-charge of water facilities monitoring; and (b) the weakness of coordination among concerned agencies. Another accomplishment was the installation of data bank softwares in 10 water districts by LWUA's Technical Research and Development Division which was intended to facilitate inventory of water resources (MTPDP 2001-2004).

As of early 2001, 5.9 million of the Manila population was served by MWSS; 84.77% of the total rural households had Levels I, II, and III water supply provision while 18.3 million of urban households had water supply access.

About 3.9% of the total population under the MWSS service coverage have sewerage facilities, while 4.1% of the total population outside MWSS coverage have sewerage facilities. Plans for sewerage expansion were seen to be moderate. Planned increase in coverage was at 1.63 million people, bringing total MWSS service population to 2.547 million or 15.92% of total population under MWSS in 2004 (MTPDP 1993-2004).

Arroyo Administration

The MTPDP 2001-2004 called for a shift of focus from the BOT (Build-Operate-Transfer) scheme to concessions and similar arrangements for the privatization of water supply sewerage and sanitation activities. Further, the MTPDP aims to pursue economies of scale, to wit:

> *(Efforts will be directed to)"Develop and provide incentives for contiguous water districts to amalgamate into single business entities to attain economy of scale in project development cost"* (MTPDP 2001-2004)

To further the development of water supply, plans were also made to: (a) enact the Water Regulatory Commission Bill which will form a single agency to regulate all piped-water supply and sewerage systems; and (b) amend PD 198 (Provincial Water Utilities Act of 1973) to increase LWUA's capitalization from P2.5 million to P10 billion.

Table II.19 illustrates the increase of the percentage of population in Metro Manila served with water supply facilities from the reported record of the Marcos administration of 49.2% to 82% in 2001 (MWSS). A point to be noted is the low access of rural areas to water supply across all administrations.

Table II.19: Percentage of Population Served by Location, by Administration [1]

Area	End of Marcos Administration (1986)	End of Aquino Administration (1992)	End of Ramos Administration (1998)	End of Estrada Administration (2001)	Average % of Population Served 2
Metro Manila Area	49.2%	53.6%	63%	82%	61.95
Other Urban Areas	73%	47%	74%	88%	70.5
Rural Areas	53%	80%	86.7%	84.8%	76.13

[1] Data for Metro Manila came from MWSS except for the Metro Manila data under Aquino Administration. The rest of the data came from the assessments of various Medium Term Plans.

2 This was calculated by getting the averages of the end administration figures

Before privatization, MWSS recorded the highest rate of non-revenue water bordering at 60% compared to selected Asian countries (David, 2000). Average non-revenue water for developing Asian countries was 7%-30%, with the lowest recorded by Singapore.

During the first two years of privatization, recorded figures for non-revenue water for the East Zone were between 39% and 40%. This can be partly attributed to El Niño which reduced water production. Non-revenue water later increased to roughly 43% in 2000 and 2001. All of the non-revenue water figures for the West Zone, on the other hand, were higher than those of the East. The West's non-revenue water was already high at 60.70% in 1998 (a year after privatization), which increased to almost 67% in 1999, and barely decreased or increased until 2001. It should be noted, however, that interconnection flows (or the cross boundary volume) which is bulk water sold by the East Zone concession to the West Zone contributes substantially to the latter's large non-revenue water (Inocencio and David, 2001). Reduction of non-revenue water entails efficiency in meter reading, aggressive repairs of leaks, replacement of defective meters and closing of illegal connections.

Table II.20: MWSS Service Status Before and After Privatization[15]

Particulars	MWSS before Privatization (July 1997)	1998			1999			2000			2001		
		East Zone	West Zone	Total	East Zone	West Zone	Total	East Zone	West Zone	Total	East Zone	West Zone	Total
Service Area (in square km)	1,840	1,400	540	1,940	1,400	540	1,940	1,400	540	1,940	1,400	540	1,940
Service Population (in million)	11	4,798	7.2	11.998	4.96	7.4	12.36	4.562	7.285	11.847	5	6.6	11.6
Population Served (in million)	7.15	3.112	4.4	7.512	3.59	4.1	7.69	3.761	5.256	9.012	4	5.5	9.5
Percent Coverage	65%	65%	61%	63%	72%	55%	62%	82%	72%	76%	80%	83%	82%
Water Production (million liters per day)	3,000	1,261	1,512	2,773	1,668	2,191	3,859	1,693	2,258	8,951	1,500	2,450	4,050
Length of Pipelines (in km)	4,500	2,000	2,509	4,509	2,300	2,509	4,809	2,115	3,800	5,915	2,500	3,800	6,300
No. of Service Connections	825,000	327,204	440,039	767,243	390,350	467,488	857,838	408,874	571,282	980,156	408,874	653,551	1,062,425
Percentage of Non-Revenue Water	60	39.20	60.70		39.70	66.60		42.90	66.20		43	67	

Data came from the submissions of MWSS to NEDA-Infrastructure Staff

After privatization, the total population served increased from 7.15 million in 1997 to 9.5 million in 2001. While this was true for the total population served, the percentage of coverage (the ratio between the total population served and the total population covered by the MWSS service area), decreased by -3.08% in 1998 and -1.59% in 1999. However, growth of the coverage later picked up its pace when it increased by 22.58% in 2000 and 7.9% in 2001.

Table II.21 records the number of families with access to safe water supply. In Luzon, the region having least access to safe water supply was the Bicol Region, followed by Region IV. Among the three regions in Visayas, population in Region VIII recorded the smallest number of families with access to safe water supply. Two other Visayan Regions had gradual and marginal increase in access to safe water supply, compared to Region VII which was able to catch up with its neighboring regions in 1999. Regions IX, X, XI and XII

[15] Per MWSS's explanation, the East and West Zones based their Service Population on the Population figures generated by the National Statistics Office. The sudden drop of the Service Population from 12.36 million in 1999 to 11.847 million in 2000 was due to the Census conducted in 2000 which altered the projected population figures thereby causing the MWSS figure to drop by 513,000 million.

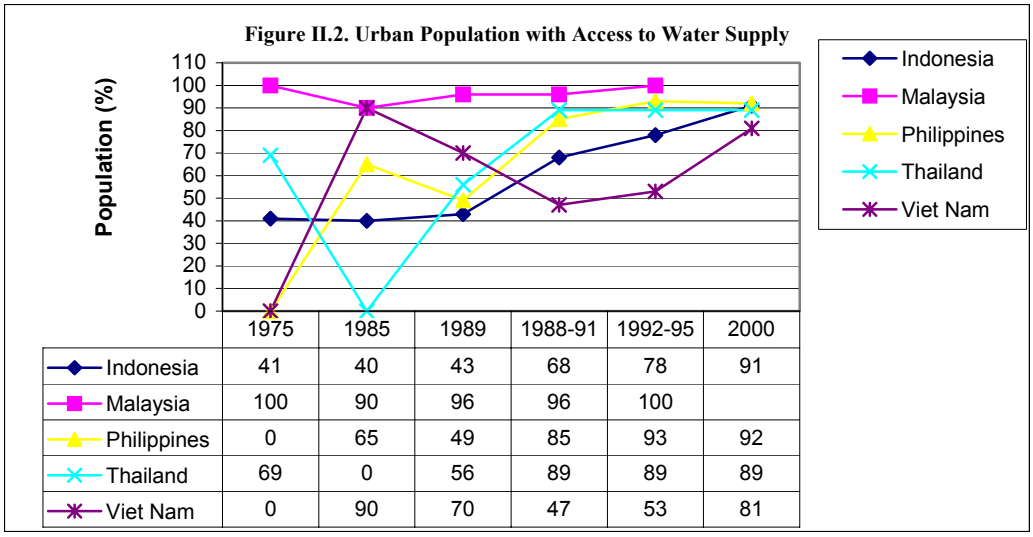
recorded comparable figures with the rest of the country, except for Region XI's record in 1985 and 1988. The lowest figures came from the Autonomous Region of Muslim Mindanao with less than 30 percent of families having access to safe water supply.

Table II.21: Proportion of Families with Access to Safe Water Supply, by Region

Region	1985	1988	1991	1994	1997	1998	1999	2000
Philippines	69.9	71.9	73.7	77.3	76.9	78.1	79.1	78.6
National Capital Region	88.3	92.0	84.5	90.1	87.8	85.8	84.0	85.1
Region I-Ilocos	81.7	83.9	85.1	87.6	84.4	89.2	89.0	88.9
Region II-Cagayan	70.3	80.2	81.7	84.0	75.6	84.8	84.5	83.6
Region III-Central Luzon	96.3	96.0	96.0	97.1	97.1	97.0	97.2	96.3
Region IV-Southern Tagalog	76.2	78.0	79.8	84.3	84.7	84.3	85.5	84.5
Region V-Bicol	58.5	61.0	64.0	69.7	67.0	70.9	74.0	65.8
Region VI-Western Visayas	47.6	54.4	54.0	62.4	65.6	67.5	66.1	68.4
Region VII-Central Visayas	57.0	57.9	62.4	66.3	63.8	64.8	67.4	71.9
Region VIII-Eastern Visayas	64.0	60.8	71.8	75.0	74.5	72.9	80.0	79.9
Region IX-Western Mindanao	40.2	38.5	44.4	57.3	60.3	60.5	64.8	61.6
Region X-Northern Mindanao	63.5	68.8	68.0	69.3	74.8	74.2	75.8	77.2
Region XI-Southern Mindanao	73.0	75.3	75.1	74.4	73.1	78.3	78.2	73.2
Region XII-Central Mindanao	49.0	49.8	72.9	77.0	73.7	77.1	81.6	79.6
Cordillera Administrative Region	*	66.1	79.3	83.9	74.2	79.7	83.6	81.4
Autonomous Region of Muslim Mindanao	**	**	16.6	26.0	30.2	29.0	29.1	30.7
CARAGA	***	***	***	***	77.7	77.9	82.3	80.0
Notes:								
Considered as safe water comes from community water system, tubed/piped deep wells and tubed piped shallow wells								
*Provinces under CAR were part of Regions I and II in 1985.								
**ARMM was created into a Region under RA No. 7864 dated November 26, 1989. Provinces under this Region were part of Regions IX and XII in 1985 and 1988.								
***CARAGA was created into a region under RA No. 7901 dated February 23, 1995. Provinces under this Region were part of Regions X and XI in 1985, 1988, 1991 and 1994								

Source: Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) at www.panasia.org.sg

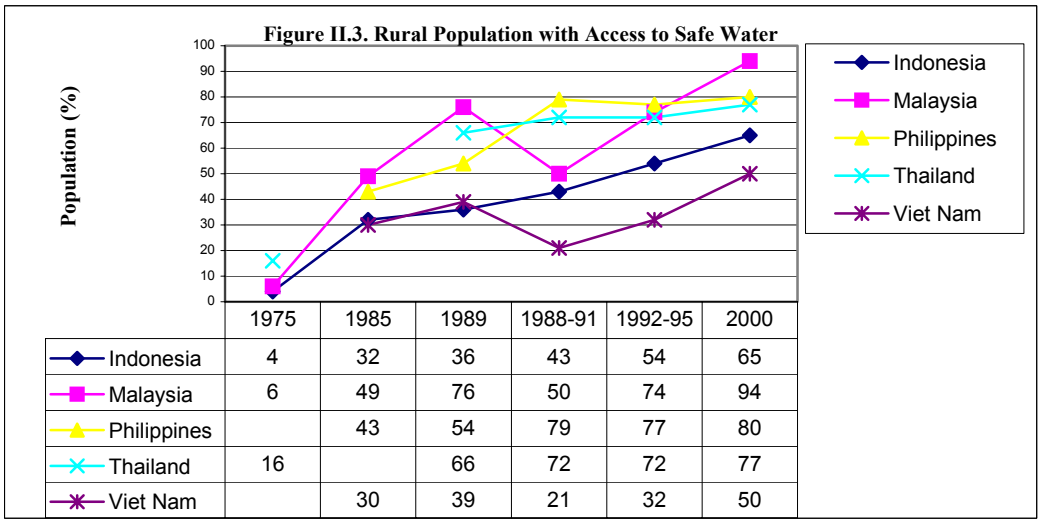
The Philippines placed second in the Asian Development Bank list of total urban population with safe water supply for years 1992-1995. The supply of safe water to the country's urban areas seemed to be at par with neighboring countries during the period 1988-1991 except for Malaysia which had the highest average of urban population with access to safe water supply. In 2000, the Philippines registered a 92% average compared to Malaysia's 100% that was achieved between 1992-1995.



	1975	1985	1989	1988-91	1992-95	2000
Indonesia	41	40	43	68	78	91
Malaysia	100	90	96	96	100	
Philippines	0	65	49	85	93	92
Thailand	69	0	56	89	89	89
Viet Nam	0	90	70	47	53	81

Source: ADB Key Indicators, 2001

The percentage of rural population with access to safe water was relatively low during the years 1975-1989. Steep increases began in 1989, particularly for countries like Malaysia, Philippines and Thailand. Malaysia improved from 6% in 1975, 76% in 1989 and 94% in 2000, registering the highest percentage for providing the rural population access to safe water in 2000. The Philippines almost doubled its figures with 43% in 1985 to 80% in 2000. Thailand increased steeply during 1975 to 1989 - from 16% to 66% respectively, and 77% in 2000. (See Figure II.3)



	1975	1985	1989	1988-91	1992-95	2000
Indonesia	4	32	36	43	54	65
Malaysia	6	49	76	50	74	94
Philippines		43	54	79	77	80
Thailand	16		66	72	72	77
Viet Nam		30	39	21	32	50

Source: ADB Key Indicators, 2001

Limited data make it hard to assess if there are improvements in water supply coverage from the water service level perspective. NSO, the main source of data on household access to safe water supply provides two categories of such supply: (a) faucet and community water system, and (b) others, e.g. rivers, springs, wells. The first correspond to service levels II and III. The second to service level I. NSO data do not show access to piped or service level III water supply. However, it can be observed that the percentage of the population accessing

water supply from service level I increased for those residing in urban areas and slightly decreased for those residing in rural areas. This can be due to the inability of water supply facilities at the service levels II and III to cope with the increase in urban population.

Table II.22: Proportion of Households by Main Water Supply

Source of Supply		1970		1980		1985		1991		1994		1997		2000*
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	
Service Level III	Faucet, Community Water System	54.3	10.7	58.1	14.9	60.1	21.9	55.7	27.2	57.1	29.5	58.7	27.3	46.6
Service Level I	Tubed/Piped Well	34.9	38.4	33.6	35.3	26.7	37.8	27.6	36.9	29.7	38.5	28.3	40.4	32
	Others (Dug Well, Spring, River, Stream, Rain, etc.)	10.8	50.9	8.3	49.8	13.2	40.3	16.6	35.9	13.2	31.9	13	32.3	21.3

Source: Census 1970 and 1985 Family Income and Expenditures Survey
* available data for 2000 is only at the national level

Outstanding Issues in the Water Supply, Sewerage and Sanitation Sector

The water supply is fragmented and installed in a piecemeal manner. This piecemeal approach is especially evident in areas outside the MWSS service area where water supply facilities were put up by either water districts, private entities, and, in some degree in rural areas, by local government units. However, the piecemeal approach led to gaps in the availability of services most especially in rural areas. New water supply facility operators face financial constraints, making expansion and improvement of services less than adequate and sustainable. Operations and maintenance are not without cost to private water suppliers, thus financial constraints, most often than not, led to deterioration of these private facilities. Thus, tariff reform directed towards full cost recovery of setting up water supply facilities is crucial to attract private sector investment in water utilities. The World Bank (2000) noted that a survey of consumers shows high willingness to pay for safe and reliable water supply.

Another problem is the absence of an able and independent regulator that will set prices for water services, and enforce water quality standard. This regulator should be backed up with strong legislation so as to ensure the efficient and sustainable management and regulation of water resource in ways that address social and economic needs (Llanto, Guinto, and Domingo, 2002). Currently, the National Water Resources Board (NWRB) regulates the tariffs of private utilities. The MWSS on the other hand, has its own Regulatory Office.

The percentage of population that source water supply from the different water service levels can provide means of measuring the quality of water supply services and ease in

household access to reliable water supply[16]. Although many households in the urbanized areas are served with water service level III, a considerable percentage of the population in the lower 40% income bracket still depend on water service level I. These are households that source water from springs, rivers, streams and rain water (see table below):

Table II.23: Percentage of Families by Main Source of Water Supply

Type of Water Source	1998		1999	
	Lowest 40%	Highest 60%	Lowest 40%	Highest 60%
Own use/shared faucet	30.8	55.3	38.6	59.9
Own Use/ Shared Tubed/Piped Well	35.4	30.6	32.9	28.1
Dug Well	18.1	6.7	14.9	5.3
Spring, River, Stream. Etc.	12.9	2.9	10.7	2.3
Rain	0.5	0.3	0.8	0.4
Peddler	1.8	0.3	1.8	3.7
Other Sources	0.5	0.4	0.3	0.4

Source: 1999 Annual Poverty Indicators Survey

Medium Term Plans across administrations had targets to include improvement of water supply facilities that is, to increase the population sourcing water from service level I facilities to higher levels. However, National Statistics Office (NSO) data failed to segregate population served with level III water supply from those served with level II systems. Data in MTPDPs, Philippine Development Reports (PDRs) and Socioeconomic Reports (SERs) are not consistent. Reliable and consistent data should be available to help policy makers and national planners on an appropriate development plan for the water sector.

Financial resource scarcity is more pronounced in the provision of sewerage systems as compared to water supply facilities. According to the Philippines Urban Sewerage and Sanitation National Strategy and Action Plan (1994), to provide 213 sanitation facilities and 160 public sewerages from 1994-1998, a total of 7.345 billion Pesos[17] will be required. It also computed a total of 13.126 billion Pesos[18] will be required should 1,129 sanitation facilities and 863 public sewerages be installed by 2010. Thus, costs of installing sewerage and sanitation facilities should be shared both by providers and users. Seemingly, willingness and capacity to pay by individual households for sewerage facilities and willingness and capacity to invest by water supply providers did not meet the investment requirements for sewerage provision as noticeable in the low provision of sewerage facilities.

D. IRRIGATION

Irrigation is vital for agricultural productivity. David (1995) explained thus:

[16] Households sourcing water supply from the MWSS, water districts under LWUA, private water suppliers in subdivisions, small private suppliers in rural areas are served with water service level III. Other areas are served with water service levels II and I.

[17] Foreign Exchange rate used = 1 US$ = 1₱

[18] Same Forex rate in footnote 17 was applied.

> "Irrigation raises the productivity of land directly by providing sufficient water supply to raise yield per hectare per crop and by allowing a second crop to be grown during the dry season when yields are potentially higher."

Irrigation in the Philippines is mainly for paddy production. The National Irrigation Administration (NIA) records that 99% of the service area, i.e. irrigated farm area is devoted to palay production. On the average, 68.2% of the total palay produced were harvested from irrigated farms.[19]

National and communal irrigation systems (CIS) under the NIA were primarily run-of-river diversion schemes supported with similar infrastructure and operation requirements that differ in service area sizes (David, 2000). Most of NIS projects are greater than 1,000 hectares while CIS projects cover relatively smaller farm areas. Communal irrigation systems are usually farmer-owned and community operated systems. After construction, management of CIS projects is turned over to irrigation associations (IAs). NIA expects recovery of costs of CIS construction from amortization of capital costs by farmers.

BSWM implemented or constructed irrigation systems are smaller than those under the NIA. Irrigation systems under BSWM include small water impounding projects (SWIP) 15 meters high and below small farm reservoirs (SFRs) and shallow tube wells (STWs). SWIPs with the length of more than 15 meters were undertaken by NIA.

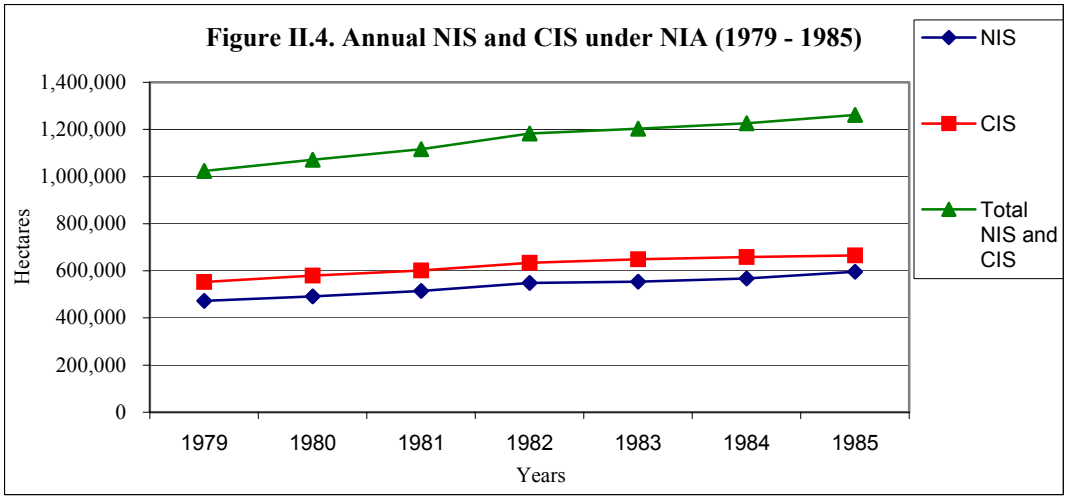
Private irrigation systems, on the other hand, include semi-technical run-of-the river systems, STWs, hand tubewells, low lift pumps (LLPs) and small farm ponds. These systems were built and maintained through the collective efforts of farmers to supplement irrigation during the wet season and early part of the dry season (David, 2000).

Marcos Administration

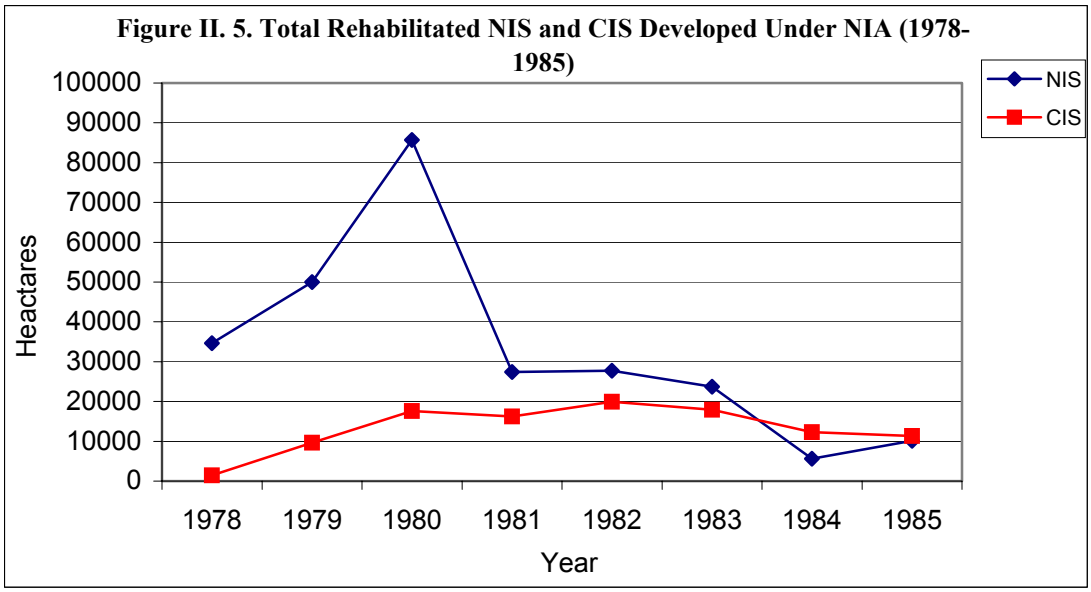
The Marcos administration's 1984-1987 development plan called for crop self-sufficiency. This was reflected in NIA's 10-year Irrigation Development Project that was intended to achieve self-sufficiency in rice production.

The plan was to invest in the construction of large-scale multipurpose irrigation projects. However, several constraints led to the shift in investment focus to small communal civil works which required smaller financial investments and shorter gestation periods. NIA announced in 1978 that it will put greater emphasis in the development of communal irrigation systems. Thus, the cumulative hectarage of service areas with CIS was relatively higher than that of the NIS.

[19] The two government bodies responsible for non-private irrigation development in the country were NIA and the Bureau of Soils and Water Management (BSWM). Established in 1964, NIA, a government owned and controlled corporation, was mandated to develop and maintain large scale irrigation projects through the enactment of RA 3601. Its primary responsibility was to develop water resources for irrigation purposes by planning, constructing, operating and maintaining all national irrigation systems (NIS). It was also tasked to plan, construct, rehabilitate and temporarily administer and periodically repair all communal irrigation systems (CIS) and pump irrigation systems. On the other hand, the Department of Agriculture (DA) is mandated to undertake the design, preparation and implementation of small-scale irrigation projects in association with Local Government Units and Regional Field units of the DA.

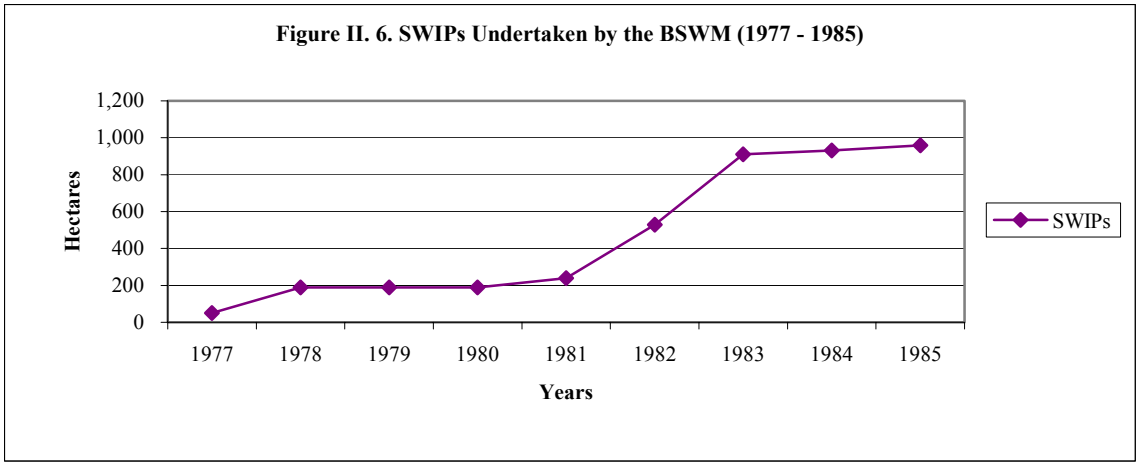


Records show that total new CIS was significantly higher than the total new NIS in 1977. Although the figure for total new NIS and CIS were almost the same in 1978, generation of new CIS gradually increased in the next three years.



Private sector participation was given the opportunity to invest in private irrigation systems through the creation of the National Water Resource Council (NWRC) in 1974. NWRC was mandated to systematize the national water resource projects. During the Marcos regime, any private sector investment in irrigation was allowed subject to the rules and regulations of the NWRC.

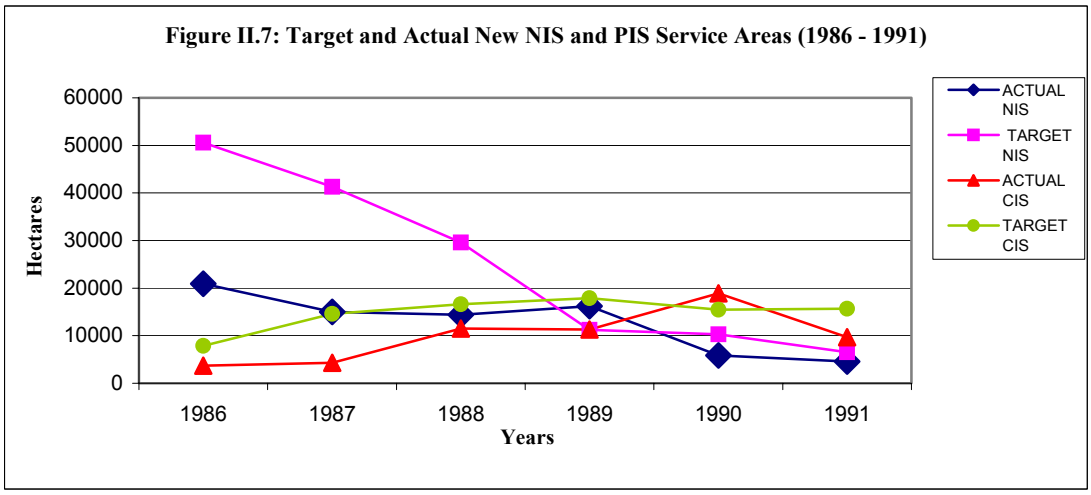
BSWM records show that total private irrigation systems were mostly small water impounding projects (SWIPs) from 1977 to 1985 (please see graph below).



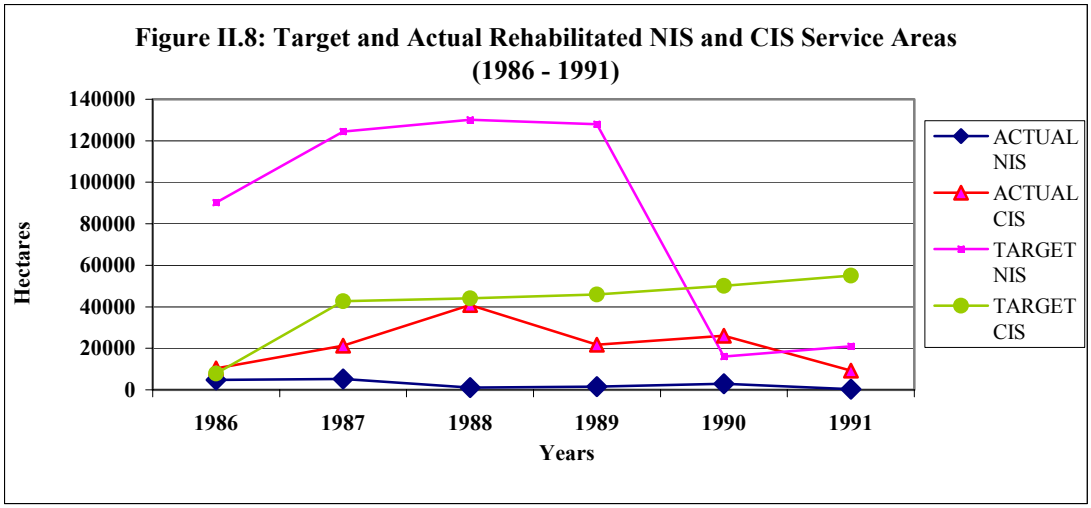
Aquino Adminstration

The MTPDP 1987-1989 objective was to support the agriculture sector to attain self-sufficiency in rice to support the increasing population. Irrigation development and rehabilitation of existing facilities was planned.

The administration planned to invest P19.008 billion for irrigation development of which 60% percent was for rehabilitation. The remaining 40% was for the development of new service areas. However, on the average, actual newly generated and rehabilitated service areas were, on the average, around 66% and 65% of the targeted figures, respectively (see graph below):



Evident on the graph below are the government efforts to rehabilitate CIS service areas since the difference between the target and the actual rehabilitated CIS is relatively and significantly smaller than that of NIS.



Differences between target service areas and actual new and rehabilitated areas maybe attributed to the limited financial support to NIA. In addition, natural calamities visit the country yearly which damage hectares upon hectares of farm lands. On the average, 96,115 hectares of farmlands were damaged due to natural disasters. The July 16, 1990 earthquake destroyed 41 NIS and 583 CIS while the 1991 eruption of Mt. Pinatubo destroyed 25,034 hectares of farmland served with NIS, and 27,774 hectares of CIS-served farmlands due to ash fall and lahar (various NIA Annual Reports).

In 1991, the Local Government Code was enacted. Part of the devolved functions was to take over maintenance and construction of CIS projects.

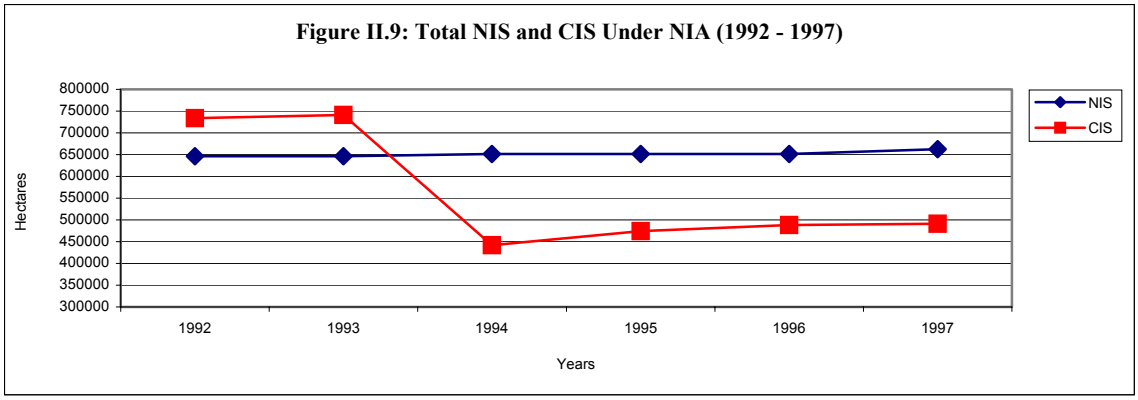
Ramos Administration

Republic Act 6978 (1992) aimed at promoting rural development by accelerating construction of irrigation projects within a period of 10 years. In the 1980s', the emphasis was on large-scale NIS projects.

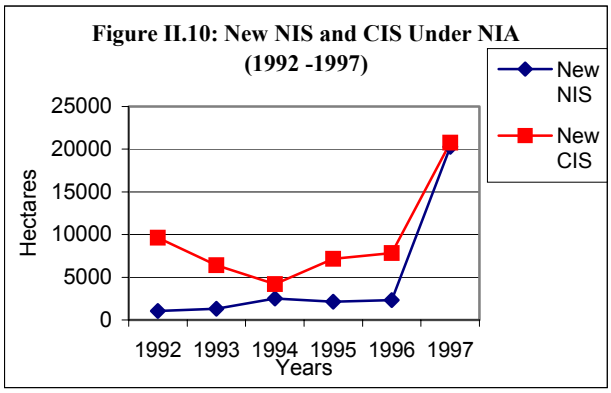
With the enactment of the Local Government Code in 1991, NIA welcomed the devolution of CIS projects to local government units. However, NIA claimed that it also received funding requests from Irrigation Associations and Local Government Units despite the devolution of CIS.

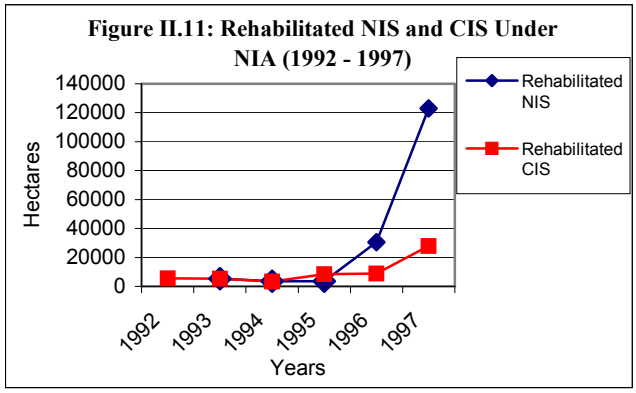
Ramos envisioned to expand irrigation facilities to 62% of the total irrigable area. He also targeted to rehabilitate 480,824 hectares of existing irrigation facilities.

The sharp decline of CIS in 1994 seems due to statistical discrepancy. Several CIS that were converted to NIS were not delisted from the CIS list. But this has to be validated by NIA. NIS service areas were almost 50% bigger than CIS service areas in terms of hectarage. This was the case even though there were new CIS constructed during the Ramos administration (see Figure II.9). Conversely, the almost flat growth of NIS from 1992 to 1997 suggests poor expansion because funding is largely dependent on NIA budget.



Total rehabilitated area of CIS was relatively lower than that of NIS. It can be pointed out that the possible reason for the slow increase of CIS service areas even while the





government is consistent prioritizing the generation of new CIS service areas is that Irrigation Associations (IAs) are ill-equipped with the technical and financial capacity to take over the management of CIS. NIA and The Asian Development Bank (2000) shared the same observation. It is NIA's practice to gather user participation by soliciting inputs for decision-making and equity contributions for the construction cost to establish IA's sense of ownership on the irrigation system. IAs assume responsibility for sustained operation and maintenance of the systems as well as for the collection of amortization payments of the farmer-benefactors. According to ADB, the prevailing timeframe for CIS turn over to IAs was at 6 months from the start of construction. Allowable NIA support can be rendered to IA in the span of only 12 months at the maximum. The NIS, on the other hand, is a shared responsibility of NIA and IAs. Beneficiaries (the farmers) are only required to pay the irrigation service fee per hectare/crop/season to cover operation and maintenance costs. There is no transfer of ownership of NIS to the beneficiaries.

Estrada Administration

The government has followed a cost recovery policy whereby the operation and maintenance costs of National Irrigation Systems (NIS) will be sourced from irrigation service fees (ISF) rented. Estrada's Administrative Order (AD) NO. 17 issued in 1998 required farmers to pay a highly subsidized set of ISF rates. It also set a minimum CIS amortization payment.

Under MTPDP 1999-2004, NIA targeted to have 345,748 hectares of new service area and to rehabilitate 705,964 hectares of existing facilities. BSWM targeted 145,283 hectares of newly generated irrigation systems and 41,061 hectares of rehabilitated facilities by 2004.

To involve the private sector in the provision of irrigation facilities, government had the following strategies: (1) enhancement of local government units' (LGUs') and women's capabilities in planning and implementation of CIS, SWIPs and diversion dams (DDs) and other inundation systems; (2) promotion of private sector-led development of minor irrigation systems such as STWs, low lift pumps (LLPs), small reservoir irrigation projects (SRIPs), SWIPs, DDs and other inundation systems; and (3) development of irrigation systems through BOT schemes (e.g. build-operate-transfer, built-transfer etc.).

In 2000, after two years of the Estrada administration, the total recorded new NIS and CIS service areas amounted to 50,296 hectares, or only 15% of target. In the same year, total recorded rehabilitated NIS and CIS service areas amounted to 354,212 hectares or only 50% of target. There were a total of 84,820 hectares of new service areas under BSWM, or 58% of the target.

Arroyo Administration

Under the Arroyo administration, NIA and BSWM aimed to generate 145,842 hectares and 75,592 hectares of new service areas, respectively. To accomplish these targets, the government, through its key agencies and institutions, also planned to conduct O&M of NIS, improvement of drainage facilities, repair/construct service roads, and strengthen irrigators associations (IA).

NIA records show that total hectarage of new NIS service area is 23% higher than newly generated CIS service areas in 2001. In the same year, total rehabilitated CIS is slightly higher than total rehabilitated NIS service area.

Figures for private irrigation systems (Table II.24) from 1979-1993 bear no significant changes since NIA only documents government-initiated irrigation systems while not all BSWM constructed facilities are private irrigation systems, therefore, no reliable data could be properly recorded. David (2000) observed that the Bureau of Agricultural Statistics (BAS) survey more or less captured figures for the total overall service area in the country, including service area accounts of NIA, BSWM and Private Irrigation System. Note that BAS figures included irrigated areas used for paddy production during the wet season, which, more or less, covers the absolute irrigation coverage regardless of season. The difference between the BAS irrigated area and combined NIA and BSWM service captures the total private irrigation systems not handled by the government.

It is interesting to note that there are negative differences between BAS and combined NIA –BSWM figures from 1979 to 1995. This maybe due to the double counting in NIS and CIS figures by NIA as was explained earlier.

As shown in Table II.22, an average of 53,000 hectares NIA and CIS service areas are rehabilitated per year. Due to prohibitive costs of putting up new service areas, only 26,000 hectares of new NIS and CIS are generated per year. David (2000) estimated that an average of 55,000 hectares of NIS and CIS should be rehabilitated annually to thwart service area deterioration.[20]

Table II.24: NIA and BSWM Service Areas

NIA									BSWM			
Years	Potential Irrigable Area	National Irrigation System (NIS)	Communal Irrigation System (CIS)	Private Irrigation System	New Service Area		Rehabilitated		SWIP	SFR	STW	
					NIS	CIS	NIS	CIS			Installed	Rehabi-tated
1979	3,126,319	472,182	552,092	152,128	15,763	23,566	50,000	9,665	189			
1980	3,126,319	491,729	579,751	152,128	20,147	27,659	85,722	17,641	189			
1981	3,126,319	514,334	602,081	152,128	24,918	22,330	27,416	16,269	239			
1982	3,126,319	549,266	634,102	152,128	28,451	32,021	27,714	19,934	529			
1983	3,126,319	554,663	648,837	152,128	34,601	14,735	23,712	17,941	911			
1984	3,126,319	567,160	658,807	152,128	20,008	9,970	5,607	12,338	931			
1985	3,126,319	595,901	665,099	152,128	21,651	6,292	10,145	11,328	959			
1986	3,126,319	600,498	668,828	152,128	20,913	3,729	4,704	10,380	1,181			
1987	3,126,330	617,963	673,119	152,128	14,983	4,291	5,280	21,294	2,574			
1988	3,126,330	616,999	684,639	152,128	14,428	11,520	1,016	40,875	10,328			
1989	3,126,330	620,964	695,944	152,128	16,225	11,305	1,584	21,722	11,515			
1990	3,126,330	637,318	714,814	152,128	5,883	18,870	2,946	26,054	13,570			
1991	3,126,330	645,789	724,475	152,128	4,585	9,661	300	9,240	16,508			
1992	3,126,330	646,519	734,104	152,128	1,037	9,629		5,489	18,881			
1993	3,126,297	646,519	741,394	152,128	1,314	6,408	5,380	5,396	19,536			
1994	3,126,297	651,812	442,006	174,610	2,526	4,210	3,592	3,220	20,564			
1995	3,126,340	651,812	474,289	180,909	2,130	7,162	3,507	8,491	21,053	118	23,883	
1996	3,126,340	651,812	488,532	182,516	2,311	7,829	30,481	8,945	22,442	371	23,883	
1997	3,126,340	662,714	491,356	181,447	20,291	20,749	123,003	27,929	26,830	2,734	48,774	
1998	3,126,340	678,549	486,066	174,200	11,335	16,322	83,077	50,655	37,113	11,718	80,226	
1999	3,126,340	681,255	494,913	174,200	2,706	8,847	119,429	32,968	47,022	19,476	87,825	
2000	3,126,340	685,812	501,442	174,200	4,557	6,529	61,799	6,284	51,791	21,205	90,162	
2001	3,126,340	689,010	510,615	174,200	11,604	9,446	73,794	74,328	55,122	22,282	90,162	39,620

Source: NIA and BSWM

NIA's estimate for potential irrigable area was 3.126 million hectares. Currently, there has been a static figure since 1979. On the average, 19.65% of the potential irrigable area has been irrigated with NIA's NIS and 19.25% with CIS under NIA. NIA explained that the

[20] ADB (2000), estimates that P2,300 per hectare is required to finance the direct costs of operating and maintaining a system to a sustainable standard.

sharp decline in the total number of CIS in 1994 was due to statistical discrepancies after some CIS were merged with NIS and no proper delisting of CIS items were made in the figures earlier than 1994. Another reason for the reduction in growth of total NIS and CIS figures is probably the conversion of usage of these areas from farm to residential, industrial or commercial lots.

Table II.25. Difference Between BAS and Combined NIA & BSWM Irrigated Area

Years	I Total NIA & BSWM Recorded Service Area	II BAS Irrigated Area for Paddy Production – Wet Season	Difference Between I and I
1979	1024463	916310	-108153
1980	1071669	919140	-152529
1981	1116654	949950	-166704
1982	1183897	991810	-192087
1983	1204411	896870	-307541
1984	1226898	990000	-236898
1985	1261959	1026510	-235449
1986	1270507	998570	-271937
1987	1293656	1012960	-280696
1988	1311966	1073760	-238206
1989	1328423	1121050	-207373
1990	1365702	1104580	-261122
1991	1386772	1097090	-289682
1992	1399504	1089770	-309734
1993	1407449	1079480	-327969
1994	1114382	1184530	70148
1995	1171155	1241620	70465
1996	1187040	1318625	131585
1997	1232408	1347769	115361
1998	1293672	1182554	-111118
1999	1330491	1393825	63334
2000	1350412	1437612	87200
2001	1406811	1460357	53546

Source: NIA, BSWM and BAS

On the average, SWIPs undertaken by BSWM account for 0.53% of the potential irrigable area. BSWM initiated SFRs and STWs contributed a relatively smaller fraction of the potential irrigable area as compared to the SWIPs.

Outstanding Issues in the Irrigation Sector

Poor maintenance plagues the National Irrigation Service (NIS) and Communal Irrigation Facilities (CIS) facilities. ADB (2000) noted that on the average, NIA expenditure on operations and maintenance amounts to P1,000 per hectare. However, ADB also estimates that P2,300 per hectare is required for operation and maintenance of systems to a sustainable standard. Thus, NIA would have to spend twice more than what it is currently spending to keep systems at a sustainable level.

However, NIA has been incurring losses since 1991 due to waning revenue collection and not necessarily because of increased expenditures (JBIC, 2001). On the average, only 54% of the total due billing were actually collected during 1977 to 2001.

Table II.26:Irrigation Service Fees Due and Collected

Year	Billing	Total Collection	Total Collection/Billing
1977	82.33	36.34	44.14
1978	84.92	42.00	49.46
1979	137.39	47.09	34.27
1980	100.58	74.74	74.31
1981	132.76	59.62	44.91
1982	134.73	76.15	56.52
1983	136.77	72.55	53.05
1984	210.78	100.80	47.82
1985	306.84	150.92	49.19
1986	341.31	173.35	50.79
1987	337.93	173.24	51.27
1988	343.14	168.74	49.18
1989	379.34	202.03	53.26
1990	483.49	263.00	54.40
1991	568.40	344.70	60.64
1992	552.41	316.46	57.29
1993	609.40	331.66	54.42
1994	651.21	351.31	53.95
1995	604.79	347.87	57.52
1996	720.22	436.62	60.62
1997	813.06	509.50	62.66
1998	708.38	332.14	46.89
1999	696.92	330.10	47.37
2000	729.24	427.92	58.68
2001	748.78	487.62	65.12

Source: NIA Collection Efficiency Report

The following reasons are behind the unwillingness of farmers to pay irrigation service fees: (1) dissatisfaction with irrigation facility services; (2) farmer-belief that irrigation facilities

should be provided by the government for free[21]; (3) non-existence, if not, weak sanctions against non-payment of irrigation fees.

In terms of usage of water, the irrigation sector has the largest fraction as compared to other competing sectors. In 1999, the NWRB granted 83.6% of the total water rights, the largest share of water rights, to the irrigation sector.

Table II.25: Water Rights Usage as of December 1999

Water Use/Source	1999
TOTAL	2,398,209.30
Ground Water	76,779.10
Surface Water	2,321,430.20
Municipal	163,026.70
Ground Water	36,936.40
Surface Water	126,090.30
Industrial	198,255.00
Ground Water	10,708.00
Surface Water	187,546.90
Irrigation	2,005,056.00
Ground Water	24,333.00
Surface Water	1,980,723.00
Other Usage	31,871.60
Ground Water	4,801.60
Surface Water	27,070.00

Source: National Land Use Committee

There is a pressing need to review current water use, by addressing misallocation of water resource across its possible uses in light of the scarce financial and water resources. The government faces perennial budget deficits and is hard-pressed to provide public goods like water supply at premium quality. On the other hand, users' pay principle not only covers for the costs of water supply provision but also corrects for resource misallocation and encourages efficiency in resource use. It is curious that NIA has always targeted a total of 3.1 million hectares of potential irrigable area since 1979. This has to be reviewed in light of changing land use, population, demographic changes and changes in economic activities, etc.

[21] The Philippine Daily Inquirer (1998), featured the President Estrada's State of the Nation Address of 1998 which stated: "Ibigay natin nang libre ang patubig sa magsasaka"

E. FLOOD CONTROL AND DRAINAGE[22]

The PAGASA has reported that on the average, 19 storms visit the Philippines every year. Without proper flood control and drainage facilities, a country often visited by typhoons will suffer damage to property and investments, and worse, loss of lives.

Marcos Administration

Under MTPDP 1984-1987, priority was in flood control and drainage on major river basins to protect large patches of fertile lands. Drainage systems in Metro Manila would also be given attention and small water-impounding management projects would be improved. There also were plans to introduce non-structural methods of mitigating flood damage by flood plain management and zoning.

Estimated size of areas exposed to flooding were 2.5 million hectares, only 10% of which was provided with some form of flood protection. Targets included an incremental area of 1.07 million hectares to benefit from flood control projects within a ten-year period, reducing areas subject to flooding to 43% in 1987 (Five-Year Philippine Development Plan 1978-1982).

Aquino Administration

Aquino's MTPDP focused on three areas: (1) Metro Manila – to mitigate commercial losses due to flooding; (2) farm lands – to lessen crop damages and facilitate agricultural development; and (3) major river basins – to stop, if not decrease, flood damages in large areas connected to and around river basin sites. Projects lined up for flood protection involved construction of river control facilities, impounding/sabo dams, and sea wells.

Ramos Administration

Ramos prioritized major river basins. His overall strategy also included flood plain management, zoning regulations, flood forecasting and warning and reforestation works and building flood control facilities in highly urbanized areas such as Metro Manila.

In 1994, 588 river control and drainage projects were completed. By the end of Mr. Ramos' term, about P12.2 billion had been spent for 3,366 foreign and locally funded Department of Public Works and Highways (DPWH)-flood control projects. A total of 80 Small Water Impounding Management (SWIM) projects were implemented, of which, 62 were completed. The government built mini sabo dams covering 90% of total serviced areas equivalent to 2,237 hectares. Achievements for flood control and drainage covered 294,430 hectares or 59.44% of the total area in need of flood control services.

[22] The Department of Public Works and Highways (DPWH), which is the engineering and construction arm of the government, was mandated to design, plan, construct and maintain road networks, flood control facilities and other public works. However, a recent Presidential directive transferred these responsibilities in the Metro Manila area from DPWH to the Metro Manila Development Authority (MMDA).

Projects funded through loans and local funds were continued to help renovate Mt. Pinatubo eruption-damaged areas. There was continuous sediment control measures executed in the environs of Mt. Pinatubo and Mt. Mayon. Ormoc City, which suffered massive flooding and loss of lives in the late 1990s, was also given attention.

Estrada Administration

The Estrada administration identified Metro Manila as one of the priority area in flood mitigation. It also planned to provide adequate flood control and drainage facilities in flood-prone areas outside river basins.

A total of 1.4 million additional hectares of land was projected to benefit from the flood control and drainage projects to bring total area with flood control facility to 1.66 million hectares. However, his short-lived presidency which abruptly ended in January 2001, did not make this possible.

However, it is noted that by the end of 2000, total area provided with DPWH river control and drainage facility reached 305,725 hectares. Sediment control measures were continuously implemented in the Mt. Pinatubo and Mt. Mayon sites.

In addition, the first phase of the JICA assisted Flood Mitigation Project for Ormoc City was already substantially completed. For farm areas, BSWM extended trainings to farmers to maintain SWIM projects that were to be turned over to them.

Arroyo Administration

President Arroyo retained the Ramos' administration's target of 1.4 million additional hectares served with flood mitigation related facilities. Total investment requirement for the whole flood control and drainage program was estimated to be at P34.79 billion.

Per the Socioeconomic Report of 2001, DPWH was able implement a total of 1,008 flood control-related projects with completed portions costing P3.2 billion. DPWH was also able to complete the following: Ormoc Flood Mitigation Phase II, Pinatubo Hazard Mitigation Project Phase I, Bamban River Improvement & Pampanga Delta Development Project.

Outstanding Issues in the Flood Control and Drainage Sector

The Department of Public Works and Highways Project Management Office for Flood Control identified the following reasons for problems related to flooding: "(1) deterioration of rivers and streams in flood plains and delta areas due to encroachment on their natural channels; (b) encroachment by squatters and private landowners in urban areas; (c) dumping of solid waste; (d) rapid urbanization that increased runoff and decreased flow capacity of natural channels and drainage facilities; (d) deficiencies in technical standards and regulations, organization and budget for continuous operation and maintenance, rehabilitation and improvement of existing facilities and natural channels" (DOTC-PMO, 18 September 2002).

The transfer of jurisdiction from the DPWH to the Metro Manila Development Authority to implement flood control projects has created some potential problems[23]. Firstly, MMDA operations are highly defined by regional boundaries. Thus, inter-regional projects may cause confusion in future flood control projects that will be handled by the MMDA i.e. the case of the Effective Flood Control Operating Systems (EFCOS). The use of the EFCOS can be optimal if service will be extended to Laguna. However, MMDA's jurisdiction is limited to NCR only and extension to Laguna will post questions on MMDA's jurisdiction. Second, concerns relative to the current technical capacity of MMDA to undertake major flood and drainage control projects[24]. Thirdly, the ability of MMDA to maintain EFCOS is uncertain since most of MMDA personnel are casual employees.

F. COMMUNICATION SECTOR

The development of the communication sector, telecommunications in particular, is crucial to Philippine economic development due to its significant linkages and contribution to industries and other economic sectors, making it a medium for competitiveness. Gross value added of the communications sector has been steadily growing since 1980. Records from the National Statistics Office (NSO) showed that telecommunications has contributed, on the average, 9.19% of the county's total gross domestic capital formation in durable equipment from 1987 to 2001.

The dawning of electronic information has expanded the service coverage of the communications sector. During the Marcos and Aquino administrations, communication sector had only two sub-sectors - telecommunications and postal communications. Recent developments led the Department of Transportation and Communications[25] to reclassify these sub-sectors. The consultative paper (2000) segregated the communications sector

---

[23] These conflicts were enumerated by the Water Division of the NEDA Infrastructure Staff in an Aide Memoire of September 2002

[24] NEDA Infrastructure Staff (Ibid) cited the concern raised by the Japan Bank for International Cooperation (JBIC), the major source of ODA for flood protection and drainage projects in Metro Manila, whereby JBIC expressed that they favorably vote to maintain DPWH as the executing agency for their projects to ensure their smooth implementation.

[25] The government agency that have direct involvement in the communications sector is the Department of Transportation and Communications (DOTC), under which are the National Telecommunications Commision (NTC) and the Philippine Postal Corporation (PPC).

The DOTC was created on 23 July 1979 through the enactment of Executive Order No. 546 and was reorganized on 30 January 1987 through EO 124. This department was mandated to be the "primary policy, planning, programming, coordinating, implementing, regulating and administrative entity of the executive branch of the government on the promotion, development, and regulation of a dependable and coordinated network of transportation and communications systems, as well as in the fast, safe efficient and reliable postal, transportation and communications services" (DOTC). It also has coordinative functions towards industries, user groups, academic and research institutions relating to the field of communications[10]. The National Telecommunications (NTC) on the other hand, acts as the administrator and regulator of telecommunication matters. It is the "sole body that exercises jurisdiction over supervision, adjudication and control over all telecommunications services throughout the country" (NTC). Although it is under the administrative supervision of the DOTC, it exercises partial independence in terms of its regulatory and quasi-judicial functions. The then named Postal Service Office, the Philippine Postal Corporation (Philpost) was placed under the administration of the DOTC by virtue if EO 125 on 13 April 1987 and was later converted to Philpost on 2 April 1992 through the signing of Republic Act No. (RA No.) 7354.

according to the following: (1.) telecommunications; (2.) Broadcasting; (3.) Cable TV; (4.) Value-Added Services[26]; and (5.) Print Media. For the exercise of illustrating infrastructure-related accomplishments for this particular sector, this paper will present the first three sub-sectors plus postal communications.

1. Telecommunications

The telecommunications sector plays a key role in a country's economic growth and development. An efficient telecommunications industry is essential in making an economy globally competitive. It is also a significant contributor to economic growth as shown by its resiliency amidst the slowdown in global economic activity.

Marcos Administration

President Marcos planned to install a single nationwide network that will interconnect all telecommunication facilities for domestic telephone services. In 1978, Letter of Instruction (LOI) No. 674 was signed to bring about the establishment of a homogeneous nationwide telecommunication network and the creation of the Telecommunications Development Committee.

Marcos' Five-Year Development Plan 1978-1982 indicated that the government will rationalize investments in the telecommunications industry. The 1978 Philippine Development Report indicated that government investment in this sector was low because of the need for rationalizing the industry such that no major improvement was, yet, programmed. However, low government investment in this sector was coupled by the creation of an environment to encourage private sector investment in this industry i.e., the issuance of Presidential Degree (PD) No. 1756 which reinforced the mergers among public utilities engaging into telecommunication services and PD 1874 which amended PD 217 effectively accelerating the developoment of the telephone industry.

The 1977 telephone density was at 1.29 per 100 individuals; telephone service operators, 68; telegraph service operators, nine; radio communication stations, 10,353; public toll telephone service served 211 cities and municipalities (10% of total cities and municipalities) (Medium Term Development Plan 1978-1982).

According to the assessment made in the Medium-Term Philippine Development Plan (MTPDP) 1987-1992, the following were in service by the end of the Marcos' term: (a) 55 public and private telephone companies; (b) 7 domestic record carriers; (c) four international record carriers; and (d) two satellite systems. The country's teledensity was recorded to be 1.02 lines per 100 individuals.

[26] Value added service (VAS) provider was defined as "an entity which, relying on the transmission, switching and local distribution facilities of a Public Telecommunications Entity (PTE) offers enhanced services beyond those originally provided for by such carriers" (DOTC, 2000). Internet service providers (ISPs) fall within the category of VAS providers, as long as they do not put up their own networks.

Table II.26: Recorded Teledensities During the Marcos Administration

1977 (from Four Year Development Plan 1978 – 1982)	1983 (from Medium Term Development Plan 1984 – 1987)	1986 (from Medium Term Development Plan 1987 – 1992)
1.29	0.91	1.02

Source: MTPDP 1978-1982, 1987-1992

Aquino Administration

According to the MTPDP 1987-1992, the telecommunications industry during the Marcos regime was a "highly segmented and fragmented industry in terms of service, technology and geography". Telecommunications service was skewed in favor of the urbanized and densely populated areas. It was recorded that 73% of the total number of telephones in the Philippines are concentrated in the Metro Manila area and only 27% of the total number of telephones were limitedly available to major cities and municipalities.

Several measures were taken by this administration to strengthen institutions supporting the telecommunications industry. Memorandum Order No. 163 created the National Telecommunications Development Committee. Memorandum Circular (MC) No. 79 was signed in October of 1988 to clarify several provisions indicated in Sections 5 and 7 of EO 164 vis-à-vis the amended Implementation Rules and Regulation (IRR) of PD 1594 regarding the awarding of contracts and the Pre-Qualification, Bids and Awards Committee (PBAC). This was followed by the signing of EO 380 in 1989 which allowed revisions on the level of authority for the approval of government contracts.

In 1990, Republic Act (RA) 6849 was enacted to provide the installation, operation and maintenance of public telephones in each municipality. RA 6970 extended the franchise granted to the Philippine Telegraph and Telephone Corporation to further the establishment, installation, maintenance, and operation of wire and wireless telecommunication system throughout the country. The MTPDP further stated that government shall allow official development assistance (ODA) funds to be available to finance private sector telecommunication projects.

The Aquino administration met its target teledensity of 1.4 by the end of 1992 (Table II.27). Teledensity gradually increased from 0.94 main lines per 100 individuals in 1986 to 1.01 in 1989 and to 1.4 in 1992.

Table II.27 Teledensities recorded during the Aquino Administration [1]

1986	1987	1989	1992
0.94	0.93	1.01	1.4

[1]Number of main lines per 100 individuals

Source: Updated MTPDP 1987 - 1989 and MTPDP 1993-1998

Ramos Administration

Ramos planned to reinforce private sector participation in the telecommunications industry through asset privatization (MTPDP 1993-1998). This plan was in parallel to the creation of an "investor-conducive" environment for the telecommunication industry that the two former administrations tried to have but failed to achieve.

Identifying interconnection problems, Ramos forced the interconnection of all local telephone exchanges into a single main backbone to provide greater efficiency. In 1993, Ramos issued Executive Order (EO) 59 entitled "Prescribing Policy Guidelines for Compulsory Interconnection of Authorized Telecommunications Carrier", which made compulsory the interconnection of all telecommunications networks. Section I of this provision states NTC mandate is to expedite:

> *"the interconnection of all NTC authorized public telecommunications carriers into a universally accessible and fully integrated nationwide telecommunications network for the benefit of the public."*

Later on, Bayantel and PLDT raised concerns on the effectiveness of EO 59. To answer the concern, Senate Bill 15004 was proposed. The latter proposed due penalty to be imposed on any telecommunication entity that refuse or fail to interconnect their facilities to other telecommunications operators. The said bill was seen as reinforcement to the government strategy of linking all local telephone exchanges.

Aside from interconnecting local telephone exchanges, the administration also mandated international gateway facility (IGF) and cellular mobile telephone systems (CMTS) operators to make accessible local exchange services accessible to rural and urban population through EO 109 in 1993.

The enactment of the Public Telecommunications Act (RA 7925) in 1995 formalized into law the policies specified in the Executive Orders 59 and 109 (DOTC, 2000). Among the significant provisions were: (1.) management and allocation of radio frequency spectrum; (2.) imposition of the need to obtain a legislative franchise; (3.) establishment of interconnection rules; (4.) establishment of rates and tariffs by the NTC; (5.) designation of access charges and revenue sharing; (5.) definition of rights of telecommunication users; and (6.) delineation of ownership of telecommunication entities (DOTC, Ibid).

Included in the administration's medium term plan was the introduction of advancements in the telecommunications sector, one of which is the use of international satellite communications. EO 467 provided an "international policy on the operation and use of satellite communications facilities and services" (DOTC, 2000). Such facilities and services include "direct access to international fixed satellite systems and international mobile systems" (DOTC, Ibid). In 1994, the issuance of the International Satellite Communications Policy or DOTC Department Circular No. 94-277 which "defined the Philippines' position in the use of new satellite-based technology aimed to broaden access to international satellite systems" highlighted this pursuit. However, Socio-Economic Report 1995 stated that this was "suspended pending a study on the impact of said circular on the Philippine Communications Satellite Corporation (PHILCOMSAT)." PHILCOMSAT was the country's only signatory to the International Telecommunications Satellite (Intelsat).

In 1994, DOTC and a conglomerate of private telecommunication operators signed a Memorandum of Agreement, which gave way to the launching of the first Philippine Satellite System. In preparation, six (6) orbital slots were filed by the DOTC with the International Telecommunications Union. It was in 1997 that Mabuhay Philippines Satellite Corporations (MPSC) launched Agila II, the first Philippine Satellite launched into space.

One of the issues identified by the Ramos administration was the need for a comprehensive guiding policy for the convergence of technologies concerned mainly with information technology, telecommunications, cable television and broadcast. To meet the increasing demand for telecommunication services, the administration decided to target the following: (a) increase in telephone density from 1.4 lines per 100 individuals posted in 1992 to 4 lines per 100 individuals by the end of 1998, through the installation of 1.32 million additional government and private lines; and (b) ensure the provision of public calling offices in all unserved and underserved municipalities.

In 1997, Ramos surpassed the telephone density target of 4 lines per 100 individuals and posted a high 7 lines per 100 individuals (SER, 1992). This was six (6) times better than the telephone density in 1992 (see Table II.28).

Table II.28: Telephone Densities Recorded from 1992 - 1997[1]

	1992	1993	1994	1995	1996	1997
(Number per 100 individuals)	1.4	1.7	2.27*	2	4.7	8.07
No. of people sharing 1 line		59	44	49	21	14**
Installed lines				1,651,497	3,352,846	5.04 million

1 Data for 1992 – 1996 came from various SERs. Data for 1997 was taken from MTPDP 1998-2004. Some columns are incomplete due to data unavailability.

*Data is the average of data range within the year. Highest value recorded for 1994 was 2.48

** This was sourced from 1997 SER where the recorded telephone density was 7 per 100 individuals, thereby making actual number of people sharing the line for the telephone density of 8.07 per 100 individuals would be a little higher than what is actually reflected in this table.

Implemented in 1998, the Municipal Telephone Program, which was tasked to administer in the implementation of the nationwide plan to install a telephone in every unserved municipality, resulted in increased telephone service from 40% in 1992 to 72% in 1994. The 1994 figure was tantamount to the installation of 43 public calling offices (PCOs) (Table II.29).

Table II.29: Public Calling Offices (PCOs) Across Years [1]

		1992	1993	1994	1995	1996	1997
Completed / installed under the Municipal Telephone Program	% of available telephone service	40%	63%	72%			
	Number of PCOs installed / completed			43 installed	74 installed	600 completed	865 installed
Completed by Private Sector	PCOs completed by the private sector					306	427

[1] Data were sourced from various SERs, except for 1997 data which came from the MTPDP 1999-2004

According to DOTC (2000), the implementation of the Service Area Scheme of the government via the Basic Telephone Program under EO 109 of 1993 maybe the reason for the Universal Access Benchmark Report's indication that there were enough backbone facilities to meet current and future demand.

In terms of telephone service and in the expansion of areas with access to PCOs under the Municipal Telephone Program, the percentage of available telephone service went up from 40% in 1992 to 72% in 1994. There was a constantly increasing trend for the number of PCOs completed or installed from 1994 to 1997 from 43 PCOs to 865 PCOs, respectively. 600 PCOs were installed or completed in 1996 from 74 PCOs in 1995.

To further extend telephone services in the rural areas, the "Telepono sa Barangay Program" was implemented in 1998 which aimed to bring telephone service to a total of 21,942 barangays.

Private sector participated in expanding access to telephone services through the installation of 306 PCOs in 1996 and 427 PCOs in 1997. These private telecom corporations were: PLDT, PT&T, Digitel Philippines, Eastern Visayas Telephone Company, and Philtel Corporation.

The number of mobile telephone subscribers reached 1,733,652 million in 1998, posting a 29% increase from previous year's 1,343,620 million. Increase in the number of mobile phone subscribers was attributed to the short message service (otherwise known as text messaging) (DOTC, 2000).

By 1998, the mix of telecoms players are as follows: 76 local exchange carriers, 11 international gateway facility operators, 5 cellular mobile telephone service operators, and 3 satellite service.

Estrada administration

The Estrada Administration planned to establish an effective policy and regulatory framework to support the development of the growing telecommunication sector. Technology has broken the barriers to telecommunications and has made possible the interconnection of individuals, businesses and institutions in the worldwide web. This plan saw the enactment of RA 8792 (E-commerce Act) which mandated the DOTC, NTC and the National Computer Center (NCC)[27] to advocate a policy environment conducive to the development of the Global Information Infrastructure. It also mandated all government agencies to be on-line by the end of June 2002, leading the way to the E-government.

Estrada Administration also formed several committees intended to spur development in information and electronic technology. The creation of the Information Technology and Electronic Commerce Council (ITECC) in 2000, via EO 264, merged two councils namely National Information Technology Council (NITC) and the Electronic Commerce Promotions Council (ECPC). ITECC is the oversight body on ICT and E-commerce policies and initiatives.

The Domestic Fiber Optic Network (DFON), a repeaterless cable system controlled by PLDT, was completed in November 1998. This network allows uninterrupted voice, video and data transmissions even in the event of link failures. It has a transmission speed of 2.5 gigabit per second or equivalent to 30,720 simultaneous telephone calls. On the other hand, completed in 1999, the National Digital Transmission Network (NDTN) is the first nationwide network in the Philippines linking more than 10 of the nation's major cities with over 2,200 kilometers of high capacity fiber optic cable which can make telecommunication services more efficient. This gives PLDT, which used to monopolize operation of domestic long distance calls, a stiff competition.

The MTPDP 1998-2004 reflected the administration's plan of increasing teledensity to 12.73 in 2004. Teledensity was recorded at 9.05 in 2000 (MTPDP 2001-2004).

Table II.30: Mobile Telephone Subscribers and Teledensities from 1997 - 2001

YEAR	Number Mobile Telephone Subscribers	Telephone Density (main lines)
1997	1,343,620	8.07
1998	1,733,652	9.08
1999	2,849,880	9.12
2000	6,454,359	9.05
2001	12,159,163	8.88

Data for Telephone Density and Number of Mobile Phone Subscribers 1997-1998 came from the National Statistics Office. All other data for mobile phone subscribers came from the National Telecommunications Commission while teledensity for 2001 from SER 2001.

[27] NCC was created on 12 June 1971 pursuant to EO 322. The March 2000 EO 222 transferred administration on NCC from the Office of the President to the Department of Science and Technology (DOST). NCC was created to become the IT policy and planning body of the government.

The slight decrease in teledensity from 1999 to 2000 (Table II.30) was attributed to the increasing demand for mobile phones. Being readily available in the market, cellular phones have gained popularity among consumers. There was a total of 6,454,359 subscribers for Cellular Mobile Telephone Service Subscriptions (CMTS) in 2000, posting a 126% increase from the 2,849,880 recorded in 1999 according to MTPDP 2001-2004 (Table II.30). The International Telecommunications Union (ITU) considered the Philippines as the most dynamic among the mobile markets in Asia Pacific and the largest in the ASEAN region due to the vigorous spread of wireless communication in the country.

As of 2001, there were 7 mobile telephone operators, two of which are not yet operational (NTC 2001 Annual Report). Teledensity was recorded at 8.88 lines per 100 individuals in 2001. Total number of main lines installed was 6,918,726 (NTC, Ibid).

Mobile cellular phone service was more affordable compared to landline telephone service, thus, the slack in demand for the latter. Majority of the population is comprised of low income households who cannot afford the landline telephone service. MTDP 2001-2004 indicated that household income dictated the unevenness of telephone distribution, which was skewed towards major urban and commercial centers.

In 1999, local exchange carriers were unable to meet designated service targets for the service areas assigned to them as indicated in the Service Area Scheme (SAS) of 1993, under the Basic Telephone Program. Two reasons for their non-compliance were: (a) the Asian financial crisis that slowed down regional economies and led to the slow down in economic activity; and (b) the lack of proper sanctions to those who fail to comply with obligations (SER 1999). However, this could also be attributed to the lack of incentives for the private participants to undertake investments in designated service areas.

The development of IT (Information Technology) Zones led to the expansion of Information and Communications Technology (ICT). ICT parks housed a significant number of institutions and companies with businesses related to "software, multimedia, and other content development, hardware design, prototype production and incubation, computer-based support services, research and development (R&D) services, and other back-office operations" (MTPDP 2001-2004). Such development had spurred investment in the country. Eighty-three applications were approved by the Board of Investments (BOI) in 2000 alone, which amounted to P31.3 billion, 204% more than what was recorded in 1999 (P10.3 billion). Aside from the projects generated through BOI, there were registered projects with the Philippine Economic Export Zone (PEZA) amounting to P19.8 billion in 2000.

To further spur growth in the ICT and knowledge-based industry, the National Information Technology Plan for the 21st Century (IT 21) was adopted.

Arroyo Administration

One of the achievements under this administration was the signing of the Implementing Rules and Regulation (IRR) for Electronic Authentication and Signatures which provided voluntary application for firms to boost participation of local companies in electronic commerce.

EO No. 40 of October 2001 obliged all government agencies to maximize utilization of the Government Electronic Procurement System (EPS) and assigned to the Department of Budget and Management the powers to establish, manage, operate and maintain the EPS.

The Information Technology and Electronic Commerce Council (ITECC), which was created by the merging of the National Information Technology Council (NITC) and the Electronic Commerce Promotion Council (ECPC) on July 12, 2000 through Executive Order (EO) 264, was reorganized, transferring the chairmanship of the council to the President of the Republic. The ITECC was mandated to ensure the streamlining of IT-related policies and to focus in the formulation and implementation of ICT (information and communications technology) development.

Table II.31: Summary of the Telecommunication Industry

	1977	1986	1992	1997	1998	2000	2001
Mobile Phone Subscribers				1,343,620	1,733,652	6,454,359	12,159,163
Teledensity	1.29	1.02	1.4	8.07	9.08	9.05	8.88
Public Calling Office				865			

Source: NTC

2. Broadcast and Cable TV[28]

Broadcasting used to be composed of radio and television. Technology has allowed satellite television and radio to be part of the broadcast sector.

From 1977 to 2001, the number of AM and FM radio stations have an average annual growth of 13% and 112%, respectively.

According to DOTC (DOTC, Ibid), the Philippine Cable TV industry has been one of the first of its kind in Asia since late 1960s. During the Marcos Administration, Presidential Decree 1521 provided that a private entity, Sining Makulay, be given the sole franchise to operate a nationwide cable TV system for 25 years. In 1987 Aquino deregulated this industry. There has been a significant growth in the number of Cable TV Operators from 958 in 1998 to 1,219 in 2001 (see table II.32).

[28] The NTC has the mandate to regulate the issuance of Provisional Authorities and Certificates of Public Convenience and Necessity, frequency spectrum usage, and the operation and management of the companies involved in broadcasting (DOTC, 2000). Among the significant laws enacted for broadcasting were RA 3846 entitled "Radio Control Law" which formalized the requirements on the establishment and operation of radio transmitting and receiving stations and radio broadcasting stations.

Table II.32: Broadcast Stations and CATV Networks					
Service/Year	Marcos Administration		End Aquino Administration	End Ramos Administration	End Estrada Administration
	1977	1985	1992	1998	2001
AM Radio	238	294	264	350	367
FM Radio	34	80	157	462	559
Television	30	68	64	173	213
CATV	-	-	39	958	1,219
Source: NTC and Philippine Statistical Yearbook					

3. Postal Communications

Presidential Decree 240 gave DOTC the power and authority to regulate postal delivery services. In 1987, Postal Service Office was created under the Department of Transportation and Communications by virtue of EO 125. This was later transformed into a government owned and controlled corporation under the name Philippine Postal Corporation (Philpost), which was created on July 1991. Philpost was mandated to plan, develop, promote and operate a national postal system with a network that extends or makes available postal services throughout the country. It welcomes private entities who are interested in establishing a postal station[29]. The classification of a Postal Station as defined by the Philpost is as follows:

1.) Class A = Operated by private individual or firm and authorized to sell postage stamps and other postal products including the acceptance of recorded and unrecorded (ordinary) mails.
2.) Class B = Operated by private individual or firm and authorized to sell postage stamps and other postal products but limited to acceptance of ordinary mails.
3.) Class C = Operated by an educational institution (campus postal station) for the purpose of selling postage stamps and accepting ordinary mails only.

Marcos Administration

Per the assessment of the Five-Year Philippine Development Plan (1978-1982), there were about 1,645 post offices throughout the country before 1978. As of 1983, 2,108 post offices were in operation, each post office serving 24,000 inhabitants for every 147 square kilometers.

At the end of the Marcos administration, there were about 2,106 post offices in operation, 12 mail distribution centers, two submail distribution centers and five central post offices.

[29] PPC defines postal station as a facility established and operated by a private person or entity or local government unit in accordance with guidelines issued by the Philpost for the purpose of performing postal business and functions specifically authorized and enumerated in the permit issued by the corporation.

Aquino Administration

By the end of the Aquino administration, there was an increase in the number of post offices to 2,181 in 1992 from 2,106 in 1986. Yet, postal density fell from the 1986 record of one post office per 26,200 individuals to one post office per 28,800 individuals in 1992 since postal services were unable to keep pace with the country's population growth.

The Aquino administration achieved its target to deliver 85% of mail within 24 hours in the urban areas. Assessments showed that 85% of interregional mail was delivered in 48 hours (MTPDP 1993-1998).

Ramos Administration

Available data show that postal density gradually decreased from 1993 to 1995, from 30,800 individuals served by one post office to 20,982 per one post office, respectively. In 1996, there was a noticeable decrease of the postal density.

Table II.33: Postal Density (total population per 1 post office)

1993	1994	1995	1996	1997
30,800	30,620	20,982	22,212	-

Source: Various SERs

A possible explanation for the decrease in postal density was the closing of non-viable post offices and postal stations. Such measure was offset by the establishment of new barangay post offices which were managed by barangay officials.

The Department of Transportation and Communications (DOTC) released Department Order 94-823 in 1994 which created the committee mandated to regulate postal communications. In the same year, the Postal Savings Bank was opened which was intended to encourage savings in the countryside.

As of 1997, mails from foreign countries could be delivered in 2.15 days from date of receipt at the distribution center. Ninety-six percent (96%) of priority mails and 97% of domestic express mails were delivered in 24 and 48 hours, respectively. In 1993, mechanization of mail sorting and processing enabled the delivery of 87% of inter-Metro Manila mails in 24 hours from 85% in 1992.

Estrada Administration

As internet technology progresses, Internet Service Providers (ISPs) began expanding their service coverage from exclusive internet access to internet provision. The number of internet users went up by 36% from 1.1 million in 1999 to 1.5 million in 2000. Internet hosts, defined by the Socioeconomic Report (SER) 2001 as the "number of computers with active Internet Protocol Addresses (IPAs) connected in the internet", were also growing. Total number of Internet hosts per 10,000 people was at 1.2 in 1999 and 2.21 in 2000.

Internet Exchanges were also established. Some of these were: (a) Phil Internet Exchange, (PhIX), Globe Internet Exchange (GIX), Broadband Internet Exchange, the PHNET Common Routing Exchange (PHINET CORE) and the Philippine Internet Business Exchange (PhilBX).

The development of such technology contributed and complemented the postal services in the country. This could have been the reason for the relatively slower growth in postal communications. According to the SER 1999, postal density was recorded at 25,624 individuals per postal station. In 1999, 24 post offices were either constructed or renovated, bringing total number of postal stations to 2,917 as of December 1999.

Postal services registered an incremental improvement. In 1999, 97% of local Express Mails and 96% of local Priority Mails were delivered within 24 hours. Some 96% of local Registered Mails were delivered within 48 hours.

Arroyo Administration

According to the SER 2001, the number of Internet users in the country grew at a fast pace. The estimated number of users was recorded at 4.31 million in 2001 from 2.88 million in 2000.

The government is seeking Congressional creation of the Department of Information and Communication Technology (DITC) as an oversight and authority body in the implementation of ICT related projects and activities.

Although mail delivery performance was said to be within acceptable international standards (National Land Use Committee, 2000), volume of posted mail handled gradually declined since 1996 although total mail volume only started to decline in 1999 because volume of foreign mails started declining only in the same year. The decreasing trend in mail volume handled can be attributed to the popularity of use of Internet services that provides alternative means of sending mails via the electronic mail transfer. Also contributing to the decrease in mail volume is the emergence of messenger service provisions especially in the commercial areas and business districts.

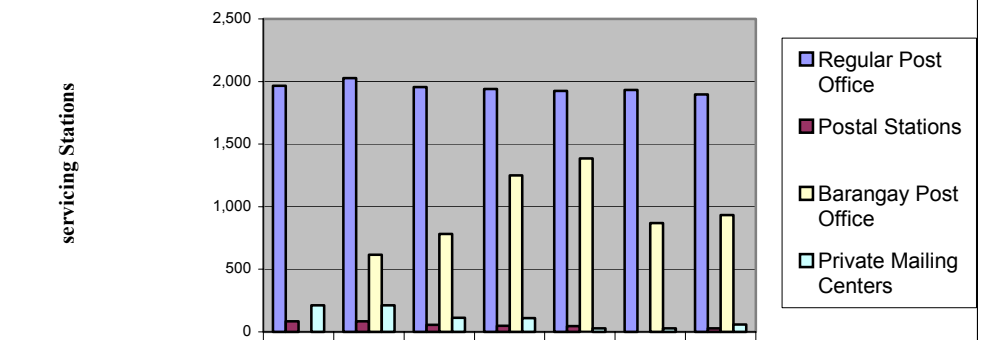
Table II.34: Summary of Mail Volume Handled 1980 - 2001 (in thousands)

Year	Posted mails	Received from Foreign Countries	Total
1979	958,752	198,005	1,156,757
1980	319,855	120,149	440,004
1981	350,026	131,311	481,337
1982	348,748	128,388	477,136
1983	355,537	173,966	529,503
1984	400,953	167,705	568,658
1985	431,567	193,002	624,569
1986	582,881	194,992	777,873
1987	588,902	167,484	756,386
1988	636,604	162,610	799,214
1989	645,199	161,101	806,300
1990	637,389	166,659	804,048
1991	804,855	175,714	980,569
1992	958,746	198,005	1,156,751
1993	811,058	186,189	997,247
1994	942,244	143,507	1,085,751
1995	994,676	122,630	1,117,306
1996	895,208	146,095	1,041,303
1997	844,014	327,576	1,171,590
1998	873,367	218,640	1,092,007
1999	766,275	192,142	958,417
2000	733,718	161,516	895,234
2001	755,520	160,284	915,804

Source: Philippine Statistical Year Book

To improve postal services, the Philpost rationalized postal network by closing nonviable regular post offices and replaced them with barangay post offices (BPOs) (National Land Use Committee, 2000). BPOs were constructed in coordination with barangay officials.

Figure II.12: Postal Network Development, 1993 - 1999



	1993	1994	1995	1996	1997	1998	1999
Regular Post Office	1,965	2,027	1,955	1,939	1,926	1,933	1,898
Postal Stations	84	84	57	49	46		29
Barangay Post Office		616	781	1,249	1,386	868	932
Private Mailing Centers	212	212	113	109	29	29	58

Years

Outstanding Issues in the Communication Sector

The main problem identified by industry players relates to interconnection. The national telecommunications network is composed of various carriers ever since the Aquino government allowed competition in the industry. Thus, the need for fluent and efficient interconnection among these carriers arose. In response to this need, the successor administration, Ramos government, enacted EO 59 which required the compulsory interconnection of all public communication carriers. In addition, RA 7925 was passed which formalized the provisions under EO 59 by defining interconnection rules.
While relatively smaller carriers, who have relatively fewer installed lines, are left without option but to interconnect with bigger companies, the bigger carriers on the other hand, do not have the incentive to practice diligence on interconnection agreements; they have all the reasons to impede interconnection. Interconnection will allow smaller carriers to establish a niche in the industry. Further, RA 7925 provided that regulators, in this case the National Telecommunications Commission (NTC), should have no involvement during the formulation of interconnection negotiation[30], thus bigger carriers can steer agreements to serve their interests. Chua (1997) added that NTC do not have "audacity to enforce sanctions", thus, barely providing disincentives to go against interconnection provisions.

In broadcast and cable TV, the pressing concern is the long-awaited passage into law of the Cable TV Bill. This was filed during the Aquino Administration, but is still pending in the House of Representatives. The Cable TV Bill promises to address several concerns in order to level the playing field among industry players. Leveling the playing field will open the Cable TV industry to more industry players and private investors. Some of the concerns are the following:

[30] NTC regulatory functions only takes effect when there are violations in stipulated interconnection agreements (Chua, 1997)

1.) Prohibition of program exclusivity[31];
2.) Promotion of competition;
3.) Elimination of illegal cable connections;
4.) Establishment of cost structures and procedures for franchising[32]; and
5.) Establishment of foreign ownership[33].

In postal communications, the main issue that the Philippine postal industry players are currently facing is stiff competition among other parallel service providers. Since the transformation of Philpost to a postal corporation, private investors were entitled to participate in providing postal services caveat Philpost requirements. However, competition is increasing, most especially in highly commercialized areas and buzzing business districts. Unfortunately these are the same districts most viable for setting up postal stations since exchanges of mails are most voluminous. Further, franking service, mandate for postal service providers to deliver mails from the Office of the President, the Congress and the House of Representatives for free, rendered costs without returns to postal service providers. The use of electronic mail and preference on the availment of messenger services over postal services of commercial entities and the franking service mandate caused the waning of the volume of handled mails (see Table II.34) and the incentives for private entities to invest in and operate postal facilities.

[31] Program exclusivity involves pulling out of TV program(s) by a program provider from a client cable TV operator to exclusively provide this/these program(s) to another cable TV operator under an exclusivity agreement. According to a BusinessWorld article (Tabingo, 21 November 2002), the case of Destiny Cable's inability to air several StarTV programs was due to an exclusivity agreement between StarTV and Beyond Cable.

[32] Presently, Cable TV operators are not required to secure legislative franchises.

[33] Current law prescribes that Cable TV operators should have 100% Filipino ownership. The Cable TV Bill seeks to allow foreign equity participation in local Cable TV companies.

III. AN ASSESSMENT OF THE PERFORMANCE IN INFRASTRUCTURE

A. Comparison with selected ASEAN Countries

Table III.1 provides a comparative review of the performance of the infrastructure sector across some ASEAN countries.

Table III.1: Performance in Infrastructure: Rank of Select Countries

	Philippines	Indonesia	Malaysia	Singapore	Thailand
Overall Infrastructure Maintenance & Development	47	40	18	1	25
Density of Road Network	45	37	38	2	42
Density of Railroads	42	41	37	47	35
Number of Passengers Carried by Air Transport Companies	39	31	22	20	19
Water Transport Infrastructure	46	41	22	3	33
Total Indigenous Energy Production	28	5	6	49	25
Investment in Telecommunications	9	29	7	14	42
Telephone Lines per 1,000 Inhabitants	47	48	38	23	46
Cellular Subscribers per 1,000 Inhabitants	43	48	33	19	45
International Telephone Costs	31	46	42	16	39

Source: World Competitiveness Report 2001; Key Economic Indicators of Developing Countries, ADB 2001

The country's average infrastructure expenditure relative to average gross domestic product was about 2% in the period 1983-2000. This is comparable to those of other ASEAN countries although Indonesia and Malaysia had a higher rate of infrastructure expenditure in 1983-1992. The net result is the very low ranking of the Philippines in basic infrastructure competitiveness out of 49 countries as reported in a recent survey[34].

[34] "State of Philippine Competitiveness 2002" a presentation by Federico Macaranas at the Asian Institute of Management, Makati City

Table III.2: Average Annual Infrastructure Expenditures as a Percentage of GDP of Selected ASEAN Countries

	1983-1986(4 yrs.)	1987-1992(6 yrs.)	1993-1998(6 yrs.)	1999-2000(2 yrs.)
Cambodia				1%
Indonesia	3%	3%	2%	1%
Malaysia	3%	3%	2%	2%
Philippines	2%	2%	2%	2%
Singapore	2%	2%	1%	0%
Thailand			2%	2%

Source: Key Indicators of Developing Nations, ADB 2001

Equally mood dampening is the fact that despite having the highest road density relative to other developing ASEAN countries, the country has the lowest paved road ratio in that group of countries (Table III.3), with Vietnam even besting us. As earlier discussed, the land transportation statistics show that despite a cumulative total of 200,187 kilometers in road network from 1977-2000, kilometers of roads per 1,000 persons indicates a decline.

Table III.3: Road Densities & Paved Road Ratios for the Philippines & Other ASEAN Developing Countries

	End of 1997		End of 2000	
Country	Road Density (km./sq.km)	Paved Road Ratio	Road Density (km./sq.km)	Paved Road Ratio
Philippines	0.63	0.20	0.67	0.21
Indonesia	0.19	0.47	0.19	0.47
Malaysia	0.20	0.47	0.2	0.74
Thailand	0.42	0.82	0.42	0.82
Vietnam	0.46	0.35	0.46	0.35

Source: DPWH

The ray of hope lies in the telecommunications sector. In 1993, under the Universal Telephone Service Policy, the country introduced competition in all market segments, significantly raising telephone density (Abrenica, Llanto, 2000). Table III.4 shows landline teledensity per 100 persons.

Table III.4: Landline Teledensity Per 100 Persons, Selected Countries

Country	1995	1996	1997	1998	1999	2000
Singapore	47.8	51.3	54.2	56.2	48.2	48.5
Malaysia	16.5	17.8	19.4	19.7	20.3	19.9
Philippines	2.01	4.66	8.07	9.08	9.12	9.05
Thailand	5.8	7	8	8.3	8.6	8.7
Indonesia	1.7	2.1	2.4	2.7	2.9	3.1

Source: World Bank, International Telecommunications Union, NTC

B. Comparative Review Across Administrations

Table III.5: The Infrastructure Sector: A Comparative Summary

Infrastructure Development Indicators			Marcos 1977-1986	Aquino 1987-1992	Ramos 1993-1998	Estrada 1999-2000
Macro Indicators	InfraExpAve/GDP Ave (nominal)		2.8%	2.1%	2.5%	2.1%
	Inflation/years		15.98	11.12	7.98	5.51
	Ave Real GDP Growth (1985 prices)		2%	3%	4%	4%
	Ave Nominal GDP Growth		18%	14%	12%	11%
Road Transport	Cumulative Road Network		158,499	160,843	199,950	200,187
	Road Density (figures at the end of each term)		0.53	0.54	0.67	0.60
	Km per 1,000 inhabitants		3.02	2.51	2.73	2.62
	% of all-weather roads over total roads		Less than 50%	64%	84%	88%
	Road Network by Surface Type (in km)	concrete	6%	8%	14%	14%
		Asphalt	8%	8%	6%	7%
		macadam	80%	78%	52%	51%
		Earth	6%	5%	28%	28%
	Cumulative Length of Bridges (lm)		230,226.35	250,191.15	266,833	271,293
Rail Transport	Cumulative Rail Length (km)	MRT				16.9
		LRT 3	15			
		PNR 4	474		494	479
Air Transport	Number of Airports	National	87	86	92	85
		Private	143	130	75	87
Energy	Electrification	municipalities/cities			100%	
		barangays			69%	80.1%
		households	45.6%	50%	60%	
	Energy Source (%)	indigenous	44.32	29.3	40.7	44.85
		imported	55.95	70.7	59.3	55.15
Irrigation	Cumulative Irrigated Lands (in million hectares)		1.38	1.564	1.5	1.503
Access to Water Supply	Metro Manila		49.20%	53.60%	63%	82%
	Other Urban Areas		73%	47%	74%	88%
	Rural Areas		53%	80%	86.70%	84.80%
Communication Sector	Teledensity		1.02	1.4	9.08	9.05

Note: figures were based on the last year of each term
Sources: various MTPDPs, SER, Phil. Statistical Yearbook, Phil. Yearbook, DPWH, NTC

The average infrastructure expenditure relative to average gross domestic product during the Marcos administration was at 2.8%. During Aquino, it fell to 2.1% and improved to 2.5% during Ramos' term. It declined to 2.1% in the two years of Estrada's term. The highest average expenditure for infrastructure was achieved during Marcos' term made possible by huge borrowings. Aquino inherited the fiscal deficit and high inflation problems that had

their origin during Marcos' long dictatorial rule. Ramos had the advantage of a fiscal surplus, no doubt helped by large margins generated from the sale and privatization of government assets.

Average real GDP growth was at 2% during Marcos, 3% during Aquino, and Ramos and Estrada both at 4%. The average inflation during Marcos' administration was 15.98%. Aquino brought it down to some extent to 11.12% which is still high. However, the large fiscal deficits incurred in the Marcos administration should be taken into consideration. Ramos brought down inflation to 7.98% while Estrada cut it down to 5.51%.

The experience shows how critical it is to have sustained economic growth and a strong fiscal position if the necessary growth enhancing and equity-improving infrastructure were to be built and maintained. Infrastructure spending financed by borrowing does not appear to be sustainable. Fiscal deficits and high inflation would put infrastructure development at a tailspin and arrest further growth.

The percentage of all-weather roads over total roads was lowest during Marcos' term. Unpaved roads were 86% of the total road network (macadam, 80% and earth, 6%) while concrete and asphalt combined make up for only 15%. In the Aquino administration, all-weather road was at 64% while Ramos increased it to 84%. By this time, paved roads composed 20% of all-weather roads and unpaved, 80%, respectively. In Estrada's term, all-weather road reacheds 88% with paved and unpaved roads making up 21% and 79% respectively.

In rail transport, no significant improvement is indicated Marcos except for the construction of the light rail system (LRT under Marcos and MRT-Phase I under Estrada) in Metro Manila. This indicates the urban-bias of rail transport which is relevant for densely populated areas. The road transport system has given effective competition to rail transport because of its relatively cheaper construction and maintenance requirements in addition to greater flexibility in use.

A comment one can perhaps make on this issue is the trade-off between putting up more rail lines in urban areas such as Metro Manila and constructing more efficient, all-weather roads in the countryside, especially in areas with large agro-industrial potential. A more efficient road system that connects countryside areas to the major urban centers will stimulate growth in the inner areas, decongest the urban centers and alleviate poverty in the countryside. The rail or commuter lines can come at a later stage of development. In short, the emphasis should first be on the development of all weather roads in the countryside or rural areas and their connectivity with the main highways or arteries, e.g., Pan-Philippine Highway. This calls for closer analysis by researchers and policy analysts.

The number of airports, on the other hand, has fluctuated from 87 in the Marcos administration to 92 during Ramos' term across the twenty-five year study. The fluctuation in number may be explained by the difficulty the country had with operating and maintaining airports in areas where the traffic density and the scale of commerce do not justify their existence. In other words, it may not be both financially and economically feasible to operate and maintain many of these airports. There is a need to rationalize the number of airports considering: (a) the large investments associated with the building, maintenance, operation

and upgrading of airports and (b) the alternative strategy of having inter-modal transport systems, e.g., efficient road system cum roll-on-roll-off ferry system that could better serve an archipelago like the Philippines. Contiguous areas may be served by a single airport and a comprehensive and improved road system serving those areas.

In the port and shipping industry, the reforms aimed at the liberalization and deregulation of the domestic shipping industry happened in the 1990s. Republic Act 7471 (1992) or the "Philippine Overseas Shipping Development Act granted incentives for the modernization of the local shipping industry with a resulting decline in the average age of shipping vessels. Shipping routes were merged, new routes were opened and newer watercrafts were used for inter-island travel.[35] Executive Order No. 185 (1994) opened domestic shipping to new investors. Executive Order No. 213 (1994) deregulated domestic shipping rates. Executive Order No. 212 (1994), as amended by Executive Order No. 410 provides for the move away from the monopoly of the Philippine Ports Authorty in providing port services to the privatization of government ports. It allowed shipowners, operators, charterers or other users the option to choose or engage the services of private port handlers/service contractors. However, there is a need to continue policy reforms in this sector in order to encourage private sector investments in the freight cargo market that will bring down transport costs. Part of the reforms is the transfer of the regulation of ports from the government to an independent regulator.

Regarding electrification of households, Marcos achieved an astonishing 46 percent rate by 1986. It seems that succeeding administrations only managed to add incrementally to this: Aquino increasing it to 50 percent and Ramos, 60 percent. However, this may be due to the fact that the rural electrification is a much more difficult program to administer than urban electrification. The succeeding administrations had to contend with far-flung rural areas and island communities which do not seem to be profitable areas for investment by the private sector. However, there could be a scope for private sector investment in rural electrification given appropriate incentives and policy framework.

Total imported energy was at around 56 percent while indigenous energy was at about 44 percent during the Marcos administration. Marcos invested heavily in developing indigenous sources of energy in view of the oil crisis in the early 1970s. Economic growth during the Aquino administration was adversely affected by her neglect of energy development and management. On the other hand, greater use of imported energy was a derivative of higher economic growth during the Ramos administration. During Ramos' term, imported energy was around 41% of total energy used in the country. Ramos' greatest achievement was probably his success in solving the energy problem that also benefited the Estrada administration[36]. Total installed capacity by 1998 was 12,609 megawatts, representing an increase of 73.7 percent from 6,949 megawatts at the end of the Aquino administration in 1992. Total capacity in 1977 was 3,450 megawatts.

[35] An example is the fast ferry service plying the routes along Cebu, Bohol, Negros islands.

[36] The downside was the piling up of huge contingent liabilities that arose from the purchase power agreements between the government and the private investors. Section III of the paper handles this issue.

There has been a recorded steady increase in the population served with water supply across the four administrations. After the Marcos Administration, only 49.2% of the total Metro Manila population was served by the MWSS. This increased by 66% after three administrations when around 82% of the Metro Manila population was served by the MWSS at the end of 2000. Total population served by MWSS as of November 2001 was 8.125 million, or 70% of total population covered by MWSS. Other urban areas had 73% access to water when Marcos was at the helm, peaking to 88% during Estrada's administration. Access to water in rural areas went up to 87% in 1998 from 53% in 1986 then dropping slightly to 85% in year 2000. It is imperative for the government to improve access to safe and reliable water supply and this is an investment area that cannot be compromised. While water supply service has shown improvements in quality and coverage in Metro Manila, other parts of the country need substantial investments in new and improved water facilities. Local water districts, private utilities, rural waterworks and sanitation associations, barangay waterworks and local governments have to be strengthened and be financially viable to meet the increasing demand for quality water by households and business.

Irrigated lands have remained at around 1.5 million hectares since Marcos. It was basically Marcos who laid down the irrigation infrastructure in the country. Total area with irrigation facility was about 1.1 million hectares in 1977. This stood at 1.4 million hectares by the end of 1985. Aquino added some 64,000 hectares to the total irrigated areas. Ramos had plans to increase the area covered by irrigation but the delay in project implementation of such big projects as the Casecnan dam and the San Roque multi-purpose project prevented the addition of more irrigated lands to the current stock. As of 2001, cumulative irrigated land is at 1.5 million hectares.

There is a need to evaluate the relative advantage of setting up huge scale (and costly) irrigation projects, sometimes in conjunction with a power project, vis-à-vis building more (and less costly) smaller scale projects e.g., water impounding systems in local communities. Also, the environmental costs of huge power cum dam projects have to be considered in making the decision. This begs for a multi-disciplinary analysis because of far-ranging economic and non-economic implications of huge irrigation cum power projects. One thing is sure though: the modernization of agriculture would require more efficient water production and distribution systems but not for rice production alone. The current bias of irrigation policy should be reviewed in light of the growing importance of high value crops such as vegetables, fruits, cut-flowers and ornamental plants in agricultural markets.

In the communication sector, credit for substantially improving teledensity goes to Ramos notwithstanding the higher teledensity of Estrada at 9.05. Ramos laid the groundwork for policy reforms in this sector by mandating the interconnection of all local telephone exchanges and the break up of the monopoly by the incumbent dominant firm in the industry. This was made possible by Executive Order 59 which mandated compulsory interconnection and Republic Act 7925, the Public Telecommunications Policy Act that now serves as the legal and regulatory framework for the development and governance of the country's telecom industry. Thus, Estrada's achievement was only a derivative of Ramos' forceful action to improve the telecommunications industry. Teledensity improved from 1.02 in Marcos' time to 9.05 under Estrada.

The impressive growth of wireless communication positions the country to be the most dynamic telecommunications market in the Asia Pacific, holding vast opportunities for data applications and other emerging technologies.

IV. INFRASTRUCTURE POLICY AND FINANCING INFRASTRUCTURE[37]

A. Government's New Role in Infrastructure Development

The Philippines has made significant strides in encouraging private participation in infrastructure. This is manifested at both the macroeconomic and microeconomic levels. The government's pursuit of macroeconomic stability through prudent fiscal management and sound monetary policy has led to a decline of the inflation rate to a single digit level. Interest rate and exchange rate stability has also been maintained. A stable macroeconomic environment builds the confidence of private investors to deploy long-term capital to the infrastructure sector.

In this regard, gross domestic product (GDP) grew at 4.4% in 2000; 3.2% in 2001 in real terms. The latest GDP real growth rate stands at 3.8% as of June 2002. The inflation rate was 4.4% in 2000; 6.1% in 2001. The inflation rate stands at 3.5% as of June 2002. The Arroyo administration has committed to a continuing pursuit of a stable and conducive macroeconomic environment by working toward fiscal balance in 2006 and ensuring a regime of low interest rates and low inflation. The government successfully kept the fiscal deficit at 3.8% of GNP in 2001. Under the previous administration, the fiscal deficit was at 3.8% of GNP in 2000. The fiscal deficit reduction program envisages a reduction of the fiscal deficit to 3.1% of GNP in 2002; 2.7% in 2003 and to fiscal balance in 2006.

At the microeconomic level, the government's shift in thinking with respect to infrastructure development started during the Aquino administration. The creation of the Committee on Privatization and its implementing unit, the Asset Privatization Trust through Proclamation No. 50 in 1986 signaled the shift in policy to rely more on the private sector. The government "privatized 122 government-owned and-controlled corporations (GOCCs) from 1987 to 1992 and generated some P55 billion in revenues, reversing the trend set by the Marcos administration of government interference in activities that were more appropriately handled by the private sector"[38]. Of the 562 government-owned and-controlled corporations' assets approved for privatization, 453 were privatized as of June 30, 1998, generating gross sales proceeds of P184 billion.[39]

The government has recognized the comparative advantage of private sector participation in the provision, financing, and implementation of infrastructure projects. Specific measures to encourage private participation in infrastructure were provided. The passage of Republic Act 6957 (the Build-Operate-Transfer Law) and the subsequent amendments to this law under Republic Act 7718 indicate the government's commitment to use private sector expertise and resources in infrastructure. The first privately financed BOT power contract, the Navotas Gas Turbine Power Plant of Hopewell Holdings was implemented under the

[37] This draws in part from Chapter V, "Financing Infrastructure and Capital Markets" in Llanto and others (2000); Lamberte and Llanto (1995) and from various studies of the Asian Development Bank on capital and bond markets.

[38] Ramos (1998) Ramos, Fidel. V. 1998. "Bringing Infrastructure Development to the Market" in Macaranas and Clavecilla (editors) Investment Infrastructure Asia. Makati City: Washington SyCip Policy Forum, Asian Institute of Management. 1998. pp. 65-69

[39] Executive Order No. 12 by President Joseph Ejercito Estrada, August 14, 1998.

Aquino administration. Republic Act 7718 amended the BOT law by increasing the scope of private sector participation, providing for direct negotiation of contracts and investment incentives in certain cases, and addressing the problem of unsolicited proposals. Thus, the BOT law as amended allows for various modes of private participation: build-operate-transfer, build-run-and-operate, build-transfer, build-lease-and-transfer, contract-add-operate, develop-operate-transfer, rehabilitate-operate-transfer and rehabilitate-own-operate.

The legislators also enacted Republic Act 8974 and Republic Act 8975 to address the problem of right-of-way (ROW) acquisition. The road right-of-way has been the single most important problem in road infrastructure projects. RA 8974 provided the legal framework and basis for expropriation proceedings in infrastructure projects, the manner of compensation, and the manner of relocation of squatters, among others. RA 8975 prohibits lower courts from issuing temporary restraining orders that certain concerned parties seek from the courts to stop implementation of infrastructure projects. It is only the Supreme Court that issues any restraining order.

Worthy of mention is the passage of the Electric Power Industry Reform Act of 2001 (EPIRA). This critical law opens the way for greater private participation in the electric power industry by broadening the ownership base of the industry, allowing the participation of interested investors in remote and so-called missionary areas that the franchised utility could not service, among others. EPIRA provides for competition in power generation and supply segments of the industry. Distribution and transmission of electricity are regarded as natural monopolies. A newly created Energy Regulatory Commission shall regulate the price of transmission and distribution of electricity. The law also created a national Transmission Company that will be initially set up as a state monopoly but will eventually be privatized.

Thus, the creation of a new infrastructure policy environment has encouraged private investments in infrastructure. The government's initial efforts have been rewarded by a surge in private investor interest and investment in various infrastructure projects.

The government seems committed to provide a credible and transparent policy environment and institutional framework to bring about greater private participation. Toward this end, it should continue and intensify policy, regulatory and institutional reforms that encourage greater private participation in infrastructure and build investor confidence. Infrastructure provision is not simply a matter of adding new infrastructure or filling gaps in current infrastructure provision. If the premise about combining immobile factors with mobile capital in order for the country to gain competitiveness is correct, then there is need to give infrastructure development a fresh look.

The drive should be for consistency and focus on infrastructure that improves factor productivity and yields the greatest social benefit and not for projects that represent haphazard responses to political objectives. This calls for more efficient scrutiny of proposed infrastructure projects and their prioritization in view of the limited fiscal capacity of the government. In instances where private participation is the key to greater and more efficient provision, policy makers and legislators should be made aware of the fiscal risks

brought by contingent liabilities arising from explicit or implicit government guarantees that have been given to induce private participation[40].

Fulfilling its new found enabling and coordinating rule will require the pursuit and implementation of policies such as fair, transparent and competitive bidding for infrastructure projects. Transparency and fair competition in the bidding and awarding for infrastructure are extremely important factors for attracting private investments. This will require an efficient process for selecting or identifying projects, soliciting, evaluating and awarding projects. An efficient bidding and award process will be instrumental in avoiding the abuse of the legal system to challenge the award of a project.[41] In addition, transparency and fair competition in bidding shall improve the procurement of vital infrastructure for the country.

The following should inform government infrastructure policy framework and strategy: (a) competition and regulatory policy promoting transparency and competitive markets and balancing the interest of consumers, private investors and financiers, (b) private financing, provision and operation of infrastructure projects, (c) government support arrangements to minimize risks and enhance the creditworthiness of infrastructure projects, and (d) responsive institutional decision making arrangement for private participation in infrastructure.

The policy framework and strategy important in addressing the seven major constraints to enhance private participation in infrastructure are: (i) the wide gap between expectations of governments and the private sector on what is reasonable and acceptable; (ii) lack of clarity about government objectives and commitment and complex decision making; (iii) need for more conducive sector policies (pricing, competition, public monopolies), (iv) need to un-bundle and manage risks and to increase the credibility of government policies; (v) under-developed domestic capital markets; (vi) need for new mechanisms to provide from private sources large amounts of long-term finance at affordable terms and (vii) need for greater transparency and competition to reduce costs, assure equity and improve public support[42].

B. Private Sector Participation in Infrastructure

B.1. Worldwide Trends in Private Participation in Infrastructure

To show that the prevailing interest and discussion of infrastructure provision by the private sector is non-trivial and important, I refer to the worldwide trends in infrastructure and private sector participation. Beginning with a few countries in the 1970s and 1980s, privatization "has turned into a wave that has swept the world in the 1990s" with "developing countries. . . at the crest of this wave" (Roger 1999). The World Bank Private

[40] The section on fiscal risks arising from contingent liabilities discusses this issue more fully.

[41] The case cited by private proponents to demonstrate how the legal system can be used in challenging the award of a project is the Supreme Court ruling favoring a "Filipino First" policy in its judgment of the Manila Hotel bid. They claimed that "the ruling is potentially very damaging to future bids by non-Filipino interests as it heralds the Supreme Court as the desired venue of resolution for challenging the award of any project to a non-Filipino concern" (Recommendations of the Advisory Companies to the Working Group, The Philippines National Infrastructure Forum, May 22-23, 1997, Manila.)

[42] World Bank (2001). "Infrastructure Development in East Asia and Pacific: Toward a New Public-Private Partnership", the World Bank.

Participation in Infrastructure Project Database confirms this trend in private participation in infrastructure development. From about US$16 billion in 1990, private investment flows to infrastructure projects rose to US$120 billion in 1997 (Table I.1). The decline in 1998 was due to the financial crisis in mid-1997. Roger estimated that on average in the past three years (1996-1998), private participation accounted for over 40 percent of total infrastructure investments in developing countries, indicating the growing significance of private activity in the infrastructure sector.

Table IV.1: Investment in Infrastructure Projects with Private Participation in Developing Countries by Sector and Region, 1990 - 1998 (in 1998 US$ billions)

PARTICULARS	1990	1991	1992	1993	1994	1995	1996	1997	1998	TOTAL
Sector										
Telecommunications	6.6	13.1	7.9	10.9	19.5	20.1	33.4	49.6	53.1	214.2
Energy	1.6	1.2	11.1	14.3	17.1	23.9	34.9	46.2	26.8	177.1
Transport	7.5	3.1	5.7	7.4	7.6	7.5	13.1	16.3	14	82.2
Water and Sanitation	0	0.1	1.8	7.3	0.8	1.4	2	8.4	1.5	23.3
Region										
East Asia and the Pacific	2.3	4	8.7	15.9	17.3	20.4	31.5	37.6	9.5	147.2
Europe & Central Asia	0.1	0.3	0.5	1.5	3.9	8.4	10.7	15.3	11.3	52
Latina America and the Caribbean	12.9	12.3	17.1	18	18.4	19	27.4	45.1	66.3	236.5
Middle East & North Africa	0	0	0	3.3	0.3	0.1	0.3	5.2	3.6	12.8
South Asia	0.3	0.8	0.1	1.2	4.3	4	11.4	13.7	2.3	38.1
Sub-Saharan Africa	0	0	0.1	0	0.7	1	2	3.5	2.3	9.6
TOTAL	15.6	17.4	26.5	39.9	44.9	52.9	83.3	120.4	95.3	496.2

Source: Neil Roger, 1999

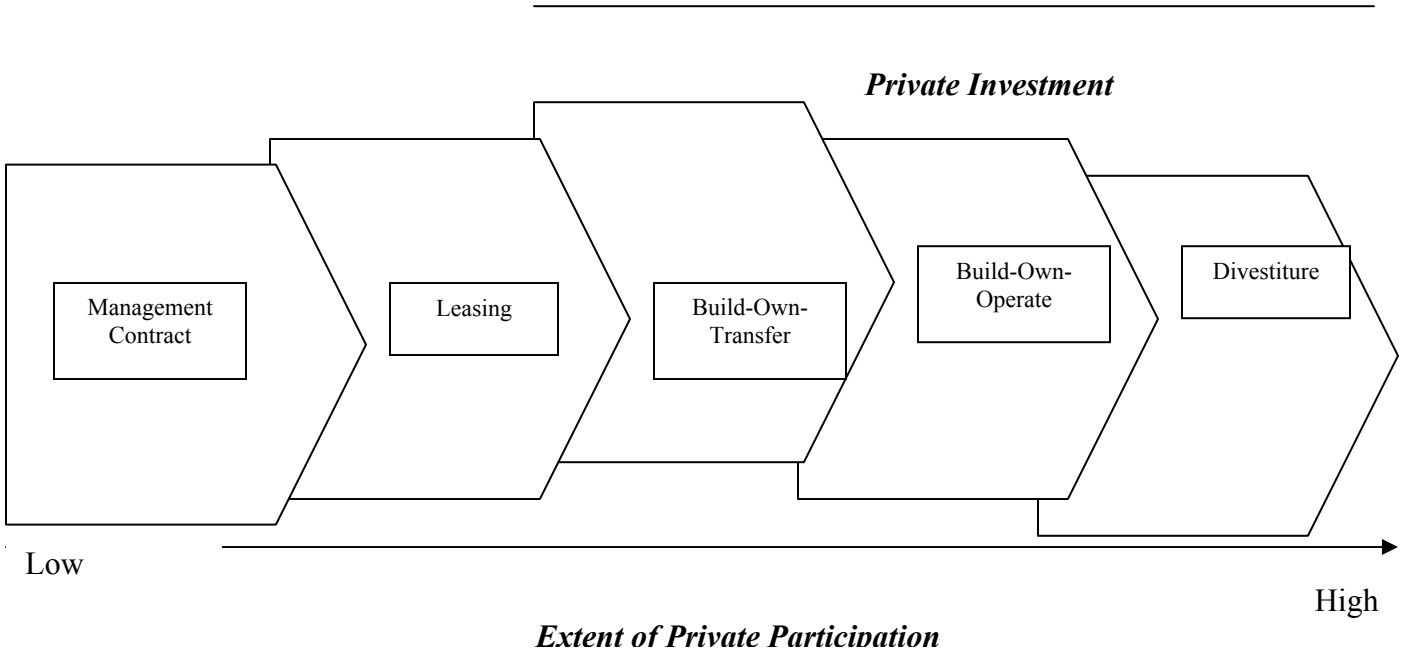
Roger (1999) reports the following trends in developing countries in the 1990s:

- Private activity has grown rapidly but the public sector still dominates.
- Private activity declined in 1998 from a high in 1997, falling most in East Asia and in energy.
- Telecommunications and energy have been the leading sectors in private participation, and Latin America and East Asia the leading regions.
- Almost all developing countries have some private activity in infrastructure.

B.2. Philippine Experience in Privatization

In the case of the Philippines, private sector participation can be understood with the help of Figure IV.1 below:

Figure IV.1: Different Ownership Structure in Infrastructure



Note: Divestiture includes different ownership options. A government may sell all or part of its share in an infrastructure enterprise (and issue a license for the concessionaire to operate them). Or the government may retain ownership of the underlying assets but issue a long-term license to a private operator, including investment obligations.

Source: International Finance Corporation, 1996

Private sector participation can be done through concession agreements, franchises, leasing, management contracts, joint venture, and other schemes. The common goal is to harness private expertise and resources in the financing, construction, management and delivery of infrastructure services. Concession agreements in the country have typically taken the form of build-operate-transfer (BOT) and its variants as provided for in the BOT Law, as amended. Figure IV.1 shows the different private ownership structures in infrastructure.

Among the major achievements in private participation in infrastructure are the following:

Telecommunications: Since 1993, the telecommunications sector has been subjected to liberalization efforts. Executive Order No. 59 forced the Philippine Long Distance Telephone Company to interconnect with other operators. Executive Order No. 109 required international gateway facilities operators and cellular mobile telephone providers to provide local telephone exchange licenses in un-served and underserved areas, including Metro Manila. The government has awarded 11 new licenses for basic telephone and cellular and international gateway facilities. This has led to the installation of almost 4 million new lines by the end of 1998. NEDA reports that the country now has 11 international gateway facility operators, 5 cellular mobile telephone service operators, 3 fixed line operators and 15 paging companies. Landline telephone density (number of telephones per 100 persons) increased from 1.17 in 1992 to 9.05 in 2000.

Republic Act No. 7925 or the Public Telecommunications Policy Act of 1995 deregulated the setting of service rates of the paging and trunked repeater services. Since then, paging and trunk radio system subscriptions have shown remarkable growth. Republic Act No. 7925 also abolished the 12 percent ceiling on the telecommunication firms' rates of return. Under the act, value-added service providers are no longer required to secure a franchise and are now allowed to competitively offer services. This law also mandated the privatization of government-owned telecommunications[43].

Water: There has been limited private participation in the water sector but the experience has provided lessons for future private involvement. The privatization of the Metropolitan Waterworks and Sewerage System (MWSS) through two concessionaires has led to more water connections. A joint venture agreement among the Subic Bay Metropolitan Authority, Olongapo City Water District, Bi-Water and a local company became effective on April 1, 1997. There are two water lease agreements for the water system facilities under the agreement, that for Subic Bay Metropolitan Authority and the other for Olongapo City.

Power: Private capital has poured into the power sector in response to demand and government incentives such as risk-reducing government guarantees. In 1987, Executive Order No. 215 liberalized power generation which used to be monopolized by the National Power Corporation. Because of the power crisis towards the end of the Aquino administration, Congress granted Mr. Ramos emergency powers to negotiate Independent Power Producers (IPP) contracts. Upon expiry of those powers, the Build-Operate-Transfer law was amended which allowed unsolicited projects to be offered by the private sector. The country has contracted 33 power projects - which were responsible for solving the power crisis that hit the country in 1992. The country's power-generating capacity has increased to meet the rising demand of the economy.

Since 1992, more than 5,120 megawatts of additional power were added, bringing total installed capacity to 12,067 megawatts by December 1998, an increase of almost 74 percent from 6,949 megawatts in 1992[44]. The private sector was responsible for the construction and rehabilitation of about 5,627 MW generation capacity or 47 percent of the country's total generation capacity. In 2001, total installed capacity totaled to 13,252 megawatts, of

[43] "Philippine Infrastructure Program," National Economic and Development Authority presentation to the Philippine National Infrastructure Forum, Mandaluyong City, May 22-23, 1997.
[44] Ibid.

which, 46.22% was produced by independent power producers and 14.04% were produced by private operators using National Power Corporation-owned plants. Passage of the Electric Power Industry Reform Act of 2001 (Republic Act 9136) has paved the way for the privatization of the National Power Corporation that is expected to bring about greater efficiency in the power sector.

Transport: Government has deregulated and demonopolized transportation operations starting with shipping and civil aviation. In domestic shipping, the private sector responded by replacing their aging fleet and developing alternative services such as fast ferries. In civil aviation, new domestic airlines were introduced following liberalization in 1995. In the road sector, the government has implemented liberalization measures that have made available alternative road transport systems. Phase 1 of Line 2 or MRT3 along Epifanio de los Santos Avenue in Metro Manila running from Pasay City to North Avenue, Quezon City was made operational in late December 1999 under a BOT scheme. Phase 2 of the final phase of this line is envisaged to be finished in 2004 under a Build-Transfer scheme. Other privately-provided and financed Metro Manila rail lines will be on stream in the future. In addition, the government has just opened a modern domestic terminal in Metro Manila (NAIA Terminal 2) to serve both international and domestic flights of Philippine Airlines. Other road projects for private sector participation include the following: Southern Tagalog Arterial Road, South Luzon Tollway Extension Project, Manila North Tollway Project and Skyway Phases II and III.

B.3. Build-Operate-Transfer (BOT) Schemes[45]

Ramos (1998) reported that the BOT Law as amended "enabled government to enforce power projects on a scale and speed that was unprecedented worldwide. In one year alone (1996), the government added 1,000 megawatts of capacity through BOT power plants." The effect was to "practically eliminate all brownouts in metropolitan areas and production centers by the end of 1993" from "10 hour brownouts in 1990 to 1992." With the BOT law, the government was able to induce private participation in telecommunications, rail transport, toll roads and water.

The country passed the first BOT law in Asia in 1990 which was later amended in 1994. This was a landmark event because it increased private investments in infrastructure in the country. The World Bank (2000) cited the following as reasons for increased private investments:

- Expanding private sector participation in infrastructure development in sectors other than power, including telecommunications, ports, toll roads, airports and water utilities
- Relaxing the 60 percent Philippine ownership requirement for operating infrastructure projects
- Relaxing the requirement that all private sector construction contracts be awarded to companies whose capital is at least 60 percent Philippine-owned

[45] BOT is the generic term for various schemes such as Build-Lease-Transfer, Build-Transfer, and other schemes stated in Republic Act 6957 as amended by Republic Act 7718.

- Preventing the use of explicit government guarantees and limiting the use of public funds so that no more than 50 percent of the total project cost can come through government financial institutions
- Delegating Congress' approval authority to the executive branch
- Allowing implementing agencies to consider unsolicited project proposals and to negotiate proposals directly with the private sector under certain conditions.

BOT projects can be solicited or unsolicited. Table IV.2 to Table IV.5 show national and local government solicited and unsolicited BOT projects. Solicited projects should be preferred because there would be competition among various proponents. However, one view[46] is that the BOT Law is not explicit in the preference for solicited projects. In fact, if liberal interpretation is to be applied in Section 13.2b of the BOT-IRR, the direct or indirect support may only be provided to solicited project. Government through the ICC and DOF can decide to withhold the provision of such even if it is a solicited project. At present, the ICC and DOF are now very cautious in allowing BOT projects to have provisions in its contract for PUs.

Once priority status has been confirmed by reference to the medium-term public investment programs of the implementing agency that sponsors the solicited BOT project, the same is tendered for bidding. The competitive bidding process for solicited projects shall help ensure that the government (and thus, the taxpayer) shall get the infrastructure facility at least cost and lowest price to the consumer.

Any form of procurement will always be subject to controversies whether this is done through competitive bidding or through negotiated contract. However, these controversies are easier to refute if the procurement is done through public bidding with RFPs and submitted bids readily at hand for scrutiny. The UNIDO BOT guidelines states that "it is better to avoid negotiating unsolicited proposals in countries that have an established competitive bidding process for BOT projects since such negotiations may seriously undermine competitive bidding (i.e. if private proponents know that their proposals will be considered on an unsolicited/negotiated basis, they will have little incentive to submit to the rigors of competition).[47]

For the solicited BOT projects, bidders are required to submit their bids on or before stipulated deadline. Pre-qualified bidders should submit two separate envelopes, the first containing the technical proposal while the second contains the financial proposal. Bids for BOT projects are undertaken in two stages, the first stage evaluation (first pass) and the second stage evaluation (second pass).[48] According to RA7718, the first stage evaluation involves the assessment of the technical, operational, environmental and financial viability of the proposal as contained in the bidders' first envelope. Only those bids that passed the first stage evaluation can proceed to the second pass. Second stage evaluation involves the assessment of financial proposals and comparison of financial proposal among first pass qualifiers.

---

[46] The author would like to thank Rowena Cham of NEDA for this observation.
[47] Ibid.
[48] First and second passes are terminologies used in the ICC approval process. First pass is the project approval while the second pass is the contract approval.

Unsolicited BOT projects go through the same procedure as solicited projects however, proposals are subjected to a swiss challenge; but given the time period (60 days) to match the bid of the original proponent, the latter has all the advantage. In addition, the unsolicited route also allows the original proponent to match the "swiss challenger" bid thus more often than not, the original proponent gets to implement the project.[49]

Table IV. 2 National Solicited BOT Projects (as of 31 March 2002)

Type of Project/ Sector/ Project Name	Scheme	Estimated Project Cost in US $million
A. COMPLETED/OPERATIONAL		15,101.36
SECTOR: POWER		6,241.36
1.) Navotas Gas Turbine 1-3	BOT	40
2.) Benguet Province Mini Hydro	BOO	22
3.) Subic, Zambales Diesel	ROM	4
4.) Toledo Cebu Coal Thermal Plant	ECA	35
5.) Gas Turbine Power Barges	ROM	168
6.) Clark Air Base Diesel Plant	ROM	4.5
7.) Navotas Gas Turbine 4	BOT	40
8.) Limay, Bataan Combined Cycle Gas Turbine Power Plant Block A	BTO	298
9.) Pinamucan, Batangas Diesel Power Plant	BOT	120
10.) Iligan City Diesel Plant I	BOT	60
11.) Binga Hydro Power Plant	ROL	143
12.) Calaca, Batangas Diesel Power Barges	BOO	78
13.) Limay, Bataan Combined Cycle Gas Turbine Power Plant Block B	BTO	350
14.) Iligan City Diesel Plant II	BOT	40
15.) Makban Binay Geothermal Plant	BTO	33
16.) Subic, Zambales Diesel Power Plant II	BOT	120
17.) Mindanao Diesel Power Barges	BTO	335
18.) Naga Thermal Plant Complex	ROM	60
19.) Bataan EPZA Diesel Plant	BOO	31
20.) North Harbor Diesel Power Barges	BOO	78
21.) Navotas Diesel Power Barge 1 & 2	BOO	110
22.) Engineering Island Power Barge	BOO	30
23.) Bauang, La Union Diesel Power Plant	BOT	200
24.) Malaya Thermal Power Plant	ROM	250
25.) Ambuklao Hydro Power Plant	ROL	95
26.) Cavite EPZA Diesel Plant	BOT	22
27.) Pagbilao Coal-Fired Power Plant	BOT	888
28.) Mindanao I Geothermal Plant	BOT	79.57

[49] After the submission of a complete proposal, the agency has to acknowledge receipt and advise if the submission is complete (Section 10.5). Then, the agency is tasked to initially evaluate the proposal based on the merits of the project, the qualification of the proponent and the appropriateness of the contractual arrangements and reasonableness of the risk allocation. Basically, there is an internal evaluation to be undertaken on the technical, financial and economic soundness of the project. The agency is given 60 days to evaluate and within this period, will formally communicate with the proponent of its acceptance or rejection of the proposal. If it is accepted, the proponent will be recognized as the "original proponent." Implementation will then be contingent on securing the necessary government approvals for both the project and the contract (please see Section 10.6).

29.) Leyte-Cebu Geothermal Power Plant	BOT	305.53
30.) Zamboanga Diesel Power Plant	BOO	110
31.) General Santos Diesel Power Plant	BOO	60
32.) Mindanao II Geothermal Plant	BOT	72.31
33.) Leyte-Luzon Geothermal Power Plant (Malitbog-Manahagdong, Tongohan)	BOT	630.45
34.) Leyte-Luzon Geothermal Power Plant (Leyte Geothermal Power Optimization)	BOT	46
35.) Sual Coal-Fired Thermal Power Plant	BOT	1,200
36.) Bakun A/B and C Hydro Power Plant	BOT	83
SECTOR: TRANSPORT		1,205
1.) Light Rail Transit Line No. 3 (MRT 3)	BLT	655
2.) Metro Manila Skyway (Stage 1)	JV	419
3.) Manila - Cavite Toll Expressway	JV	131
SECTOR: INFORMATION TECHNOLOGY		65
1.) Civil Registry System	BTO	65
SECTOR: WATER		7,175
1.) MWSS Privatization	CAOM	7,000
2.) Subic Water & Sewerage	JV	120
3.) Clark Water Supply & Sewerage	CAOM	55
SECTOR: OTHERS		415
1.) Samal Island Resort Estate Development	JV	15
2.) Pabahay sa Riles	JV	400
B. AWARDED (UNDER OR FOR CONSTRUCTION)		3,138.30
SECTOR: POWER		2,488
1.) Bacman Binary Geothermal Power Plant	BTO	33
2.) Mindanao Coal-Fired Thermal Power Plant	BOT	310
3.) Ilijan Natural Gas Combined Cycle Power Plant	BOT	960
4.) San Roque Multipurpose Project	BOT	1,141
5.) 50 MW Aggregate Capacity Bunker-Fired Diesel Power Plants in Islands Electrification	BOO	44
SECTOR: TRANSPORT		443
1.) Southern Tagalog Arterial Road (STAR)	BTO	73
2.) Manila North Luzon Tollway	JV	370
SECTOR: INFORMATION TECHNOLOGY		207.3
1.) Database Infrastructure & Information Technology System	BOO	75
2.) Land Titling Computerization Project	BOO	82
3.) Machine Readable Passport Visas	BOT	50.3
C. BIDDING STAGE		117
SECTOR: SOLID WASTE		117
1.) Metro Manila Solid Waste Management (Sanitary Landfill)	BOO	117
D. PROJECTS UNDER FEASIBILITY STUDY/TENDER DOCUMENT PREPARATION		1,192.81
SECTOR: TRANSPORT		1,078.65
1.) Motor Vehicle Inspection & Emission Testing System (MVIETS) Project	BOO	60
2.) North Luzon Expressway Extension to La Union	BOT	243
3.) Manila North Harbor Modernization	BOT	-
4.) North Luzon Expressway East to San Jose, Nueva Ecija	BOT	351
5.) NAIA Expressway Project (Package II)	BOT	99.65

6.) MRT 3 Extension	BT	325
SECTOR: WATER		114.16
1.) Managa Dam (Phase II) Project	BOT	114.16
2.) Metro Kidapawan Water Supply Project	-	-
3.) Puerto Princesa Water Supply	-	-
E. POTENTIAL PROJECTS		117.65
SECTOR: WATER		117.65
1.) Laguna Lake 400 MLD Bulk Water Supply	BOT	117.65
2.) Bacolod City Water Supply	CA	-
3.) Baguio Bulk Water Supply	-	-
SECTOR: PROPERTY DEVELOPMENT		-
1.) Social Security System (SS) Building	-	-
2.) Cultural Center of the Philippines	-	-
3.) Philippine Center for Specialized Health Care Project	CA	-
4.) Southrail (PNR Restructuring)	-	-
TOTAL FOR NATIONAL SOLICITED PROJECTS		19,667.12

Source: NEDA

Table IV.3 Local Government Units (LGUs) Solicited BOT Projects (31 March 2002)

Type of Project/ Sector/ Project Name	Scheme	Estimated Project Cost in US $million
A. COMPLETED/OPERATIONAL		24.3
SECTOR: PROPERTY DEVELOPMENT		24.3
1.) Mandaluyong Market Place	DOT/BT	23
2.) Dapitan Public Market	BOT	1.3
B. AWARDED PROJECTS		33.6
SECTOR: PROPERTY DEVELOPMENT		14.2
1.) Binirayan Administrative & Commercial Center	BOT	3.8
2.) Bocaue Public Market & Commercial Center		5
3.) Tarlac Public Market		
4.) Roxas Commercial Center		1
5.) Matnog Integrated Bus Terminal		4.4
SECTOR: WATER		14.4
1.) Bohol Water Supply Systems	JV	14.4
SECTOR: POWER		5
1.) Bohol Provincial Electric System	JV	5
C. PROJECTS AT BIDDING STAGE		
none		
D. PROJECTS UNDER FEASIBILITY STUDY/TENDER DOCUMENT PREPARATION		0.4
SECTOR: PROPERTY DEVELOPMENT		20.53
1.) Calapan Public Market and Commercial Complex	BOT	12
2.) Calbayog City Shopping Mall & Recreation Center	BOT	2.23
3.) Gen. Santos City Integrated Bus Terminal & Commercial Complex	BOO	6.3

SECTOR: INFORMATION TECHNOLOGY		0.4
1.) Cavite City Information & Communication Technology Project	BLT	0.4
2.) Mabini, Batangas Information & Technology Project	-	-
E. POTENTIAL PROJECTS		-
SECTOR: WATER	-	-
1.) Davao del Norte Water Supply System	-	-
SECTOR: INFORMATION TECHNOLOGY		
1.) Baao, Camarines Sur ICT Project	-	-
2.) Roxas City ICT Project	-	-
3.) Buhi, Camarines Sur ICT Project	-	-
4.) Butuan City ICT Project	-	-
5.) Lipa City ICT Project	-	-
6.) Batangas City ICT Project	-	-
7.) Bacolod City ICT Project	-	-
8.) Koronadal City, South Cotabato ICT Project	-	-
9.) Calapan City ICT Project	-	-
TOTAL FOR LGU - SOLICITED PROJECTS		79.58

Source: NEDA

Table IV.4 National Unsolicited BOT Projects (as of 31 March 2002)

Type of Project/ Sector/ Project Name	Scheme	Estimated Project Cost in US $million
A. COMPLETED/OPERATIONAL		600
SECTOR: WATER		600
1.) Casecnan Multi-Purpose Project	BOT	600
B. CONTRACT AWARD		2,623
SECTOR: TRANSPORT		1,599
1.) Redevelopment of the Port of Irene	BOT	84
2.) LRT Line I Extension (Baclaran to Bacoor)	JV	597
3.) South Luzon Tollway Extension	-	478
4.) NAIA International Passenger Terminal 3	BOT	440
SECTOR: POWER		850
1.) San Pascual Cogeneration Power Plant	BOT	400
2.) Caliraya-Botocan-Kalayaan Project	BROT	450
SECTOR: WATER		165
1.) Bulacan Bulk Central Water Supply	BOT	165
SECTOR: OTHERS		9
1.) Thermal Coating & Printing Plant	BOT	9
C. UNDERGOING PRICE CHALLENGE		-
none		

D. FOR SECOND PASS APPROVAL (ICC/ LOCAL SANGGUNIAN)/ FOR PRICE CHALLENGE		1,798.76
SECTOR: TRANSPORT		1,730
1.) Metro Manila Expressway R4 & R5 (PASEX)	BOT	730
2.) Light Rail Transit Line No. 4 (MRT 4)	BT & BOO	1,000
SECTOR: WATER		68.76
1.) Legaspi City Water Concession	CAOT	68.76
E. NEGOTIATION		-
none		
F. FOR FIRST PASS APPROVAL (ICC/LOCAL SANGGUNIAN)		350.73
SECTOR: WATER		350.73
1.) Metro Iloilo Water Concession	CAOT	79
2.) Cagayan de Oro Water Supply	-	271.73
TOTAL NATIONAL UNSOLICITED BOT PROJECTS		5,372.49

Source: NEDA

Table IV.5 Local Government Units (LGUs) Unsolicited BOT Projects as of 31 March 2002

Type of Project/ Sector/ Project Name	Scheme	Estimated Project Cost in US $million
A. CONTRACT AWARD		4
SECTOR: PROPERTY DEVELOPMENT		4
1.) Talisay City Hall Building Project	BT	4
B. UNDERGOING PRICE CHALLENGE		-
none		
C. FOR SECOND PASS ICC/LOCAL SANGGUNIAN APPROVAL/FOR PRICE CHALLENGE		-
none		
D. FOR FIRST PASS ICC/LOCAL SANGGUNIAN APPROVAL		11.55
SECTOR: SOLID WASTE		11.55
1.) Davao City Integrated Solid Waste Mgt.	BOOT	11.55
SECTOR: INFORMATION TECHNOLOGY		-
1.) Balanga City ICT Project	-	-
TOTAL FOR LGU - UNSOLICITED PROJECTS		15.55

Source: NEDA

There is a lot of improvement to make in the implementation of BOT projects. Experience of the last few years indicates a number of reform areas. Risk-sharing arrangement is a prime candidate. Assignment of risks should follow the cardinal principle of having the party that could more appropriately bear the risk to assume it. In this sense, commercial or market risks should be with the private proponent. However, the observation was that

"unfortunately, the price (of BOT projects) is first negotiated and then risk-sharing arrangements are finalized without any further adjustments to the price"[50].

There is an incentive for the private proponent to seek comprehensive guarantees from the government. Since they are bringing in risk capital to the project, the private investors would normally demand not only an adequate return to their investment but an assurance that they could recover invested capital and earn profits. The inability to support the project with cost-recovering tariffs creates an incentive for government guarantees[51].

At face value, private proponents of BOT projects seem to bring into the proposed project their corporate management and financial strength together with requisite experience. The corporate profile can theoretically bring into the picture lower cost financing that therefore, makes the private proposal an attractive deal for the government. However, a former Secretary of Finance has observed that the actual reality is that the private proponent (local or foreign or both) would typically create Special Purpose Vehicles (SPV) or a corporation dedicated solely to the project in order to restrict the parent company's risk exposure to the extent of the equity contribution to the project[52] The consequence is that potential lenders may assess the credit as project finance and independent from the original sponsoring company (i.e., the parent company of the SPV) and thus, the resulting funding cost to the BOT proponents are higher than that if it were financed by direct borrowing of the government[53].

Thus, the independence of the SPV from the original sponsoring company may have provided an additional reason for the private proponent to seek government guarantee. The prospective lender does not simply look at the SPV's balance sheet for recourse in case the investment turns sour. It demands credit enhancement by way of government guarantees.

Unsolicited projects are an avenue for some government agencies because of the following reasons:

- Lack of good feasibility studies on a given project arising from the lack of expertise of the implementing agencies in preparing them and the funding constraints for hiring consultants to help in the preparation of those studies
- The initial investment cost of feasibility studies that implementing agencies have to source from their already-constrained annual budget covers
- Lack of or improper coordination among agencies that may be involved in a given BOT project

Politicians, bureaucrats and foreign suppliers who have access to low-cost financing from their respective home countries may favor unsolicited projects for various reasons. According to the World Bank (2000), in the water sector, before the privatization of water distribution in Metro Manila, the Metropolitan Waterworks and Sewerage System received

[50] De Ocampo (1998). "Managing Risk in Infrastructure Financing: Lessons from the Philippine Experience." In Macaranas and Clavecilla (1998). Pp.53-54.
[51] See the related discussion on a framework for government guarantee and management of contingent liabilities elsewhere in this paper.
[52] De Ocampo (1998).
[53] Ibid.

50 unsolicited proposals, four of which resulted in Memoranda of Understanding for the exclusive rights to undertake technical and financial feasibility studies for specific water source development projects.

The main issues against unsolicited projects are the lack of competition and the great probability that the private project proponent will demand performance undertakings such as take-or-pay provisions and other forms of guarantee to ensure the project against market or commercial risk. For instance, a number of unsolicited bids for the provision of bulk water supply have off-take arrangements. A naïve solution will be to allow for unsolicited projects with the firm hope that the government can later negotiate a contract with the private proponent that minimizes, if not eliminates, performance undertakings and exposure of the public sector to any contingent liability that may arise from the project. This is wishful thinking because the incentives may be there for self-interested action by the proponents and bureaucrats. If experience serves as a good guide, recent discussion in the public domain about the country's experience with some IPP contracts indicates that contracts have been written and implemented to benefit the self-seeking and opportunistic behavior of the contracting parties.[54]

In theory, the unsolicited project may be vested a "competitive" character by way of the Swiss challenge. Under BOT rules, the implementing government agency should publicize the unsolicited project for competitive challenge for three consecutive weeks. This will enable (in theory, at least) potential competitors/investors to submit better offers to the government within a period of 60 working days. The original proponent (of the unsolicited project) is allowed to match the lower-priced bid within 30 working days. A common critique is that the limited time to prepare a competitive bid to match that of the original private proponent discourages other potential private participants[55].

In the case of an infrastructure project proposed for funding through bilateral arrangements, a foreign supplier with adequate financial backing from his home country financial institution has an advantage over his potential competitor who has no assured financing. In this regard, some observers hold the view that the provision of the BOT Law that allows the original proponent the right to match the price challenge of a competitor should be removed "to further discourage unsolicited proponents from submitting unsolicited proposals, again, unless they are confident that their proposal can not be effectively challenged in view of say, their sole access/rights to a new technology.[56]"

B.4. Concession Agreement

Concession agreements offer a potential for improving efficiency in infrastructure projects. Private participation in the water sector was through concession agreements. The first was a twenty-five year concession agreement granted through competitive bidding to Subic Water

[54] See the discussion of IPP contracts in http\\www.pcij.org

[55] Even the World Bank (2000) has criticized the approach. It says that "in theory, the Swiss challenge overcomes the lack of competition associated with unsolicited projects. In practice, however, it is ineffective." (page 10). Azanza (no date) observes that "considering that the unsolicited proponent already had a head start, challengers should be given a longer time so that a meaningful challenge may be staged." Azanza recommends the extension of the challenge period from 60 to 120 days.

[56] Azanza, ibid., page 4.

and Sewerage, a joint venture among BiWater International (United Kingdom), DMCI (a local construction firm) and the Subic Bay Metropolitan Authority (SBMA). The agreement gave the joint venture exclusive right to provide water supply services to the service area of SBMA,Olongapo and Subic. The company started operation in April 1997 taking charge of water resource development, treatment and distribution of water and collection of tariffs. The second experience was the privatization of the Metropolitan Waterworks and Sewerage System (MWSS) made possible through the passage of the National Water Crisis Act (Republic Act 8041) in 1995. The concession agreement awarded to two water concessionaires, namely, Manila Water Company and Maynilad the right to operate the water distribution system in Metro Manila and vested on the government the right to enforce certain obligations of the winners, e.g., servicing the MWSS loans, investments in the sector, etc.

The main issue is how to establish an efficient project structure, the terms and conditions of the concession agreement that will meet seemingly conflicting objectives of consumer interest and the profit calculus of the private investor, and competent economic regulation. A World Bank review of the experience with franchises and concessions in several developing countries indicated that the most common problems are poor concession design, unclear concession/regulatory rules, ex post changes of the rules of the process and inappropriate bending to requests to renegotiate deals[57]. An integral element of the concession design is agreement on the identification of risks, the corresponding mitigation measure or measures, e.g., government guarantee, market-based tariff setting, etc., and the assignment of party to be responsible for the risks. This is because private investors would naturally want government to assume certain risks. However, upon closer scrutiny some of those risks are market-related risks that properly belong to the private sector proponent. Resolution of the problem of efficient risk assignment is, thus, a critical element in concession agreements that the contracting parties, that is, the private investors and the government should address

In this regard, the experience of Subic Water and Sewerage and the two concessionaires of MWSS (Manila Water Company, Inc. and Maynilad Water Services, Inc.) is instructive. In the former case, the concession agreement stipulates that an increase in tariffs will be allowed twice a year. However, it was reported that the tariff increase has not happened. On the other hand, Manila Water and Maynilad had difficulty in setting appropriate tariffs because it had to seek permission from the government on the level of tariffs to be imposed on consumers. Tariff setting is not an autonomous exercise by the private investors in the case of Subic Water and the MWSS concessionaires.

An important platform for successful concession agreements is economic regulation that is exercised by competent, technically qualified regulators. The regulator imposes performance standards, e.g., water quality, observance of environmental requirements, etc., and oversees tariff setting with a view to reconcile the respective interests of consumers and private investors and monitors and enforces the concession agreement. It is very critical to have an independent economic regulator in order to avoid regulatory failure. The lack of competent economic regulation is the risk of facing opportunistic behavior of government that sees political capital in sending signals that it would support tariffs that do not cover

[57] Guasch and Spiller (1999 p. 151)

costs for the sake of appeasing popular sentiments. Thus, the challenge is to have a "regulatory framework that stipulates price-setting procedures, impartial conflict resolution (arbitration or judicial review) and investment policies"[58]

B.5. Joint Venture Scheme

Private participation in infrastructure may be possible through a joint venture approach with a government owned or controlled corporation (GOCC). Corporations such as the Public Estates Authority, Philippine National Railroad are authorized to grant franchises for the construction and operation of road and rail transport infrastructure. The World Bank (2000) reports that in the transport sector,only one project went through the official BOT process; three major joint ventures were concluded outside the BOT framework.

A joint venture is an agreement between two parties who may have the same or similar objectives and implement a project that seeks to meet the objective/s. However, their respective actual objective functions may differ: the private proponent seeks to maximize profits while the government corporate partner seeks to maximize public access to the infrastructure facility (i.e., welfare), with profits as secondary objective. Thus, tension naturally arises and the challenge is cast: how to reconcile the profit calculus with maximization of public welfare.

To make the joint venture an attractive investment opportunity some form of guarantee or performance undertaking is sought by the private partner. One motivating factor is compensate for perceived risks from the joint venture. Here is where the crux of the matter lies. The guarantee-granting agency, the Department or Finance, has to exercise due diligence in order to ensure that the government guarantee acts as a compensatory mechanism to attract private investments that would have not been there because of perceived risks. The government and the joint venture partner should share in the management of the risks. Those risks that could be handled by the private sector such as commercial risk should be not be covered by government guarantee. On the other hand, risks such as political risk fall under the purview of government's responsibility.

Competitive bidding and selection of private proponents for public infrastructure projects is superior to a joint venture approach to the same projects. The problem with joint ventures is the lack of a market test and competition that would ensure the reconciliation of the objective of generating maximum welfare for the public with the profit objectives of the private investor. A competitive bidding process is not put to bear on the joint venture project even if government first runs a contest among several candidates in order to select the best venture partner. By its nature, a joint venture excludes competition. Thus, the interested parties might use political capital to make the joint venture the only feasible alternative presented to the public.

---

[58] Ibid Guasch, J. Luis and Pablo Spiller. 1999. Managing the Regulatory Process: Design, Concepts, Issues and the Latin American and Caribbean Story. Washington, D.C., The International Bank for Reconstruction and Development.319 pages.

The government corporate partner or more properly, the bureaucrats involved in the implementation of the joint venture may be actually working for their self-interest and not for safeguarding public interest.

Investments in infrastructure are both lumpy and have long-gestation. They require a commitment of a considerable amount of long-term funds that could not be satisfied by short-term oriented commercial finance in developing countries. Thus, traditionally, governments have assumed the role of financing infrastructure projects. Governments can raise domestic and external resources, that is, commercial loans and Official Development Assistance (ODA) that can be used to finance infrastructure projects. However, with the shift in government's role from a being major provider of infrastructure to an institution responsible for creating the policy and regulatory environment for private participation, comes the parallel shift in source of finance for infrastructure. Access to ODA by BOT projects is limited by law to a maximum of fifty percent of the project cost; the balance will be provided by the project proponent[59].

The paradigm shift opens the avenue for bringing private expertise and capital to bear on the task of financing infrastructure. This is understandable in view of "the global trend of narrowing the state's boundaries of economic intervention"[60]. Part of this trend is less government intervention in the financial markets: less directed credits, privatization of state banks, larger demand for private short- and long-term finance and increased volatility of capital flows. Consequently, there is need, especially in developing countries, for financial and capital market reforms that will put the domestic financial and capital markets in the mainstream of global money and capital flows.

A necessary pre-condition for private financing to flow to the infrastructure sector is the existence of a stable macroeconomic environment that is indispensable for developing various financing mechanisms for infrastructure. Financial reforms pave the way for the development of the financial and capital markets. Fortunately, the country has long embarked on financial and capital market reforms and its resolve to continue with the reforms is unwavering. It is a tribute to the strength of the financial system that it was the least affected by the recent Asian financial crisis.

In this respect, both the Bangko Sentral ng Pilipinas and Congress of the Philippines are collaborating on legislation that shall strengthen the financial system, e.g., special purpose vehicle legislation that shall address the problem of non-performing loans of the banking system and shall improve the regulation and supervision of financial institutions. However, there is a need to continue with the policy and institutional reforms that will increase domestic capital formation and at the same time, allow the economy to partake of global money flows that are in search of profitable real investments such as those in the infrastructure sector. Corporate finance, project finance and equity funds are available for those developing countries that have a stable macroeconomic environment and are showing serious policy and institutional reform effort.

---

[59] Section 2, BOT Law as amended by Republic Act 7718 (May 5, 1994).

[60] International Finance Corporation, "Lessons of Experience: Financial Institutions," International Finance Corporation, 1998, Washington D.C.

C. Current Constraints to Infrastructure Finance

Infrastructure development requires large lumpy capital investments in equipment and material. Project developers, investors and financial institutions have to provide substantial short- and long-term commitments of equity and debt for the construction of power plants, toll roads, and water and sewerage treatment plants, and others. Such large and long-term commitments of financial resources need efficient and well-functioning domestic and international financial intermediaries and capital markets.[61] Indicative sources of financing for infrastructure projects include the traditional syndicated project finance loans from international commercial banks, loans from multilateral institutions and more recently, American Depository Receipts (ADRs') which have become an increasingly popular means for emerging market issuers to tap international capital markets.

Sustained infrastructure development seems to be at risk in the Philippines as in many developing countries affected by the crisis. The Asian crisis has constrained capital flows and temporarily slowed down the pace of international and domestic savings mobilization that could finance infrastructure. However, demand for infrastructure finance has continued to grow in spite of the crisis. There is a need to find financing for infrastructure because the lack of efficient infrastructure and the relatively high cost of utilities undermine competitiveness, growth and the country's poverty alleviation objectives.

The Asian financial crisis showed the fundamental weaknesses that have characterized banking and capital markets in the region. Financial volatility and macroeconomic instability in some countries have only exacerbated the situation in the regional capital markets. Credit rating agencies more closely scrutinize the viability of project developers, the feasibility of infrastructure finance in a volatile market, the credibility of the macroeconomic environment and the policy and regulatory framework for infrastructure.

An immediate result of the Asian financial crisis is the decline in the previously growing market for longer-term domestic credit, which has financed a large proportion of infrastructure investments prior to the crisis. Clearly, project finance has suffered under these conditions. However, macroeconomic stability, a regime of low interest rates and inflation in the Philippines will help restore the confidence of domestic and foreign investors.

[61] The Asian financial crisis has contributed to the growing recognition of the need for well-functioning markets, as well as the important role of efficient and effective regulation and supervision of financial institutions and the financial markets in general (Intal and Llanto 1998). The Asian crisis brought adverse shock to infrastructure development and project finance. The flow of capital market credits has dried up for many ambitious projects in the water, power and transport sectors. Project developers have seen their credit ratings plunge along with sovereign ratings across the region. As a result, the costs of both debt and equity capital have risen for all projects, reflecting rising risk premia in all sectors. These point to the need to have more efficient financial structures and risk mitigation measures in project finance.

D. Experience and Trends in Infrastructure Finance in the Philippines

Financing has been extended to several projects in the power, telecommunications, transport and water sectors[62].

Table IV.6 summarizes the cross-sectoral financial profile of Philippine infrastructure projects. Investors in power projects have historically required higher rates of return given their higher risks compared to investors elsewhere. Water projects rely on capital expenditure to improve and extend water systems, as well as build treatment and sewerage facilities. Thus, water projects tend to be more capital-intensive than power projects and are more likely to rely on leverage. In contrast, power plants and transport projects will have varying degrees of capital intensity. Hydro, geo-thermal, and natural gas plants will tend to be more capital-intensive than coal and gas turbine plants.

Table IV.6. Typical Financial Profile of Philippine Infrastructure Projects

Item	Profile
Project Internal Rates of Return	Power – 15% - 25% Water – 5% - 11%[63] Transport – 15% - 20%
Capital Structure (Debt to Equity Ratio)	Power – 65 – 35 Water – Variable Transport – Variable
Interest Rate on Debt	12% - 15% per annum
Creditors and Other Sources of Finance	1. Proceeds of sale of project to larger developers 2. Passive equity from specialized investment funds 3. Investment bank-sourced debt and equity, including bond issues 4. Commercial bank debt and syndicated loans 5. Multilateral institutions and export credit agencies

Source:Table V.3 of Llanto and others (2000)

In general, the following issues are seen in infrastructure finance in the Philippines:

(1) The It seems that the primary financial risks in infrastructure projects are maturity mismatches and currency mismatches. The primary non-financial risks are market risks and legal risks.[64] This implies a need for financial innovations, institutions, and project structures that mitigate such risks and make them more manageable.

(2) Markets for infrastructure-related services such as water, transport, power, etc. will be increasingly competitive in the future. This implies that the viability of participants in

[62] A brief presentation of the financing experience of some local corporations are shown in Annex A
[63] Range of estimates for both MWSS concessionaires.
[64] Reside, 1999

infrastructure markets in the future will increasingly depend on their ability to lower their marginal costs, that is, lower their operations and maintenance costs, fuel costs, and personnel costs, and at the same time charge tariffs that can recover costs and generate comfortable profit margins. The ability to compete on the basis of non-price factors will also be increasingly important, along with increased emphasis on strengthening management and marketing skills. Competition will screen out poor performers and pave the way for better, stronger and more capable project developers.[65]

(3) There is a need to develop and strengthen government's capacity to identify, evaluate, plan and manage projects. Better project structuring and planning will lead to more competitive bids and minimize unsolicited bids.

(4) There is a need to diversify fund sources and develop the capital markets to provide alternative resources for infrastructure. This will address concerns about high interest rates, currency risks and volatile financial markets that dampen investor interest in infrastructure. This indicates that a well-managed and stable macroeconomic framework and competitive financial markets will be imperative for infrastructure development.

(5) There is a need for the Philippine government to manage well its growing volume of contingent liabilities. The government should be much more selective in its assumption of infrastructure-related risks. More and more of the types of risk typically passed onto the national government in the past (e.g., market risks and foreign exchange risks) must be passed on to other parties who are willing and able to assume them, e.g. project developers, consumers.

These underscore the need to find better, more efficient project proponents for infrastructure development and the need for government to strengthen its internal capacity to evaluate projects, mitigate overall risk, and to have the appropriate legal and regulatory environment in increasingly competitive markets. The future and nature of infrastructure finance in the Philippines will be dictated by these fundamental factors.

Given the these issues in infrastructure finance and typical project financing needs, the following would be required to motivate domestic and international capital markets to provide long-term finance to infrastructure projects:

a) stable and predictable cash flows over the life of the project;
b) pricing to reflect appropriate risk premia; and
c) to the extent possible, a currency match between financing and project revenues.

To reduce its reliance on government guarantees and succeed in increasingly competitive markets, project finance should have the following additional features:

a) a broader spectrum of potential sources of capital, including equity and bond markets;
b) improved credit rating capability and information disclosure mechanisms;

[65] This will of course work to the advantage of the government and the developer and the people.

c) flexible mechanisms and structures which mitigate and reduce risk through diversification, and hence reduce the costs of both equity and debt;
d) mechanisms and structures which encourage a more rational sharing of risks; and
e) mechanisms and structures which mitigate and reduce currency and maturity mismatches.

Thus, to address the future financing requirements of infrastructure development in the Philippines, the government should pay attention to the following:

(1) a credible the stock market that responds to the needs of infrastructure markets and projects;
(2) deep and liquid long-term bond markets;
(3) increased participation of sources of long-term capital, such as pension funds, and insurance companies;
(4) mechanisms for pricing long-term debt;
(5) opportunities offered by asset-backed securitization, e.g., collateralized loan obligations (CLOs') and collateralized bond obligations (CBOs');
(6) deep and liquid markets for mitigating currency and maturity risks;
(7) efficient credit rating agencies, augmented by responsible information disclosure systems; and
(8) legal and regulatory systems geared towards ensuring fairness and transparency in infrastructure markets.

Capital market reforms are a separate area for research, policy analysis and perhaps, legislation and can be tackled in another time. Suffice it to say here that, among others, there are at least three areas needing immediate attention, namely: (1) developing deep and liquid financial markets, that is, developing the stock market, the bond market, pension funds and contractual savings, and asset-based securitization as an innovative way to finance infrastructure; (2) corporate governance covering corporate issuers, regulatory bodies and the legal and regulatory system; and (3) capital market infrastructure such as credit rating agencies, mitigation of currency and other risks.

The Philippine Stock Exchange (PSE) has an important role to play in developing infrastructure. Equity mitigates moral hazard arising from too much leverage by ensuring that owners and investors have incentives that are compatible with those of the creditors of a project. The Philippine Stock Exchange has undergone major changes in the last decade, with improvements in clearing and settlement, scripless trading and greater participation from foreign brokerages. These improvements in the PSE played a role in attracting foreign portfolio capital during boom years in 1995-1996. Although the Asian crisis undermined efforts to mobilize more domestic capital, the PSE is presently equipped for listing infrastructure firms.

The PSE has approved amendments to its listing rules, granting infrastructure companies greater access to the domestic stock market. The amendments allow such firms to bypass regulations requiring a track record. In lieu of a track record, these companies must have a positive and predictable income stream and profit potential for a minimum amount of years.

However, the stock exchange appears not to have made much headway in generating the much equity capital for infrastructure projects. The problem appears to be the absence of a well-diversified firm with an intention to list. Single project IPOs', or most single-project infrastructure companies, cannot be valued under conventional valuation methods because of their limited life spans. Thus, despite the fact that many single project firms have relatively limited risks, that is, construction risk, demand risk, fuel price or currency risk, investors still place a premium on those companies which can secure more lucrative projects which can enhance the companies' asset value (Parsons, 1997). Thus, it is unlikely that single project IPOs' will ever get the attention of most investors. The key to succeeding in infrastructure IPOs' appears to be diversification of the listed firm.

Domestic projects that are backed by strong and explicit undertakings and guarantees of the national government support and have good cash flows. Those are potentially excellent candidate for domestic bond market financing.[66] However, several constraints impinge upon the performance and efficiency of the domestic bond market[67].

In general, the Philippines has lagged behind some of its neighbors, e.g. Malaysia and Korea, in terms of lack of depth and lack of longer-term issues (Table IV.7). Major shortcomings unique to the Philippines are related to the taxation of bonds and other financial instruments and the legal issues that discourage liquidity and increase transactions costs. Other identified impediments to the development of long-term bond markets are (a) the lack of benchmark yield curve, (b) the restricted supply of quality bond issues, (c) the limited bond demand (d) the inadequate bond market infrastructure and (e) capital gains tax and documentary stamp taxes.

Table IV.7: Characteristics of the Philippine Bond Market

Term/ Institution	Short-Term Money Market	Long-Term Capital Market
Public	90-, 180-, and 360-day T-Bills issued by the National Government	2-, 5-, 7-, 10-, and 20-year bonds issued by the National Government, as well as public corporations and local governments Includes mortgage-backed securities (MBS) backed by Pag-Ibig mortgages.

Source: Llanto and others, 2000

The underdevelopment of bond markets has constrained choices in raising capital, leading to a tremendous reliance on the banking system. However, the banking system traditionally has short-term liabilities on their balance sheets and cannot be expected to continuously provide long-term capital without risking mismatches in their maturity structures[68]. Therefore, the underdevelopment of bond markets has placed undue strains on banking system to provide capital to finance activities where it cannot, or should not be channeled. Without more reliable sources of domestic long-term capital, firms resorted to tapping international credit

[66] This should hold for traditional corporate financing, and even for non-traditional non-recourse financing.
[67] See studies of the Asian Development Bank on Philippine capital and bond markets.
[68] See Lamberte and Llanto (1995)

that has exposed them to exchange rate risks in the payment of debt. These risks have been accentuated by the regional financial crisis. Since the flow of portfolio lending to Asian countries has slowed down, no reliable long-term sources of capital exist aside from domestic equities markets to finance long-term investments. With equities markets depressed since the start of the crisis, there is very little long-term capital being mobilized region-wide. It is, thus, clear that domestic bond market development has a crucial role to play alongside domestic equities markets in financing infrastructure investments.

One potential way of addressing the maturity and currency mismatch between project revenue and project credit of infrastructure projects is to increase the total proportion of funding sourced from domestic contractual savings institutions, such as the Government Service Insurance Service (GSIS), the Social Security System (SSS), pension funds, and insurance companies. These institutions are better able to provide long-term credit because they possess matching long-term liabilities. This will ensure that risks arising from funding long-term assets with short-term liabilities are minimized. As pointed out by several studies on the banking sector, the current maturity structure of bank deposits is not appropriate for the long-term credit needs of sectors such as the infrastructure sector. Peso debt finance from contractual savings institutions will also address the currency mismatch arising from infrastructure projects generating Peso revenues and paying Peso liabilities.

One salutary effect of utilizing GSIS and SSS funds for infrastructure finance is to enable the two institutions to diversify their exposures away from unprofitable and low-yielding investments and into good quality domestic financial claims earning market and above-market rates of return. The World Bank (1997) has suggested that improving the investment portfolios of both institutions will improve their actuarial soundness.

However, the government should review the current restrictions imposed on these institutions with regard to their investment allocation and the eligible investments that they can undertake[69]. While the restrictions may have prudential objectives, these should be reviewed in the light of the economy's requirement for long-term credit.

Asset-backed securitization (ABS) is the process of conveying or selling a firm's assets, usually assets representing streams of future cash flows, to special purpose financial intermediaries, which pool them and structure financial claims on such pools to be sold as securities in wholesale capital or bond markets. The assets may come in the form of corporate receivables and bank loans. The ABS process provides an alternative for firms to raising debt or equity, which may be a more expensive way of raising finances.[70] See Box IV.1 for a presentation of basic principles explaining the attractiveness of asset-backed securities as an alternative source of financing[71].

---

[69] The restriction are the following: limits on investments in stocks, bonds and other certificates of indebtedness, real estate investments, investments in a single enterprise and investments in foreign currency.

[70] The other benefits of ABS are described in greater detail in Reside (1999). As a security, an ABS may be structured like a typical bond obligation. The difference though, lies in the fact that bonds are claims on broad corporate assets, while ABS are claims on pools of other financial claims.

[71] Another key to successful securitization, though, is to avoid investor perceptions that the underlying assets are owned by firms that are not on-going concerns. That is, diversification across projects and across assets is important.

Box IV.1. Why are asset-backed securities an attractive form of financing?

Pooling assets in an ABS structure provides a vehicle to structure claims against a highly-diversified pool of assets. This reduces systematic risk and overall risk of a portfolio of assets relative to the risk of any single asset. It also creates tremendous flexibility in structuring financial claims to appeal to a wide variety of investors with different appetites for risk and cover a wide range of payment schemes,[72] and also, a wider range of securitizable assets.

The transaction may be structured in such a way as to sell or convey the assets to a special purpose corporation or trust that will shield the assets and thus the securities being backed by cash flows from these assets, from any sort of claims made by the securitizing institution (i.e., the assets may become bankruptcy-remote). Since the assets may be completely freed from the claims of the securitizing institution, it is then possible to structure securities in such a manner as to enable the special purpose corporation or trust as issuers of ABS to achieve a credit rating higher than that of the securitizing institution.[73]

Asset-backed securitization links wholesale capital markets with retail capital markets, enabling funds to flow smoothly between the two markets. The end result is to enable securitizers, financial and non-financial firms alike, to raise funds more cheaply, and investors to have an alternative investment instrument which promises a risk-adjusted return.

Source: Llanto and others 2000

International developments in the field of asset-backed securitization in recent years have enabled capital markets to function more efficiently to serve capital needs in infrastructure markets. Thus, there has been an increasing utilization of securities structures known as collateralized loan obligations (CLO's) and collateralized bond obligations (CBO's).[74] Both of these structures are asset-backed securities. They represent claims on diversified pools of claims on infrastructure-related debt, usually bank or bond exposures to several project developers or projects. The CLO and CBO structures have allowed institutions to free up lending capacity, to reduce long-term exposure to a particular region or class of asset, and to reduce the cost of funds[75].

Several conditions present in Philippine infrastructure markets suggest that securitization could be viable financing vehicle for the sector:

[72] Pass-through ABS are structures where the payment profile faced by investors correspond to the payment profile of the underlying assets. Pay-through ABS are much more flexible structures where the payment profile faced by investors is independent of the payment profile of the underlying assets.

[73] This is the case in US MBS markets. Mortgages from various originating banks (with varying credit ratings) are purchased by Fannie Mae and Freddie Mac, both rated triple-A by Standard and Poors. After the mortgages are pooled, they are securitized under a variety of MBS structures and sold in financial markets with a guarantee from the two firms.

[74] Standard and Poors, (1998).

[75] Standard and Poors (1998). ABS have financed the construction of toll roads in China.

a) the quality of most of the financial assets on the balance sheets of creditors and proponents alike is good to excellent;[76]
b) the financial assets and receivables are generating or are guaranteed to return market to above-market rates of return;
c) the financial assets are covered by highly restrictive covenants in favor of the creditor; and
d) infrastructure development in the Philippines is diversifying away from the power sector and into the transport, telecommunications and water sectors.

The quality of infrastructure-related receivables, including capacity payments owed by the Philippine government to IPPs,' suggests that asset quality may be good not only because of the above market rates of return but also because of the presence of sovereign guarantees given to most infrastructure developers. This enhancement provided by the government ensures that asset quality will remain high. Thus, ABS is cited as an alternative financing mechanism for future infrastructure investments.

On the other hand, claims on pools backed by high quality infrastructure-related assets could spur demand-side interest, and could also contribute to the development of the domestic bond market. However, a number of supply-side barriers remain that hinder full exploitation of the financing opportunities offered by securitization. The government must address several factors that contribute to the underdevelopment of the market for securitized debt. These include the following: (a) lack of liquidity; (b) the burden imposed by several taxes on financial instruments affecting yield and liquidity and (c) the lack of benchmarks for corporate issuers that will be necessary for offering investors a wider array of instruments, yields and terms.

The potential of the ABS structure, e.g. collateralized bond and loan obligations, to relieve financing bottlenecks in infrastructure remains largely untapped. Investors may have claims pooled and then sold in primary ABS markets. Emphasis may be placed on developing domestic bond markets by encouraging peso-denominated securitization transactions. The success of securitization hinges on the simultaneous smooth functioning of several markets and participants, such as primary and secondary asset markets, primary and secondary ABS markets, credit rating agencies, banks, special purpose trusts and corporations. All these would require a concerted and cooperative effort between the government and the private sector.

On the other hand, it was pointed out that the legal framework for developing the ABS market still has to be formulated. The constraints facing the development of a deep and liquid corporate bond market need to be addressed to support the development of asset-backed securities market[77].

Strengthening corporate governance is a fundamental prerequisite for developing domestic capital markets. Corporate governance is important because the demand for a bond issue or debt instrument is ultimately dependent on the credibility of the issuer to deliver payment. Thus, the environment for corporate governance should provide corporate issuers incentives

[76] Most, if not all of the financial assets carry sovereign guarantees. Lamberte, Alburo and Patalinghug (2002).
[77] Lamberte, Alburo and Patalinghug (2002).

to perform well, minimize moral hazard, and promote and improve transparency in financial reporting and incentives.

Good corporate governance is also required from institutions, that is, underwriters, banks that may provide the financial guarantee, credit rating agencies, the organized stock exchange, and other institutions, guaranteeing that the investor will be paid on a particular time. Poor corporate governance among these institutions hinders the development of financial markets and weakens the link between corporate issuer and investor, resulting in magnified risks.

Insufficient ratings capacity constitutes a critical constraint to bond and securities market development for several reasons. First, capital market development relies heavily on the creation of market liquidity within the same type of securities and across different types of securities. Should there be inadequacies in ratings capabilities, this would constrain the potential variety of securities issued and traded, confining activity to a small number of instruments. Second, insufficient ratings capacity raises the inherent risks in bond and securities investments in general, reducing demand for those debt instruments.
For this reason, corporate governance should include a concomitant effort by Philippine capital market regulators to strengthen the credit rating industry. Recent debate on this issue has focused on the following issues:

a) allowing domestic ratings capacity to be enhanced through joint ventures with foreign partners;
b) facilitating the establishment of additional credit rating agencies; and
c) making ratings mandatory for all bond issues.

The first issue is already being addressed by the Philippine government, which is actively encouraging CIBI in its pursuit of a foreign partner.[78] The second issue is under consideration for purposes of instilling market discipline in the domestic credit rating industry.[79] The third issue would induce demand for ratings services, making them more profitable ventures, and would also facilitate increased corporate transparency for all corporate issuers.

Good corporate governance must also be complemented by discipline coming from market forces. Where financial markets are saddled by distortions, one sees the inability of those markets to accurately recognize, assess and price risks. In addition, transparency in financial reporting and accurate information about firms is also part of strong corporate governance. Financial markets are characterized by information asymmetries and thus, financial transparency among firms/issuers is crucial to the development of liquid and long-term markets.[80]

However, all of these factors hinge delicately on the ability of the regulatory bodies to enforce rules and ensure the existence of an efficient market-oriented mechanism for the

[78] CIBI has explored relationships with Standard and Poors, as well as Duff and Phelps.
[79] Countries such as Malaysia and India practice dual ratings.
[80] See the discussion on accounting and auditing standards in Lamberte and Llanto (1995).

issuance and trading of bonds and other debt instruments. Thus, there should also be good corporate governance among government regulatory bodies such as the SEC, the BSP, and the Insurance Commission. Upgrading regulatory and supervisory skills, including technical and institutional capacities, is imperative for capital market development.

According to the ADB study, many countries do not have a clear legal framework governing the trading and regulation of sophisticated financial transactions. The irony is that where laws appear to be adequate, regulators do not have sufficient internal capacity to enforce rules and regulations. This increases the uncertainty in the bond market, thereby reducing overall demand for bonds and reinforcing the shallowness of such markets[81].

There is the obvious need to improve information disclosure systems to ensure the integrity of financial markets[82]. In this regard, the Philippines has taken the following steps:

1) strengthening audit and accounting systems;
2) strengthening corporate and bank reporting systems; and
3) strengthening macroeconomic data reporting.

The recent measures taken by financial authorities in the strengthening of audit and accounting systems involve defining and/or redefining accounting and audit standards for the treatment of newer, more sophisticated financial transactions, as well as the treatment of non-performing loans and write-offs. The SEC and the BSP have been working towards improving the transparency of corporate and bank disclosure[83].

The emerging view today is that regulation and supervision must now increasingly focus on less traditional and conventional methods[84]. The increasing trend towards the use of off-balance sheet instead of on-balance sheet financing, as well as the increasing sophistication of corporate structures and transactions requires better risk-based regulation and supervision methods. Increased emphasis will also be placed on off-site supervision, on-site examination, compliance and the development of an early-warning system to reduce the probability of another crisis occurring[85]. The introduction of newer risk-based management and regulatory systems should serve to limit bank credit and trading exposures, and prevent further losses.

Other weaknesses that need to be addressed include the strengthening of information disclosure and accounting standards. These measures should address the classification and definition of non-performing assets and past-due loans, loan write-off policies, as well as

---

[81] The Asian Development Bank study identified three areas for improving corporate governance, which is necessary for improving the overall integrity of broad capital markets: (1) competitive capital markets; (2) legal protection for investors; and (3) a better defined and enhanced role for outside shareholders.

[82] See the parallel discussion in Lamberte and Llanto (1995).

[83] In this respect, credit rating agencies have a critical role to play in developing both short- and long-term capital markets. Independent assessment of risk and credit worthiness ensures the integrity of the market for bonds and other forms of debt. At present, the Philippines has two rating agencies: Credit Information Bureau, Inc. (CIBI), and the recently-launched Thomson Rating Services (with support from the International Finance Corporation).

[84] See Fitzgerald et al. (1997) and Intal and Llanto (1998) for a discussion of risk-based supervision in the country.

[85] Llanto and Orbeta (199_) tried to develop an early warning model to predict bank failure.

guidelines for the recognition of foreign exchange losses. It has even been suggested that incentives for bank owners could minimize the need for regulatory oversight[86]

E. Mitigating Maturity and Currency Risks

The inherently long-term nature of operations and assets of infrastructure project creates risks of a maturity mismatch between project revenues and project credit. A stable macroeconomy, with low and stable inflation makes capital markets more efficient and responsive to the need to address the risk of maturity mismatch. Thus, the value of cash flows from projects could be known with greater certainty and creditors may be encouraged to purchase securities with longer tenors, e.g. asset-based securities arising from well-performing infrastructure projects[87].

Currency risks also affect the nature of project financing. There has been recent interest in the Philippines for developing domestic derivatives markets in order to address a perceived need for more liquid domestic options and domestic currency futures markets. However, there is a crucial need to enhance the capacity of regulators and supervisors to adequately oversee the operations of financial markets and transactions, as indicated by the recent Asian financial crisis[88]. While there may be adequate capacity by the private sector to structure complex derivatives transactions, there appears to be a need for greater efforts to make the requisite improvements in the government's capacity to regulate such transactions. Until such improvements are undertaken, the best way to respond to the potential currency risk in infrastructure transactions is to develop and strengthen domestic modalities for naturally hedging currency and maturity risks in financing infrastructure. In addition, investment bankers have begun to recognize the limits of financial engineering as a hedge against currency risk. Attempts to structure currency risks out of infrastructure transactions have thus far proven futile[89]

In light of the inadequacies and limitations of allowing more complex financial transactions and markets, the government should concentrate on developing and strengthening existing modalities and institutions for mobilizing savings in light of weaknesses in these structures exposed by the Asian crisis. Broadening domestic capital markets to allow for more complex derivatives transactions can take place later. The immediate concern is the development of strong domestic financial markets that act as a natural hedge against currency risk. In the same vein, the best natural hedge for maturity risks in infrastructure finance is the development of long-term domestic bond markets.

Infrastructure projects are evolving away from structures where the Philippine government assumes most of the key risks into one in which risks are more equitably shared. It will

---

[86] For recent discussions on regulatory and supervisory reform see Gochoco-Bautista (1999, forthcoming), and Asian Development Bank (1999, forthcoming).

[87] The term transformation, slowly occurring in Philippine capital markets in the mid-1990s' was abruptly reversed by the Asian financial crisis. Much of the dearth of credit to infrastructure at the moment is caused by the reluctance to resume term lending and the reluctance to purchase term debt issues. This situation is most apparent in the case of the two firms operating water concessions for the MWSS (Reside, 1999, Fabella, et. al., 1999).

[88] Intal and Llanto (1998).

[89] Chew and Coughlin (1998).

become increasingly crucial for domestic financing mechanisms to evolve in a manner that will allow the private sector to fashion innovative financing instruments that bring in the funds and mitigate risks as well. This will not only involve the strengthening of domestic bond and equity markets, and the domestic banking sector, but also the strengthening of the structure of projects themselves. Both the government and the private sector face major challenges in achieving optimal project structures but reforms in policy and capacity strengthening are presently moving in the right direction. In light of the task ahead, the recommendations listed in this paper constitute a suggested roadmap for capital market reform. A summary of key issues facing capital markets is shown in Table IV.8.

Table IV.8. Key Issues Facing Philippine Capital Markets

Issues	Comments
Need to strengthen corporate governance and competitive market mechanisms governing the bond market. Need to strengthen regime of transparency and accuracy of financial reporting. Need to strengthen regulatory system to specifically address issues related to bond and commercial paper market.	Strengthen institutional capacity of the Securities and Exchange Commission (SEC). The SEC is presently lobbying for amendments to the Corporation Code, and the Securities Regulation and Enforcement Act.
Bond market is shallow and lacks liquidity (i.e., there are very few investors, and very few issues). Bond market is dominated by government securities. There is a lack of variety in bond issues.	Increase homogeneity and regularity of government security issues. Widen eligible assets that can be purchased by pension funds, insurance companies, and other financial institutions subject to prudential limits. Real time gross settlement (RTGS) system for government securities to be established to reduce trading risks.
Absence of financial sector infrastructure that encourages bond market development.	Encourage the practice of financial sector guarantees, standby letters of credit, and other financial guarantee mechanisms subject to proper risk-adjusted pricing.
Absence of a trading venue for bonds.	Philippine Stock Exchange has delayed establishment of a separate trading board for fixed income securities. This is probably due to a lack of issues due to the present financial crisis. Encourage mobilization of domestic savings to finance domestic infrastructure projects through the domestic bond market.
Absence of proper benchmark reference yield curve. Treasury bills rates are used to price debt greater than one year in maturity.	Government is presently phasing in regular issues of longer maturity government securities, but the market in them is not yet sufficiently deep or liquid to encourage secondary trading.
Need for enhanced credit rating capacity.	The entry of another credit rating agency is a welcome

	development.
Lack of facilities for financing inventories of securities.	The Securities and Exchange Commission (SEC) and/or the central bank may consider such facilities for brokerage houses and investment banks.
Complicated system of taxation of financial transactions and intermediaries.	Simplified system of taxation required.

Source: Llanto and others, 2000

F. Official Development Assistance

Two alternatives to the BOT route are (a) commercial financing and (b) loans from multilateral institutions and bilateral sources, commonly named Official Development Assistance (ODA). Both alternatives would require competitive procurement. Borrowing from the commercial market is advantageous from the point of flexibility on the use of the loan proceeds and the absence of various conditional ties that have become hallmarks of loans from multilateral institutions. A major issue is the relatively higher cost of commercial loans compared to ODA sources. For instance, LIBOR rate is 2.08% as of June 2002 but is projected to be at 3.70% in 2003 and 5.00% in 2004 compared to the Japan Bank for International Cooperation's (JBIC) rate of 2.20% per annum under its regular yen loan package with a repayment period of 30 years and 10 year grace period. The higher cost of commercial loans translates to higher interest payments that have taken a substantial portion of the annual government budgetary appropriation.

The ODA is still the cheaper source of financing notwithstanding the commitment fees charged by multilateral institutions[90] and the country has continuously relied on it. Table IV.9 compares alternative financing options for the proposed MRT-III Phase 2 project. Table IV.10 compares BOT and ODA-financed projects by sector. Table IV.11 shows ODA infrastructure projects by source of financing. As of March 31, 2002, about 68% of total ODA financing came from the Japan Bank for International Cooperation (JBIC), making Japan the single, biggest and most important creditor of the country for infrastructure projects.

Table IV.9. COMPARISON OF ALTERNATIVE FINANCING OPTIONS[91]
MRT-III Phase 2 Project

Parameter	MRTC/BOT	ODA (YLP)	NG

[90] JBIC does not charge commitment fees.

[91] This was prepared in 1996 to analyze alternative financing options for the MRT III Phase II Project. For this exercise, the weighted average cost of capital (WACC) used for the JBIC financing and the Build-Transfer financing were at 4.535% and 8%, respectively. The WACC for the national government financing option was equivalent to the 10-year T-bill rates which at that time was at 14.5%, Total project cost was estimated at US$213,992,250.

Project Cost (In Pesos)	10,913,604,750.00	10,913,604,750.00	10,913,604,750.00
Start of Implementation	2002	2006	2003
Completion	3 years	3 years	3 years
Payment Period	10 years	30 years inclusive of grace period	10 years
NPV (In Pesos)	7,019,721,114.31	4,530,081,974.16	7,399,978,185.01

Prepared by R. Evangelio, R. Planta and N. Guevarra of NEDA

"YLP" means Yen Loan Package
"NG" means national government
"NPV" means net present value
"MRTC" means Metro Rail Transit Corporation
"BOT" means Build-Operate-Transfer

The cheapest financing scheme is offered by the ODA. However, time considerations can affect the choice of financing scheme. The scheme that will render the shortest civil works period will be private sector financing. In addition, ODA-funded projects will be constrained by availability of counterpart funds that have to be budgeted by the government.

Table IV.10. BOT Projects vis-à-vis ODA Projects by Sector (all figures are in US Million Dollars)*

SECTOR	TOTAL BOT PROJECTS (as of 31 March 2002)	TOTAL ODA PROJECTS (as of 31 March 2002)
Water	441.32	1,809.96
Water Supply	441.32	682.61
Irrigation	-	567.64
Flood Control & Drainage	-	559.71
Power	3,343	878.36
Transport	3,312.65	4,640.93
Roads & Bridges	1,866.65	2,542.64
Air Transportation	440	598.69
Ports	84	532.69
Railways	922	882.49
Water Transport	-	84.42
Communications [2]	207.7	84.1
TOTALS	11,058.64	7,378.34

* Projects included in this table are on going or approved projects only. Completed and potential projects are not included.

NOTE:

- A Power and Electrification Project worth 271.73 and a Transport Project worth 478 were unclassified and were not included in this table
- Recorded BOT Communications Projects consisted only of solicited projects. No unsolicited BOT communication projects were recorded.

SOURCES: ODA Portfolio Report for ODA Projects and CCPSP for BOT Projects

Table IV.11. ODA Infrastructure Projects (as of 31 March 2002) *

	JBIC	ADB	GER	KOR	EIB	OPEC	WB	AUSAID	FRA	ITL	AUST	KUWA	UK	SPA	
Water	1,117.59	460.66	16.90	-	-	-	190.70	14.80	9.30	0.00	0.00	0.00	0.00	0.00	1,809.96
Water Supply	169.60	332.10	16.90				139.90	14.80	9.30						682.61
Irrigation	388.28	128.56					50.80								567.64
Flood Control & Drainage	559.71														559.71
Power	471.58	121.08	18.10	16.40		6	217.40	27.80							878.36
Transport	3,434.79	301.00	0.00	25.00	60.30	10.00	210.00	0.00	0.00	0.00	117.87	19.79	455.08	7.10	4,640.93
Roads & Bridges	1,562.90	167.00				10.00	210.00				117.87	19.79	455.08		2,542.64
Air Transportation	379.39	134.00		25.00	60.30										598.69
Ports	532.69														532.69
Railways	882.49														882.49
Water Transport	77.32													7.10	84.42
Communications									41.10	43.00					84.10
TOTALS	5,023.96	882.74	-	41.40	60.30	16.00	618.10	42.60	50.40	43.00	117.87	19.79	455.08	7.10	7,378.34

*Projects included in this table are on going or approved projects only. Completed and potential projects are not included.

Source: ODA Portfolio Review (NEDA-PMS)

Legends:

- JBIC = Japan Bank for International Cooperation
- ADB = Asian Development Bank
- GER = Germany
- KOR = Korea
- EIB = European Investment Bank
- OPEC = Organization of Petroleum Exporting Countries
- WB = World Bank
- AUSAID = Australian Aid
- FRA = France
- ITL = Italy
- AUST = Austria
- KUWA = Kuwait
- UK = United Kingdom
- SPA = Spain

It will be a great disservice to the country not to efficiently use ODA. The failure on the part of the government to provide the required budget cover for the project and to address various concerns, e.g., project implementation problems, resettlement of informal settlers and acquisition of right of way, makes the ODA route ineffective and costly in terms of

commitment fees that have to paid to the bilateral and multilateral institutions. It is thus the great responsibility of the revenue collection agencies, especially the Bureau of Internal Revenue to raise the necessary revenues. Otherwise, the country shall forever miss the opportunity of using a cheap source of financing. The irony is that those resources have already been committed by the ODA sources but they have been not been efficiently utilized by the country. As of March 2002, availment rate (ratio between actual availment and scheduled availment of ODA loans) is only 49.198% for the infrastructure sector alone. The lowest availment rate was recorded for ports which recorded an availment rate of only 28%. Among the infrastructure sub-sectors, communications had the highest availment rate recorded at 69%. The communications sub-sector, perhaps, is the sub-sector that is least affected by factors that cause low utilization of ODA financing (please see Table IV.12)

Table IV.12. ODA Commitment and Availment for Infrastructure Sector as of 31 March 2002 (in million US$)

Sector	COMMITMENT	SCHEDULED AVAILMENT	ACTUAL AVAILMENT	AVAILMENT RATE (%)
Communications	84.1	84.1	58.42	69
Energy, Power & Electrification	878.359	715.724	331.602	46
Transportation	4,640.93	2,111.48	1,039.21	49.00
Airport & Aviation	598.688	221.809	88.284	40
Ports	532.686	187.397	51.843	28
Rail	882.488	627.083	319.95	51
Roads & Bridges	2,542.64	1,075.19	579.129	54
Water Transport	84.422	-	-	NA
Water Resources	1,809.96	1,221.63	610.571	50
Flood Control	559.71	273.769	105.992	39
Irrigation	567639	365.87	229.696	63
Water Supply, Sewerage & Sanitation	682.606	581.991	274.884	47.23
Social Infrastructure	148.82	43.12	14.751	34
TOTAL INFRASTRUCTURE	7,562.16	4,176.06	2,054.55	49.20

Source: NEDA-Project Monitoring Staff

Box IV.2 shows various reasons for the low utilization of ODA.

Box IV.2 Reasons for Low Utilization of Official Development Assistance

- Right-of-way problems - Most infrastructure projects encounter right-of-way problems. Definitely, no infrastructure project can be undertaken without proper right of way (ROW) permits. RA 8974 which defined the procedure for ROW acquisition and RA 8975 which prohibits lower courts from issuing temporary restraining orders for infrastructure projects were enacted to address this problem.

- Procurement delays – Procurement delays can be caused by project managers' lack of familiarity with procurement guidelines.
- Peace and order problems – There are instances where project construction was interrupted by peace and order problems.
- Poor contractor performance – There are cases of project slippages due to very poor contractor performance. In such cases, contracts related to project implementation are terminated and re-awarded to new and able contractors. The tedious process of contract termination and project re-bidding takes a considerable length of time that will definitely affect ODA utilization.
- Weak project and financial management and lack of adequate budget cover/counterpart funds – Physical targets are linked with disbursement projections. This practice helps in keeping implementation programs realistic and within the cover of available funds. Weak project management will alter both actual and projected disbursement of project finances. Lack of adequate budget cover to finance projects can cause delay or worse abort project implementation even in a situation where there already are loan and grant proceeds allotted for the project.
- Changes in project design – Changes in project design after project approval and/or implementation contributes to considerable delay in project implementation. Changes or variations from the original project design require approval by the government and the ODA partner.
- Cost overruns – Major reasons for cost overrun are: (1.) exchange rate movement; (2.) change in scope of/additional works; (3.) increase in cost of right-of-way acquisition.
- Weak local government capacity for project preparation, procurement and management – Projects involving the participation of local government units and local water districts usually require longer time for identification and preparation. Weak capacity to properly prepare and manage projects and procure financing causes unwanted delays, also leading to low utilization of ODA.

Source: Report on the Outcome of the 10th Annual Portfolio Review (2002), NEDA

V. Framework for Guarantees and Management of Contingent Liabilities[92]

This section analyzes the provision by government of guarantees to cover or mitigate various types of risks that discourage private sector participation in infrastructure development. It provides a useful framework for the provision of government guarantee. Two basic requirements are: (a) to have a risk-sharing arrangement with the private sector and (b) to price the guarantee fee based on relative risks and market conditions. It then discusses the extent of contingent liabilities incurred by the government based on recent estimates and suggests ways to minimize the fiscal costs of those contingent liabilities by having a risk management approach that deals with expected and unexpected losses from contingent liabilities.

A. Demand for Government Guarantee

Public services such as utilities in power, water and telecommunications, or in civil works, such as roads, bridges and ports, used to be provided under heavily regulated environments. The Philippine government was involved in direct financing and provision of those services through government-controlled enterprises or through direct controls of utilities providing them. Over time, the deadweight losses created by distortions such as price controls and subsidies on public expenditure on infrastructure and the fiscal costs of inefficient delivery of infrastructure services by the public sector gave way to privatization. In bearing the cost of these distortions, the value of many state-owned providers of infrastructure services has been greatly eroded, making privatization of these state institutions difficult and complex.

[92] Llanto and Soriano (1997) first raised the problem of the fiscal risk of contingent liabilities arising from the provision of government guarantees to infrastructure projects. Llanto and others (2000) has an extensive discussion. Subsequent analysts, e.g. de Vera (2002) confirmed this as a serious fiscal problem.

The costs of market distortions are aggravated by the difficulty in removing them because of political considerations.

The government facing a budget constraint and a desire to maximize social welfare through the provision of greater and better infrastructure services faces a trade-off. On the one hand, if the private sector is encouraged to provide infrastructure services, it should be able to recover costs and generate profits from the endeavor. Private firms face the daunting problem of entering highly regulated and distorted markets for infrastructure where political patronage could present potential constraints to efficient operation. Confronted with the problem of providing services in a framework known to have eroded the value of public firms and projects in the past, private providers seek state guarantees on a wide variety of perceived risks. Because the provision of infrastructure services in power, water, and civil works is politically popular and normally perceived by the public as providing greater marginal social benefits than marginal private benefits, especially when severe water or power shortages occur, governments generally acquiesce to the provision of guarantees[93].

Encouraging private sector participation in infrastructure development has been driven in other countries by rapid economic growth, with demand by the population sometimes outpacing the government's capability to provide services exclusively and efficiently. The Philippines is not an exception. Faced with favorable economic growth prospects, the government is dismantling inefficient bureaucratic systems in favor of private operation, ownership or both, of infrastructure. This is perceived to be a more efficient strategy to address the huge demand for infrastructure services without necessarily imposing pressure on the government's budget.

Thus, the Philippine government has used the guarantee mechanism to encourage private sector participation in infrastructure projects. It is an instrument used to minimize, and in some cases, eliminate certain risks that discourage private sector participation in financing, building, maintaining and operating public infrastructure projects. A government guarantee is an important feature of the Build-Operate-Transfer (BOT) schemes that helped solve the power crisis in the early 1990s. Government guarantee seeks to satisfy private investors who are maximizing their own return to risk ratio in the face of pressure from financiers, credit rating agencies, shareholders, etc., that seek to minimize in turn their own risk exposure to the private investors' decision to take on risky infrastructure projects. These guarantees to private providers cover a wide variety of project-specific and general risks[94].

B. Risks in Infrastructure Projects[95]

An illustration of project-specific risks is shown in Table V.1.

Table V.1. Selected Project-Specific Risks and Sectoral Examples

[93] Government guarantees may also be provided by various GOCCs as may be allowed by their respective charters. The discussion on government guarantees in this paper pertains only to those provided to infrastructure projects. See de Vera (2002) for a discussion of the problem with government guarantees provided by GOCCs.
[94] Llanto and Soriano (1997).
[95] This section is from Llanto, Abrenica and others (1997)

Type of Project-Specific Risks	Sectoral Examples
Project performance risks High cost of service Bad/inefficient service	Power – Power purchase agreements refer to minimum power plant performance criteria which the proponent has to satisfy. Water – MWSS concession agreement states the minimum criteria for project performance to be satisfied by the proponent. The concessionaires would bear the risk of poor project performance if they are penalized by the MWSS Regulatory Office. Transport – Most toll road concession agreements state the minimum criteria for project performance to be satisfied by the proponent.
Project completion risks Delays Cost overruns Site availability	Power – NPC normally guarantees right-of-way and site availability for power projects. Water – The MWSS concession agreement stipulates that cost overruns in projects may be passed onto consumers provided they are covered in grounds for extraordinary price adjustments (EPA). Otherwise, such costs are borne by the concessionaires. Transport – Responsibility for constructing access and feeder roads necessary for ensuring the viability of many toll roads are assumed by the government.
Fuel and other inputs risk Fuel availability Skilled labor	Power – In many instances, power purchase agreements include commitments by National Power Corporation (also the off-taker) to guarantee the supply of fuel inputs for independent power producers. Water – The MWSS concession agreement transfers input risk to the concessionaire, unless there are grounds for extraordinary price adjustments. Transport – Inputs for road and bridge construction are usually carried by the contractor.
Market risk User demand for services	Power – At the height of the power crisis, the government agreed to bear significant market risks by adopting minimum off-take contracts with independent power producers. Water – The MWSS concession agreement transfers market risk to the concessionaire. However, a number of bulk water service contracts with pending approvals have minimum off-take provisions with government-owned off-takers. Transport – The MRT-3 contract includes a stipulation of minimum ridership levels below which government must compensate the contractor.

Type of Project-Specific Risks	Sectoral Examples
Payment risk Creditworthiness of buyers of output	Power – All power purchase agreements stipulate that NPC's commitments carry a full government guarantee for minimum offtake amounts. Thus, the relevant credit risk is that of NPC and government. All PPA's carry a buyout clause the IPP may invoke in case NPC commits a breach of contract or fails to make required payments to IPP's. Water – Many proposed service contracts between bulk water providers and offtakers, usually municipal water districts, carry guarantees of payment from the latter. Thus, the relevant credit risk is of the municipal water districts or the municipal government. Transport – There is no off-taker in most transport projects.
Financial risk Debt service coverage Security On-going compliance	Power – All PPA's carry a buyout clause the IPP may invoke in case there a change in circumstance that materially reduces or prejudices the IPP return and the Parties are unable to agree to a change in the contract after a defined period (Guaranteed rate of return risk). In addition, most capacity payments are tailored to cover the project sponsor's debt services plus a fair rate of return. Water – In the MWSS Concession Agreement, the government does not assume financial risk. This is instead passed onto the concessionaires. Transport – Debt service coverage is a risk assumed by private operators in the case of toll roads.
Country environment risk Expropriation Regulatory interference Concession revoked Legal framework Environmental approval Foreign exchange	Power – All PPA's carry a buyout clause the IPP may invoke in case there is a change in law or regulations, and if compliance with such laws results in: a) The power station being unable to operate; b) The interest of the operator in the project and the operator's expectation of its return on investment being materially and adversely affected and the parties are unable to agree to an amendment of the PPA after the defined period of negotiation (Legal framework risk). All PPA's carry a buyout clause the IPP may invoke in case there is a force majeure event that is within the reasonable control of the government or NPC that lasts for a defined period and the parties are unable to agree to a contract revision. In a few cases, this applies to all force majeure events (Force majeure risk).

Type of Project-Specific Risks	Sectoral Examples
	Many PPA's carry a buyout clause the IPP may invoke in case the NPC is privatized and this effectively results in a real or purported assignment of rights or assumption of obligations under this agreement or materially and adversely changes its net assets, projected profits, projected net cash flow from operations, or otherwise would prompt a reasonable person to conclude that the ability of NPC or its successor entity to duly perform its obligations under the PPA on a timely basis has been materially and adversely affected. Water – In setting the concession fee equivalent to the annual debt amortization payments of MWSS, the MWSS concession agreement effectively transfers the responsibility for paying MWSS loans to the concessionaires. Since these loans have been contracted in foreign currency, the concessionaires bear the risk. However, the concessionaires have cited the devaluation of the peso in their latest petition for EPA before the MWSS Appeals Board. There are no automatic adjustment mechanisms for passing these risks to consumers. Transport – In toll road agreements, most of the country environment risks are assumed by the government. Note: The Philippines no longer guarantees foreign exchange rates at the time of conversion. What is more prevalent is a guarantee of convertibility of domestic currency into foreign exchange.

Source: Llanto and others (2000)

C. Risks Most Commonly Shouldered by Government

Of these risks, those most often shouldered by the national government in BOT-type projects are risks regarding:

(a) Site availability – The government guarantees right-of-way (ROW) for the project. This involves purchasing the site for the project, as well as relocating project-affected personnel;

(b) Market risk – If the buyer of the service is a government entity, the government typically agrees to minimum off-take contract purchases and prices (take or pay arrangements). These have the effect of guaranteeing a market for the output of the proponent, e.g. power, water, etc.;

(c) Payment risk - If the buyer of the service is a government entity, the government guarantees contractual performance;

(d) Change in law risk – The government reassures proponents that changes in the legal framework will not affect contractual agreements; and

(e) Foreign exchange risk – The government/central bank agrees to provide forward cover for the proponent. This will entail either: (1) ensuring that foreign exchange is made available for the project; or that (2) foreign exchange may be purchased through a forward contract for delivery at a later date. A common problem is the currency mismatch where project revenues are peso-denominated while debt repayments are in foreign currency. The failure to have cost-recovering tariffs will translate into the inability to raise the necessary peso amounts to cover a foreign-currency denominated debt.

(f) Regulatory and political risk- Regulatory risk concerns the implementation of regulation the would have adverse impact on the financial viability of the project. For example, in toll road projects, the government through the Toll Regulatory Board guarantees that toll adjustment shall be in accordance with a parametric formula determined for the project. Political risks may include changes in law, war, hostilities, belligerence, revolution, insurrection, riot, public disorders or acts of terrorism in the Philippines.

Of the risks mentioned above, the provision of guarantees to cover market risks, foreign exchange risks, and buyouts in the event of project termination contribute the greatest share to increases in the contingent liabilities of government. The amount of uncertainty inherent in the transition period, that is, from a state of direct government provision to a state of privatization and the long gestation period of infrastructure projects imply that when such guarantees are provided, the government shoulders a larger proportion of the risk of insufficient market demand, adverse exchange rate fluctuations, and other negative shocks.

D. Costs of Bearing Various Risks

The transition from public to private provision of infrastructure has not come without tremendous costs to the Philippine government. Llanto and Soriano (1997) pointed out that government guarantees have generated huge contingent liabilities which must be managed well; otherwise the government will be exposed to substantial payment burdens once a guarantee call is triggered. The rise in contingent liabilities was due to the BOT projects that were the vehicle for private participation in the infrastructure sector.

These costs are associated with the government's absorption of risks to the private sector in the face of great uncertainties in infrastructure service markets. Depending on the state of markets prior to privatization, these risks are the result of uncertainties usually associated with market demand, legal structure, political regime and foreign exchange during the transition period from mostly public- to mostly private sector provision. In many instances, bearing these risks at the outset will not be acceptable to the private sector. Thus, to attract private investments, most, if not all, of these risks will be passed onto the national government. Leaving such risks to the government invariably creates contingent claims on the government, which can be triggered by certain events and thus, converted into actual payment liabilities for the government. Thus, contingent liabilities arise from both explicit and implicit guarantees by the national government.

The growing contingent liability associated with the provision of guarantees to private investors in infrastructure has received increasing attention from governments, multilateral institutions and the academe. It has been argued that if governments fail to properly charge risk-adjusted prices for guarantees, then they are clearly not being properly compensated for the risks shouldered. In addition, the contingent nature of most of these claims is such that they are often off-budget, so the lack of adequate appropriations against the exercise of the private provider's option to call on the guarantee may exacerbate the government's budget position.

For these reasons, monitoring the levels of guarantee cover and the associated contingent liabilities and proper pricing of government guarantees have become a critical issue in the field of public finance. If guarantees are properly priced, the allocative efficiency of guarantee provision will be enhanced, reducing risks borne by government while at the same time, facilitating the private provision of infrastructure. However, price and non-price rationing mechanisms for controlling government exposure can only be justified by compensating improvements in the macroeconomy, as well as by maintaining a competitive environment and transparent and credible regulatory and legal framework for the provision of infrastructure services. These improvements and the overall competitive character of markets will reduce overall risks in infrastructure development, making it more likely that all parties in such transactions will assume lesser risks.

There are at least three parties to a typical contract to provide infrastructure services: the national government, the private sector service provider, and the sponsoring agency. Because of the urgency with which the power crisis of the early 1990s had to be addressed, virtually all of the early BOT contracts in the Philippines were among independent power producers (IPPs), National Power Corporation (NPC), the state power utility firm and sponsoring agency, and the national government.

The usual guarantee structure saw the NPC and IPPs entering into contractual arrangements to create new generating capacity, while the national government backstopped NPC by providing letters of undertaking to reaffirm and guarantee NPC's performance under the contracts. Because of the need to construct power stations quickly, preference was given for power stations run by bunker and diesel fuel. While the operation of these power stations required the importation of expensive fuel from abroad, construction was quicker and less costly relative to alternative power stations, such as geothermal plants, which tend to require more capital expenditure, but which are relatively less expensive to operate.

It was also standard procedure to have NPC assume responsibility for purchasing all fuel inputs as well. Such supply commitments were also covered by the national government undertaking.[96]

The design and structure of many Power Purchase Arrangements (PPA)s for greenfield infrastructure projects are usually driven by the interests of both the proponent's creditors and the proponents themselves. The project is structured to ensure to the greatest extent possible certain and stable stream of cash flows that will allow smooth repayment of loans. Capacity payments to be made to BOT proponents typically cover 100% of their debt

[96] This section is from Llanto, Abrenica and others (1997)

amortization owed to creditors, plus a fair rate of return for themselves. For additional coverage in case of the project's financial difficulties, creditors are thoroughly covered through numerous structures designed to effect timely repayment. These structures include cash traps, escrow accounts, and others.

During the term of each PPA, the extent to which NPC could assume or incur the real costs associated with any event that could trigger a call on any of its performance guarantees depends on its ability to pass on these costs to other parties, usually consumers. If there are no price adjustments to compensate for the real cost of trigger events, NPC's balance sheet and income statement would have to bear the cost. However, since power rates in the Philippines are regulated and the Philippines already has one of the highest power rates in Asia, regulators have tended to postpone these price adjustments even when necessary.

As a result, NPC's own financial viability has been compromised. NPC's exposure to these contingent liabilities can be measured as the extent to which these expected costs are not fully passed onto consumers. Since the NPC has secured a national government guarantee for all of its obligations under a PPA, NPC's exposure is ultimately and effectively government's as well.

It is the accumulation of large contingent liabilities that the national government wishes to avoid in the future. But should it be necessary to encourage investment in a key area, the potential government exposure to contingent liabilities should be properly accounted for, covered by adequate reserves, and priced to reflect the scarcity value of government guarantees. Table V.2 shows an estimate of total government exposure to infrastructure BOT.

Table V.3. Estimated Exposure in Infrastructure BOTs (in billion pesos, March 31, 2000)

Power projects	253
Mass transit	58
Water, transport and others	144
Total	455

Source: DAI-AGILE (2001)

Thus, it is crucial to have a policy framework for the provision and management of government guarantees. This is extremely necessary in view of adverse selection and moral hazard problems that are attendant to the provision of guarantees as exemplified by the country's experience with IPPs.

E. Managing Contingent Liabilities

The comprehensive guarantees provided by the government to the power sector resulted in a huge risk exposure for the public sector in terms of contingent liabilities that become due once trigger events lead to guarantee calls. It should be stressed that those guarantees were thought necessary for bringing in private investments in the power sector to solve the crippling power crisis in the early 1990s. There is now the realization that in the future, the

provision of government guarantees should be rationalized. Clearly, a policy framework for providing guarantees is required. To help minimize the requirement for government guarantee, there is a need to reduce uncertainty and risks surrounding infrastructure projects.

E.1. Reducing Uncertainty And Risks Surrounding Infrastructure Projects

Macroeconomic stability characterized by low inflation and low interest rates would enable projects to have more certain cash stream and a positive rate of return on investments. As discussed earlier in this study, the enabling macroeconomic environment should be buttressed by an appropriate and transparent regulatory and legal framework that will safeguard public welfare and safety, uphold contractual obligations and ensure adequate returns to the investor. This will minimize the risks of guarantee calls especially in those instances where the government has been exposed to buyout clauses or similar undertakings. The critical areas that would require impartial and transparent rules and procedures include the following: arbitration procedures, enforcement of contractual obligations, competitive bidding for supplies and equipment; tariff adjustment; repatriation of capital.

E.2. Framework for Providing Guarantee

As a first principle, there is a need to recognize that a guarantee cover is not a free resource that government can grant at will. It represents actual claims on government's fiscal resources once certain events trigger a guarantee call. Without efficient allocation of this resource, the government could find itself saddled with a fiscal shock once private investors call on guarantees that have been given without concern for some form of budgetary constraint. Thus, as a scarce resource, a guarantee should be efficiently allocated. Correct pricing of the guarantee ensures to a large extent its efficient allocation. This means that pricing the guarantee should consider market conditions and relative project risks. The government should determine the amount of guarantee cover it can prudently provide in any given year. This amount should include not only those granted to infrastructure projects but also to other guarantee programs implemented by various government agencies,[97] especially those that have the nature of sovereign guarantees. In some instances, the government only gives an indirect guarantee since the first recourse of the private investor is the balance sheet of the sponsoring agency. However, this also exposes the government to contingent liabilities and thus, indirect guarantees should be considered in the overall appreciation of how much guarantee cover the government can provide in any given time period.

A non-price allocating mechanism for guarantee cover is the government's ranking of infrastructure projects to be given such cover. This will require a thorough inter-agency discussion of the relative merits of projects and their costs. The Medium Term Development Plan as well as the annual budgetary deliberations could provide guidance on the relative ranking of projects.

[97] For example, the government's housing programs also provide guarantee cover through the Housing Insurance and Guaranty Corporation (HIGC). The contingent liabilities arising from HIGC guarantees are non-trivial.

A vital principle is to un-bundle and assign risks to the party most capable of managing them, or whose actions have a direct bearing on their outcome. Thus, a risk-sharing arrangement with private parties shall reduce demand for government guarantee and minimize government's exposure to contingent liabilities.[98] The sharing of risks has to be reflected in the contracts to be executed between the contracting parties. One advantage of a risk-sharing arrangement is the minimization of moral hazard problem in implementing projects.

Table V.4 presents the result of an exercise to identify risks covered in a small sample of contracts in each sector. If it is assumed that there will only be slight variations across contracts within sectors, then the largest sources of contingent liabilities are projects in the power, water and transport sectors.

Table V.4: Identifying risks covered in small sample of contracts

Largest Sources of Contingent Liabilities in the Power Sector[99]	
Item Guaranteed	Cost
1. Buyout clause or termination	Buyout or termination price
2. Force Majeure	Buyout or termination price
Largest Sources of Contingent Liabilities in the Transport Sector	
1. Toll changes; automatic toll adjustment formula	Costs of inability to implement toll adjustments
Largest Sources of Contingent Liabilities in the Water Sector (MWSS)	
Item Guaranteed	Cost
1. MWSS to assume loans being paid by concessionaire	Cost of principal and interest on old MWSS loans
2. MWSS to pay early termination fee	Early termination amount
3. Loser of Appeal to pay total cost of Appeal Process for both parties	Cost of Appeals Process
4. Force Majeure	Early termination amount

Source: Llanto and others (2000)

It is noted that all of the largest exposures seem to be uncovered and un-hedged.

The provision only of a set of core guarantees to BOT projects, which should also be extended to concession arrangements, merits serious consideration.[100] The core guarantees that the government would like to extend cover only (a) fundamental risks, e.g., uninsurable political risks; (b) fundamental rights; and (c) foreign exchange convertibility. Fundamental

[98] Llanto and Soriano (1997).
[99] Note that the annual capacity payments by NPC to IPP's are guaranteed; however, they do not give rise to contingent liabilities since the payment schedule has already been predetermined in the contract.
[100] ICC Policy Workshop on BOT and Related Policies, Tektite Building, Pasig City, May 14, 1999.

rights bind the BOT proponent to undertake the project in full accordance with the terms of the contract. These require government to grant the exclusive right to the project to the BOT proponent and guarantees against direct or indirect government takeover unless agreed upon based on a separate agreement or buyout provisions of the project agreement. Foreign exchange convertibility guarantees the BOT proponent's right to (a) purchase foreign exchange in the open market; (b) transfer its foreign currency funds abroad; and (c) maintain foreign currency bank accounts in the Philippines or abroad. To be neutral, the core guarantees will be applicable to all sectors and are impartial to all types of projects.[101]

Related to this, is the recommendation for NEDA-ICC to adopt a selective and reasonable set of performance undertakings that are subject to a fall away clause. More specifically, commercial and market risks that appropriately belong to the private sector should no longer be covered by government guarantees. This makes great sense. The introduction of fall away clauses in certain performance undertakings will enable the national government to minimize its contingent liability exposure. Fall away clauses were included in the 1200 MW Ilijan Natural Gas Power Plant and San Pascual Cogeneration Power Plant project agreements. For the Ilijan plant, the performance undertaking for the availability fees shall fall away when the Philippines achieves consecutively for two years an investment grade rating for its Philippine Peso debt from Standard and Poor, or Moody's, or other internationally recognized rating agency of comparable standing.

Thus, the framework for giving guarantees should include an explicit exit strategy for government guarantee. This will minimize government's risk exposure and potential burden on its fiscal position. This is akin to the NEDA-ICC's concept of a fall away clause in infrastructure contracts. The exit strategy will prevent perverse incentives and moral hazard in project management and implementation. For example, the government could design a contract that provides for a fall away of government guarantee for foreign exchange convertibility once the country attains investment grade rating in international capital markets.[102]

The duration of the guarantee cover or the period of cooperation between the sponsoring agency/national government and the project proponent is another crucial factor in providing guarantees. The experience with IPPs in the power sector shows that the greater the time period within which the guarantee call can be exercised, the more likely it will be exercised by the project proponent. Thus, a higher guarantee fee or premium could be required.

The guarantee fee should also be reviewed annually by the Department of Finance, the sponsoring agency and the project proponent in order to account for changes in business circumstances and more generally, to give the Department of Finance the flexibility in determining guarantee fees. The market is very dynamic and circumstances affecting the infrastructure project change. There is the need for a regular review of project performance and a re-assessment of the guarantee cover provided to the project.

[101] Ibid.
[102] Llanto and Soriano (1998).

The pricing of the guarantee fee is an important consideration. It makes sense to relate the guarantee fee to the market price of a long-term government security or bond, in the absence of a first-best actuarial basis.[103] The reason is that the guarantee cover could be understood as an insurance made available by the government to the project proponent that will be paid once a guarantee trigger brings about the call. Since the insurance cover constitutes an allocation of government resources to the project, the premium or fee for that cover should be based on the opportunity cost of the allocated resource. There is also a great advantage in calibrating the guarantee fee according to the relative risks in infrastructure projects. In this regard, government should identify all the possible risks that can affect the project, rank them according to their weight and probability of occurrence and make a judgment on what specific risks the government is willing to cover. Having a risk-adjusted and market-based guarantee fee will enable government to provide adequate guarantee cover and create the proper incentives for private demand for that cover.

In summary, the suggested framework for government guarantee has the following components:

- Treatment of guarantee cover as a scarce resource that should be efficiently allocated
- Determination of the annual amount of guarantee cover that government can provide
- Pricing of a guarantee according to market conditions and relative risks
- Risk sharing between project proponent and government
- Core guarantees for selected risks
- Core guarantees to be applicable to all sectors and all projects
- Exit strategy or fall away clause in guarantee contracts
- Guarantee fee based on cooperation period
- Annual review of project performance and required guarantee cover

F. An Approach to Contingent Liability Risk Management

A contingent liability is a liability whose value is uniquely dependent on states of nature that will occur in the future. The timing of the occurrence of these states may or may not be certain at the outset. Because the government exercises a limited amount of control over many activities, it is not aware of how much it can lose when events trigger payment or service obligations.

[103] There is no history of guarantee calls. But the absence of guarantee calls is is in a way fortunate for the economy. Option pricing techniques seem relevant for pricing guarantees given to the power sector. However, more research should be done in this area.

An estimation of contingent liabilities is indicative and a more refined estimation is needed. The approach is inadequate because the present value approach does not take into account the following:

- Estimates of past and future expected future market demand when estimating exposure to market risk;
- Take-or-pay contracts insure private operators against market risk, but the larger government exposure is to contractual buyouts and termination payments which are triggered by force majeure and other events;
- The exposure to risks may actually be higher than the 1% to 3% range.

The contingent liabilities generated by the provision of guarantees should be carefully managed in order to minimize the costs of actual calls on the government. An appropriate contingent liabilities management framework could inform government's decision on providing guarantees, expectation of guarantee calls in the future and the setting of reserves for the contingent event..

The underlying rule is first, to identify the different types of risks and second, to determine the best way to improve their management, whether by insuring, transferring, mitigating, or retaining the risk. This approach when adopted to the public sector should takes into account the government's budgetary processes, the legal environment and the type of risks being evaluated. The approach has six steps[104]

- Identify the government's risk exposures by reviewing existing contracts and trigger events;

- Measure or quantify the expected and unexpected exposures;

- Provision for expected costs in the budgetary process;

- Assess the government's tolerance for bearing risk;

- Use the government's risk tolerance as a basis for establishing policies and procedures for structuring reserves against unexpected losses; and

- Implement risk mitigation and control mechanisms to prevent unintended losses on those risks and

- Establish systems to continually monitor and reassess the government's risk exposure over time.

F.1. Identifying risk exposure and sharing risks with the private sector

[104] This draws on Lewis and Mody (1998).

To identify the government's risk exposure, it will be necessary to identify first all types of risks in an infrastructure project as was done in the case study of contingent liabilities in the power sector. Then, the cost and loss implications of the identified risks have to be assessed. The government must then evaluate which party (public or private) has the best access to the information needed to most accurately assess the underlying risks of the project. The specific risk should be assigned to the party that has the best information, the ability to monitor, control and service the risks[105]. In the case of market risks, it is the private party that is more capable of monitoring, controlling and servicing the risk. Right-of-way risks, political risks, and other fundamental risks are best assumed by the government.

F.2. Quantifying risk exposure and provisioning for expected and unexpected costs

It is not feasible to account for every source of risk in projects and the pragmatic approach is to identify risks and rank them in order of highest probability of occurrence. Quantification of risk exposure can be done through valuation techniques,[106] depending on the availability of data, e.g., data on the performance of a project or program, the quality of data, etc.

With a measure of risk exposure, the government can start budgeting for expected costs. Information on expected costs will be based on government's review of the project situation, including performance of the project proponent. The review can be an annual exercise during the cooperation or guarantee agreement period. An understanding of the macroeconomic conditions as well as the microeconomic situation of the project under review will give the government an idea of the amount of expected calls for a given year.

Budgeting for the expected costs will have as main impediment the simple cash-based budgeting system of government[107]. Because guarantees translate into actual costs only when a guarantee call is made, they remain as contingent liabilities. The government's cash-budget accounting system will normally not carry this as an expenditure item. Thus, contingent liabilities will not appear in the government's accounts and there will be no funds budgeted to cover them.

In this regard, the NEDA-ICC has recognized the need to extend the financial analyses of BOT projects to include the accounting of contingent liabilities[108]. According to the ICC, the government needs to develop a system for accounting the contingent liabilities of BOT projects. The accounting of contingent liabilities could provide ICC with benchmarks on the number of BOT projects or the magnitude of contingent liabilities that may be programmed in a given year. Thus, ICC has proposed that the national government should integrate contingent liabilities accounting into the government's budgeting and financial programming framework and process. To accomplish this, the ICC or the government must first develop a database of national government exposure to contingent liabilities. A first step is a review of all contractual provisions that have contingent liability implications. The

---

[105] Ibid.

[106] Lewis and Mody (1998) list several techniques, e.g., those used to value options in financial markets. A technique called stochastic simulation to quantify net expected loss in their study of Colombian contingent liabilities.

[107] Originally pointed out by Mody (1996).

[108] Draft highlights of the ICC Workshop on BOT and Related Policies, Tektite Tower, Pasig City, May 14, 1999.

case study of the contingent liabilities in the power sector above is an example of this important exercise.

A fundamental aspect of accounting for and monitoring exposure is the establishment of a standard reporting format for contingent liabilities. To be helpful in monitoring exposure, contractual arrangements should be transparent, and conditions which may trigger payment obligations on the part of government should be monitored on a regular basis. The performance of sponsoring agencies and other support agencies in limiting exposure, risk, and actual payments, should also be monitored. This means that sponsoring agencies should be encouraged to list and report their contingent liabilities and payments on a regular basis. Contingent liabilities should also be regularly reported to the public.

Tables V.5 and V.6 are prototype formats for reporting exposure. For each infrastructure project and contract, the suggested formats can be filled up and updated on a regular basis. A comparison of totals of exposure and risk across projects, across modalities, and across sectors may be made. In addition, an accumulation of these totals across proponents and across creditors may also be computed. Then, the cumulative total of exposure and risk may be used as basis for formulating a budget for reserve coverage for the year. Upon completion, all projects must go through a post-completion review for performance.

Table V.5 Reporting Format for Exposure and Risk

Name of project: Sponsoring agency: Private proponent: Project cost: Description of project:			Date: Sector:	
Guaranteed item	Trigger event	Maximum exposure to each event	Risk	Comments
Based on contract	Based on contract	Calculate exposure	Establish probability of call and amount to be called	Describe outlook for each risk/explain adjustments, etc.
2.				
3.				
Total		Peso and dollar amount	Peso and dollar amount	

Source: Llanto and others (2000)

Table V.6 Status of Infrastructure Projects

Name of project: Sponsoring agency: Project cost:	Date: Private proponent: Description of project:
Sector	
Expected duration	
Percent completed	
Months behind/ahead of schedule	
Sources and modes of financing	
Cost of financing	
Creditors	
Credit enhancements provided	
Guarantee fee	

Other government agencies involved	
Problems encountered in implementation	
Problems expected and remedial measures to be applied/given	

Source: Llanto and others (2000)

In addition to budgeting for expected costs, the government should also make reserves against unexpected losses. The reserve policy depends partly on how often the government wants to approach the legislature for funds. This means that an appropriate valuation approach to contingent liabilities will help in determining the government's reserve policy. Frequent funding requests can, thus, be avoided once government has a good sense of expected and unexpected losses. The advantage of holding funds in a reserve fund is that the liquidity, value and credibility of the guarantee cover is enhanced, making it a potent tool to influence private sector investment decisions. It goes without saying that investing the reserve assets will maximize the value of the reserve fund. A hedge is thus, created for future guarantee calls. The investment can be made in domestic currency, foreign currency or both, instruments, depending on the relative return and risks of the instruments. For example, in case of guarantees denominated in US dollars, the government can consider offshore investments in US dollar denominated assets to create an appropriate hedge against convertibility risks[109].

F.3. Government's tolerance for risk bearing

The main idea behind government's tolerance for risk bearing is to find out just how much losses arising from guarantee calls the government can absorb in a given time period. Based on an annual review of the guarantee cover given and the implied contingent liabilities, the performance of the project and the project proponents, the macroeconomic and microeconomic conditions, the government should be able to develop a pattern of probable defaults. There are two general approaches[110]: establish the probability of default in each specific project or determine the probability of default of the government's portfolio of guarantee cover. The latter is a portfolio value-at-risk approach that takes into account portfolio diversification. Having an understanding of the pattern of probable defaults, the government can then determine how much guarantee calls it can absorb, given other competing demands for scarce resources.

F.4. Risk mitigation and control mechanisms

A vital component of a risk management framework is to have risk mitigation and control mechanisms. This is the first barrier of defense of the government against moral hazard problems that are ever present in guarantee arrangement. One way is to require the guaranteed party to hold a certain amount of capital or collateral as a first-loss protection barrier[111]. Government can also place restrictions on the use of the reserves set aside for future guarantee calls to assure itself that funds will be available for unexpected costs. Proper pricing of guarantee fees will be another way to create the proper incentives for

[109] Lewis and Mody (1998) from which most of the ideas are taken, provide an extended discussion of the problem of provisioning for expected and unexpected costs and creating a reserve fund.
[110] Ibid.
[111] These suggestions come from Lewis and Mody (1998).

parties requiring them. Finally, risk-sharing between the government and private proponents is an effective firewall against moral hazard and incentives problems in infrastructure projects.

Government guarantees can be effective tools to encourage private sector participation. The past experience with comprehensive guarantees shows that the government faces a substantial amount of contingent liabilities. Actual guarantee calls convert those liabilities into real costs that will have serious fiscal implication for government. The government should review the guarantee contracts, particularly those with IPPs, in order to find ways to mitigate its risk exposure and to avoid the occurrence. The analysis of the contingent liabilities in the power sector just shows how substantial the risk exposure of government could be without an appropriate framework for the grant of guarantee cover, and a credible risk management approach.

In summary, the following are recommended:

(1) The government should develop a framework for providing guarantee cover to infrastructure projects. The elements of the framework could be the following:

- Treatment of guarantee cover as a scarce resource that should be efficiently allocated
- Determination of the annual amount of guarantee cover that government can provide
- Pricing of a guarantee according to market conditions and relative risks
- Risk sharing between project proponent and government
- Core guarantees for selected risks
- Core guarantees to be applicable to all sectors and all projects
- Exit strategy or fall away clause in guarantee contracts
- Guarantee fee based on cooperation period
- Annual review of project performance and required guarantee cover

(2) The government should develop a contingent liability risk management approach comprised of the following:

- Identification of government's risk exposures by reviewing existing contracts and trigger events;
- Measurement or quantification of expected and unexpected exposures;

- Provisioning for expected costs in the budgetary process;

- Assessment of government's tolerance for bearing risk;

- Use of government's risk tolerance as a basis for establishing policies and procedures for structuring reserves against unexpected losses; and

- Implementation of risk mitigation and control mechanisms to prevent unintended losses on those risks and
- Establishment of systems to continually monitor and reassess the government's risk exposure over time.

VI. Decentralization and Local Effort in Infrastructure

The Local Government Code of 1991 has devolved authority to the local governments to provide public services and goods in such areas as health, agriculture, etc., and to use a wide variety of financing mechanisms. The local governments were also given a larger share of the proceeds of national tax revenues, of as much as 40 percent of those national taxes, in the form of internal revenue allotments (IRA). Local taxing powers have also been expanded while credit financing has been made more liberal by allowing the local governments to borrow from private sources without seeking the Department of Finance's approval. The Build-Operate-Transfer Law also allows local governments to enter into BOT arrangements with private investors. Table VI.1 gives an idea of the

Table VI.1 Local Government Infrastructure Projects under the BOT Law

Category	Number of Projects	Value in US Dollars Millions
Completed	1	23
Awarded	3	10
Under Development	7	84.8
Potential Short List	13	340.8

Source: BOT Center

A substantial part of infrastructure projects will be local and thus, it is extremely important to develop the capacity of local governments to work with the private sector in this regard. In light of the risks assumed by the national government in many of the earlier BOT investments, limits in local financial capacities to guarantee risks and grant fiscal incentives must be emphasized to local government officials. However, automatic intercept of internal revenue allotments (IRA's) of local governments in case of default is a dominant feature of local infrastructure financing. Local governments must only be able to pledge their IRA shares as collateral to the extent that they are not heavily dependent on such shares for financing other local operations. Thus, the national government and multilateral financial institutions should assist local governments in strengthening their capacities in local tax administration and fiscal management as well. The general observation is that there exists a substantial scope for improving local revenue performance through efficient local taxation.

In this respect, a review of the IRA allocation formula is in order. The allocation is biased in favor of bigger municipalities and cities; at the same time, heavy reliance on IRA may have encouraged municipalities to substitute it for serious local revenue mobilization.

A recent innovation in local government finance is the development of a municipal securities market. Republic Act 7160 (The Local Government Code) allows local governments to borrow to finance capital investment projects. Notable municipal bond issues to date include the Cebu bonds issued in 1991, as well as the housing-related bonds floated by the municipality of Claveria, Misamis Oriental, and the city of Legaspi, in 1995. The market for municipal bonds is a nascent market, with underwriters confined to small financial advisory firms and investors mostly comprised of local citizens of the bond-issuing municipalities. To spur the development of the municipal bond market, the Development Bank of the Philippines and the Bankers' Association of the Philippines have organized a local government credit guarantee corporation. In addition, there have been exploratory talks among government financial institutions and private rating agencies for a credit rating system for local governments.

In the same vein, the local governments' project development capacity must be enhanced. The national government must dedicate resources to further strengthening the capacity at the local level to conduct engineering and feasibility studies for water, power, telecommunications, and other infrastructure-related industries. Development of this capacity will pave the way for more private financing and involvement in local infrastructure.

VII. Designing a Regulatory Framework

Drawing on its worldwide experience in private participation in infrastructure, the International Financial Corporation (IFC) maintains that the right policy framework sets a basic foundation. IFC (1996) argues that successful, sustainable transactions require a policy framework that meets the interests of governments (acting on behalf of the public), sponsors and lenders. The convergence of interests can be made through well-structured competitive projects and an appropriate policy and regulatory framework.

Liberalization and privatization of infrastructure does not necessarily imply economic efficiency. For example, incumbency advantages of an established firm can frustrate the competition from new players. If the incumbent firm retains control of the bottleneck facility, there is an incentive for it to engage in non-cooperative behavior, e.g., delaying access or charging high access rates to new players in order to raise its competitors' costs and induce exit.[112] Competition legislation can remedy or prevent uncompetitive corporate structures, monopolistic price setting or cartel behavior which prevent competition from working. To implement this, regulation is critical[113].

Regulatory governance is critical: to promote competition, create an environment for greater private investments and ensure the availability of services to the public at fair prices. Market-oriented reforms have introduced a wider range of issues than the traditional problem of tariff or rate setting in the pre-reform period. Regulatory issues cover (a)

[112] Ramonette Serafica, "An Assessment of Infrastructure Policies," PIDS Discussion Paper, May 1998
[113] OECD, Regulatory Reform, Privatisation and Competition Policy, Paris, 1992.

industry structure (monopolistic, competitive); (b) conduct (e.g., pricing, determination of access rates, interconnection rules in telecommunications); and (c) performance (quality and compliance with obligations to uphold public welfare). This indicates the need for efficient and effective regulatory offices and rationalization of the infrastructure bureaucracy by separating policy, regulatory and implementation functions within each sector.

Privatization, deregulation and liberalization in the infrastructure sector do not necessarily lead to unadulterated economic benefits to the consumer. As pointed out by Joskow (1998), there could remain segments of the infrastructure sector that are natural monopolies for which continuing regulation would be needed in order to safeguard consumer welfare. At the same time, there is need to have an effective regulatory presence to ensure the potential competitors are not barred from entry into the competitive segment of infrastructure sectors. The government should recognize this as a crucial component of its overall infrastructure policy and strategy for private participation in infrastructure.

Government should, thus, work for the establishment of credible "regulatory institutions to oversee the performance of natural monopoly segments of infrastructure sectors and to support the introduction of competition in the competitive segments of these sectors"[114]. Joskow adds that "important segments of most infrastructure sectors remain natural monopolies requiring continuing regulation, and open and nondiscriminatory access by new competitors to the network facilities controlled by these monopolies is necessary for effective competition."[115] In the case of the electric power industry, the EPIRA (Republic Act 9136) created the Energy Regulatory Commission to promote competition, safeguard consumer welfare, ensure performance and compliance with health, safety and environmental standards and punish abuse of market power. Prohibition against cross-ownership between sub-industies[116], concentration of ownership,[117] sourcing of power from bilateral supply contracts is provided for under the EPIRA and its Implementing Rules and Regulations.

Regulatory agencies should be independent and accountable. One of the dangers of not having an independent and accountable agency is to have pricing policies that can become "highly politicized[118]." This will prevent private investors from recovering their costs and generating profits, creating uncertainty about future income streams and magnifying the risks perceived by private investors. Accountability is another hallmark of a good regulatory agency. This will discourage arbitrariness in decision making and potential abuse of regulatory power. Campos cites the need for a "larger judiciary environment that must be

[114] Paul Joskow, "Competition and Regulation Policy in Developing Countries," Annual World Bank Conference on Development Economics, 1998

[115] Ibid.

[116] For example, TRANSCO is not allowed to own interest in distribution utilities or suppliers and vice-versa.

[117] Concentration of ownership beyond 25% of installed generating capacity or 30% of installed generating capacity of a grid is prohibited.

[118] J.Edgardo Campos, "The Role of Governance," Investment Infrastructure Asia, Washington SyCip Policy Forum, October 22-23, 1998. Campos enumerates four factors leading to the independence of regulatory agencies: (1) distinct legal mandate free of ministerial control, (2) reliable funding, (3) exemption of regulators from civil service salary rules and (4) fixed-term appointments based on merit and protection from arbitrary removal from office.

trusted by private investors" and an "effective and credible arrangement for appealing agency decisions" to ensure accountability in a regulatory agency[119].

All these point to the need to install a regulatory framework for the infrastructure sector that is clear, predictable and competitive. Such a regulatory framework will help minimize uncertainty and risks in the concerned sector and thus, the need for government guarantees for certain risks. Clarity of procedures for bid and award and dealing with disputes and unforeseen events in an infrastructure sector is indispensable for the private participation in the infrastructure sector. Certainty about government's role in implementing commitments, e.g., tariff adjustment gives private investors a measure of comfort and finally, competitive process assures the private proponent that it will be able to charge tariffs that will enable the recovery of costs and generation of profits. This will also help minimize guarantee for market-related risks.

Regulatory design for each infrastructure sector is a complex and difficult task. This certainly points the immediate need of the hour: research, policy analysis and identification of an efficient regulatory institutional arrangement. It is sufficient for the purpose of the paper to provide a sketch of what major factors to consider in the search for the efficient regulatory framework and institutional arrangement.

A. Issues for Regulatory Design[120]

Privatizing infrastructure should liberate the operation and management of public utilities from political intervention (e.g., pressures to maintain cross-subsidies and to invest in unprofitable services) and thus allow the sector to focus on long-term economic efficiency. For this to happen, it is important to insulate regulation from political processes. Some measures to ensure independence of regulation from political processes include setting specific qualifications of regulators for appointment and removal, guaranteeing funding independence of the regulator from the national government (*e.g.,* use of levy on investors to fund regulatory institutions), and allowing an anti-monopoly body to check on the exercise of discretionary powers of the regulators.

In some cases, it would be ideal for regulation to be centralized. An example is the proposed creation of the Water Resource Authority of the Philippines. In addition to economies of scope, centralized regulation has the advantage of being divorced from parochial interests. The disadvantage though of centralization is the risk that the regulator will be overly rigid and unappreciative of local conditions and interest. Where centralization is not politically feasible, central and local regulations should at least be consistent.

Regulations should generally be based on economic efficiency. When they run counter to economic efficiency, the social policy justification must be clearly spelled out. This is necessary for transparency and predictability of regulation. It may also be useful to set a definite time frame for regulatory decisions. In the UK, all regulation on prices, investments and other variables are set and reviewed every five years.

---

[119] Ibid.

[120] This draws on Chapter 4 of Llanto , Abrenica and others (1997).

Policy design must consider the institutional structure that will carry out its implementation. A realistic assessment of the regulator's information access, skills and ethical standards is critical. Some trade-offs in economic efficiency and political expediency may have to be made on account of these limitations. In the long run, of course, the effort should be geared towards reforming and strengthening the institutions.

Private firms identified nine conditions on the important elements of a regulatory environment that would enhance commercial viability and fairness in contract enforcement[121]. They are as follows:

- Specify key terms and conditions of regulation in the contract, leaving little discretionary power to the regulating authority. In particular, specify the key aspects of regulation such as price, quantity, and quality in the contract.

- Spell out credible technical objectives which the contractor will be expected to achieve under the contract.

- See that government tariff policies support the principle of cost recovery- and that tariff adjustment formulas adequately reflect changes in costs, inflation and the exchange rates.

- If historical collection rates do not indicate consumers' willingness to pay for services at tariffs that reflect the cost of service, allow an adequate period of time to phase in higher tariffs- and give the operator adequate protection from nonpayers.

- Review public works law, contract law, and accounting practices and, if necessary, amend them in advance to ensure that they accommodate and protect any long-term investments foreseen under build-own-transfer or concession-type arrangements.

- Eliminate unnecessary and bureaucratic administrative requirements that make bidding expensive.

- Make a contract and expected profits big enough to warrant a high fixed cost of bidding.

- Provide the education and outreach needed to inform consumers and secure the support of labor interests.

Thus, to encourage private sector participation in infrastructure, there is a need for an appropriate institutional and regulatory framework that assures private investors cost recovery and profits, without sacrificing public welfare. An appropriate institutional and

[121] Barbara Richard and Thelma Triche, "Reducing Regulatory Barriers to Private-Sector Participation in Latin America's Water and Sanitation Services," WB Policy Research Working Paper 1322, July 1994.

regulatory framework means that policy changes alone are meaningless without institutional changes to implement and sustain them[122].

The succeeding sections take a quick look into the regulatory issues in two sectors, water and telecommunications to illustrate the urgency of working out an efficient regulatory framework. Other sectors, such power and transportation are no less important but data, space and time limitations prevented their treatment in this paper[123].

B. Water Regulation[124]

There are competing uses for water: water for drinking or domestic consumption, irrigation, industrial and hydropower. Two aspects of water regulation are (a) water resource regulation and (b) economic regulation. The main weakness in water resource regulation is the absence of a cross-sectoral plan to integrate and make consistent various water and land use plans and activities, water quantity and quality management or the conjunctive use of surface and groundwater. The Philippine Water Code requires those who want to use water to obtain water permits from the National Water Resource Board (NWRB). The NWRB considers the following factors in granting water permits: water availability, prior permits granted, land use issues and other relevant factors. However, the absence of a coherent and consistent cross-sectoral plan and the institutional weaknesses in the regulatory bodies of the water sector lead to inefficient allocation of water resources, water rights and allocation conflicts and degradation of water resources. The major institutional problem is the multiplicity of agencies involved in water resource regulation and the consequent fragmentation of water resource planning and management[125].

Despite worldwide acceptance that water resources planning on a watershed or catchment basis is the most effective method in water resource regulation, the country has yet to take this into account as a planning framework for the sector. Catchment-based planning is an effective way of creating an integrated planning framework that will help balance competing use for the water resource. Using this planning approach, cross-sectoral water resources plans can be developed to integrate effectively various water and land use activities, water quality and quantity management, and conjunctive use of surface water and groundwater. While the National Water Resources Board is mandated to coordinate and integrate the plans and programs of all water resources agencies, plans seldom receive NWRB approval. Until recently, master and basin plans do not exist and NWRB does not have the resources to assess such plans. The result is the absence of an integrated water resources management

[122] Ibid.
[123] The limitations permit only a sketch or a brief overview of the regulatory issues in the two sectors discussed in the paper.
[124] This section benefited from inputs provided by the Water Division of the NEDA Infrastructure Staff.
[125] According to the Asian Institute of Management Policy Forum "there are 32 government agencies dealing with different aspects of water such as domestic and municipal water supply, industrial, irrigation, hydropower, flood control, navigation, fisheries, pollution, among others" resulting in a "fragmented approach to water management."

system that adopts a holistic approach to water resources. This lack of effective coordinated planning and implementation on a river basin or watershed approach does not allow for priorities to be set making it difficult for the private sector to plan and offer proposals and for government agencies to assess proposals.

There are several outstanding issues in water resource regulation and one of the important ones is the current discussion on how to improve the management of water resources. The conventional approach is to improve pricing policies and provide better incentives for people to use water efficiently[126]. This is done by charging a price that reflects water's true scarcity. In a study of Metro Manila and Metro Cebu urban water pricing, David and others (2000) recommended the adoption of a water pricing policy that covers the full economic cost of urban water use that reflect the opportunity cost of water and environmental cost of water extraction from surface or groundwater sources.

Thobani (1995) argues that this is difficult to do in practice, especially for irrigation water where charges are typically below the long-run marginal cost and often below the cost of operating and maintaining the irrigation infrastructure. An alternative is water trading. Under this approach, water is given an "implicit value or opportunity cost" which creates an incentive to treat water as a scarce resource and to use it according to its most productive use. Thus, farmers can sell their "water rights" at freely negotiated prices to urban consumers or vice-versa. Thobani (1995) posits that a tradable water property rights system can lead to voluntary conservation and increases in the productivity of water without having to increase water charges.

Economic regulation of water relates to water pricing, tariff setting and monitoring and ensuring service standards. Economic regulation of water is also fragmented. MWSS Regulatory Office has responsibility over the two water concessionaires in MetroManila. LWUA oversees the water districts while local governments regulate provincial or municipal-based water utilities. Under P.D. 1206, NWRB regulates and controls the operation of utilities outside the jurisdiction of the MWSS, LWUA and the local governments. NWRB undertakes economic regulation of private water systems and performance monitoring of private and local government-operated systems.

The main problem here is the absence of a strong, independent and effective economic regulatory body. This was because the government failed to provide a responsive regulatory frame prior to the privatization of MWSS. The Regulatory Office reports through the Chief Regulator to the MWSS Board of Directors. The Regulatory Office monitors compliance of the two concessionaires to their respective concession agreements with the government. It has a wide latitude in determining tariff rate adjustments, service target adjustments, compliance with water and environmental standards, consumer targets and audit, among others. Under this set up, regulatory dispute may arise between the concessionaires and the regulatory office. An example is the recent dispute that arose from the petition of one of the concessionaires for an automatic currency exchange rate adjustment (CERA) to enable it to recover losses arising from the peso devaluation. The members of the regulatory office were divided on this issue. One view is that the petition is meritorious while another view is that

[126] See the discussion in Thobani (1995). Thobani, Mateen. 1995. "Tradable Property Rights to Water" Public Policy for the Private Sector, FPD Note No. 34. The World Bank. February.

since the requested measure (CERA) is not included in the concession agreement, it has no basic merit. It was also pointed out that the concession agreement provided for an extraordinary peso adjustment (EPA) that is charged to consumers each month regardless of whether a currency devaluation occurs or not. Thus, the opinion is that this portion of the tariff already covers the concessionaire for losses from the peso devaluation[127].
The observation made by the NEDA Infrastructure Staff is that "in the absence of legislative principles to guide the concession agreement terms, e.g., automatic CERA, rate re-basing, the leeway for interpretation becomes a source of confusion, possibly to the point of compromising the real intent of the agreement." On the other hand, Lavado (2001) holds that the absence of those principles makes it "possible that the concessionaires could collude to alter its terms in whatever manner happens to suit them."

The regulatory arrangement for water districts and local governments creates similar conflict-of- interest problems. LWUA regulates the water districts by virtue of P.D. 198 but at the same, acts as a specialized lending institution for the promotion, development and financing of water districts. On the other hand, the Local Government Code of 1991 has devolved water supply, sewerage and sanitation services to local governments. These services may be provided through local government-owned and operated water supply facilities. Local governments, thus, act as operator and economic regulator because they set their own water tariffs. Thus, in these cases, the economic regulator acts at the same time as operator and financier. Concerns over the financial viability and return on investments may becloud the decision and policy setting of the economic regulator.

C. Telecommunications Regulation[128]

The telecommunications sector has exhibited rapid growth since the reforms introduced by the government. In November 1992, the cellular mobile service was liberalized, paving the entry of three new operators. Executive Order (EO) 59, issued February 1993, mandated the interconnection of all carriers. Executive Order 109 issued in 1993 and Republic Act 7925 (Public Telecommunications Policy Act of the Philippine) led to the demonopolization of the industry. Executive Order 109 introduced the Service Area Scheme (SAS) to provide universal coverage to as many consumers as possible. It raised the country's teledensity in terms of fixed lines.

In July 1993, the basic telephone service was opened to new entrants but service obligations were attached to their licenses. EO 109 laid down the "Universal Telephone Service Policy," also known as the Service Area Scheme (SAS). The scheme is a network development program that divided the country into 11 service or franchise areas assigned to 9 telecommunications carriers who are either cellular operators or international carriers, or both. Under SAS, cellular operators are obliged to install at least 400,000 telephone lines in three years, while international carriers are given five years to put up 300,000 domestic lines in exchange for entry into the lucrative markets of mobile communications and long distance services. The intent is to hasten the provision of telecommunication services in areas that were previously exclusive franchise of PLDT and other smaller carriers, while averting

[127] See Lavado (2001).
[128] The inputs of the NEDA Infrastructure Staff and Information and Communications Technology Staff are gratefully acknowledged.

cherry-picking, *i.e.,* over-concentration of investment in the most profitable markets as entry barriers are lowered. SAS compelled the incumbent carrier PLDT to double the size of its network that was built in a span of almost half a century, within a short period of 4 years[129].

The major legislative piece that is to serve as framework for reforms in the sector was passed in March 1995. Republic Act 7925 accelerated local network development by reducing the period given to new carriers in fulfilling their service obligations from 5 to 3 years. Among the important provision of the Act are: (1) setting the universal service policy as a framework for promoting telecommunications development; (2) scrapping the 12 percent ceiling on the rate of return that applies to public utilities; (3) institutionalizing bilateral negotiations between carriers as the manner of forging interconnection agreements; and (4) mandating international gateway facility operators, cellular mobile operators and inter-exchange carriers to cross-subsidize local exchange operations through payments of access charges.

Technology has played a greater role in introducing competition and efficiency in the sector, notwithstanding the existence certain barriers to entry like regulatory issues. It was the phenomenal growth of wireless or cellphone service in the last few years and the advent of prepaid telephone cards and text messaging that provided a substitute for telephone service via fixed lines. In fact, there seems to be a glut in supply of fixed telephone service. As of December 2000, only 2.8 million out of 6.8 million or 41% of installed fixed lines have been subscribed. This may be due to the high monthly cost of landline subscriptions vis-à-vis prepaid call and text cards[130].

Notwithstanding the growth impetus that comes from market liberalization and from technological changes that are sweeping the communications industry, the future growth of Philippine telecommunications may be impeded by flaws in policy design and weaknesses in regulatory governance[131].

The main difficulty with the Service Area Scheme (SAS) is that it imposed geographical divisions without regard to scale economies that is too important in any network industry. Apart from the wasteful duplication of network, SAS engendered a more serious problem --- the interconnection of networks. Since the networks of the new carriers are limited to their assigned franchise areas, none of them has network as extensive as PLDT's. Consequently, none of them wields sufficient leverage to bargain with the incumbent for efficient interconnection. The high access charge paid to the incumbent constrains the new carriers from undercutting the incumbent's price in otherwise competitive services such as long-distance and mobile communications.

SAS can also be faulted for its reliance on cross-subsidy to fund universal service obligation. Since margins from mobile and long distance services are to be funneled in the local exchange network, the prices of these services have not fallen as much as may be expected with market liberalization. The cross-subsidy also "legitimizes" the high interconnection payments demanded by the incumbent since the fee is viewed as a reimbursement to a local

[129] This is from Chapter IV of Llanto, Abrenica and others (1997)
[130] Communications Division, NEDA Infrastructure Staff (2002) "Gaps and Issues and Challenges in the Communications Sector."
[131] This and succeeding paragraphs draw on Chapter IV of Llanto, Abrenica and others (1997).

exchange operator for the network development cost. Clearly, there is a need to explore other options of funding universal service. A better funding mechanism is one that does not impose price distortions and is not anathema to competition, such as a universal service fund that can be raised from levies to all carriers or from general taxation.

The recent merger of the largest cellular service provider, Smart, Inc. and the incumbent, PLDT, can only be expected to boost the dominance of the incumbent, and perhaps restrain the emergence of real competition. That such merger was not placed under legal scrutiny emphasizes the need for an anti-trust watchdog. It also underscores the absence of general safeguards for anti-competitive practices in the present regulatory system.

This weakness in the regulatory framework is also apparent in the worsening interconnection rows among carriers. A legal provision mandating non-discriminatory and seamless interconnection is vain without credible enforcement. The present policy provides for a contractual approach to interconnection, *i.e.,* allowing the carriers to work out the agreements. Because the information required to define the terms of interconnection is in the hands of the negotiating parties, the non-interventionist stance of the regulator seems appropriate. However, at this early stage when effective competition has yet to develop, the incumbent has a grossly advantageous bargaining leverage. Such situation requires greater intervention from the regulator -- at the minimum, setting clear guidelines that will govern the technical and commercial aspects of interconnection.

The scope of bargaining between interconnecting parties can be immensely reduced by making interconnection agreements publicly available. At present, these agreements are inaccessible except to the contracting parties. Transparency of interconnection agreements will prevent the incumbent from discriminating among its competitors. It will also equip the regulator with information that it needs to effectively arbitrate disputes regarding terms, conditions and rates for interconnection.

A recent study (Smith 1997) pointed out what could be the future for telecommunications regulation. Telecommunications is not the single product, telephone service that is commonly known. It is now a dynamic, multi-product, multi-operator industry. Technological developments are the main driver of the transformation of the sector and the market. Convergence is occurring not only between telecommunications, broadcasting, cable television and the Internet, but also within segments of the telecommunications market. For example, cellular mobile telephony is now a substitute for conventional local telephone service; the distinction between local and long-distance calling, or, with the introduction of global personal mobile satellite service, between domestic and international service is becoming less and less relevant; and paging and cellular telephony are now sometimes bundled as a single service delivered through the same handset.

These changes will change the way the sector will be regulated in the future. Smith (1997) observed that the regulatory agenda has shifted from minimizing the price of subscribing to local telephone service or maintaining cross subsidy to managing multiple issues related to competition, entry, pricing and cross-subsidies. The wireless revolution demands that regulators respond to the increased need to manage radio spectrum. This is a complex activity because it "involves allocating portions of the radio spectrum to different uses, assigning frequencies and authorizing transmission power levels to transmitters at specified

locations, maintaining standards to ensure that transmitters make optimum use of the radio spectrum, and implementing measures to control unauthorized use" (Smith 1997).

VIII. CONCLUDING REMARKS

There is no doubt that providing the hard infrastructure needed for growth, development and poverty alleviation goals is a difficult task. However, it is something that the country cannot afford not to have. A recent survey of 49 countries showed that the country has lagged behind other countries in competitiveness. The lack of efficient infrastructure is a significant reason for the poor showing of the country in that survey.

In the past twenty-five years there has been a slow but determined effort to create the needed infrastructure such as roads and bridges, airports, water and sanitation facilities, telecommunications and power. It was a struggle for a weak economy to provide the necessary infrastructure. The infrastructure expenditure to GDP ratio to GDP was about 2% to 3% at the most. The main reasons for the low ratio are the boom-and-bust cycle of growth of the economy and the failure of government to maintain fiscal balance.

The lack of sustained growth led to the inability to produce the surplus for investments in infrastructure. Thus, the country had to rely on foreign loans, mostly Official Development Assistance (ODA) and lately, private sector resources through Build-Operate-Transfer schemes to produce the needed infrastructure. Overdependence on loans creates a havoc on the government's budget because of huge interest payments. To satisfy creditors, debt service has been automatically appropriated leaving only a very thin margin in the national government budget for growth and equity expenditures. On the other hand, while private sector involvement may lead to better and more efficient infrastructure, the government has to review its policies and procedures for granting guarantees and performance undertakings given to private proponents.

The recurrent budget deficit of the national government identify risks covered in a small sample of contracts prevented a more aggressive provision of infrastructure. When a budget crunch comes about, the government cuts the budget for hard infrastructure because it was the easiest to cut. But this is akin to cutting one's feet and limbs that will help produce the sustenance for the body. The other large components of the budget are expenditures for personnel services and interest payments for government's own indebtedness, including those of the assumed liabilities from the defunct Central Bank of the Philippines, the

Development Bank of the Philippines and the Philippine National Bank. The assumed liabilities were all legacies of the Marcos regime. Because of the continuing dependence on foreign loans, interest payments continue to have a very large share of the budget.

The traditional approach to infrastructure development has been to rely on the government to finance, build, operate and maintain infrastructure. Because the enormity of this task would call for bigger amounts of fiscal resources and because implementation of those projects would dictate the need for efficiency, the Philippine government has shifted to a new role. Governments are not always the most efficient provider or operator of infrastructure facilities. It has realized that without private sector effort the task would be beyond the capability of the government to discharge. Thus, from being a direct provider of infrastructure, the government has taken as its primary task the creation of an enabling environment for private participation in infrastructure. The country's series of medium-term development plans has seen the evolution of this policy orientation, culminating in the passage of the Build-Operate-Transfer Act, as amended that forms as the basic legal framework of private participation in infrastructure. The government has seriously considered privatization as a key strategy to more efficient infrastructure. Right after the demise of the Marcos regime, Presidents Aquino and Ramos privatized a number of government-owned-and-controlled corporations, tried to minimize government involvement in the business sector and created a more competitive environment through economic and financial policy reforms.

A stable macroeconomic environment characterized by low inflation, low interest rates and a stable currency are necessary to encourage private investors to participate in the infrastructure sector. The current Arroyo administration tried to trim down the fiscal deficit which erupted during the latter part of Ramos term of office as the economy slowed down and remained during Estrada's watch. The fiscal deficit persisted despite the attempts of the Arroyo administration to contain it. The fiscal deficit to GNP ratio was 1.4% in 2000; 3.8% in 2001 and 3.1% in 2002. The Arroyo administration has reiterated its commitment to have a balanced budget by 2006 through a fiscal deficit reduction program notwithstanding the anemic performance of the revenue collection agencies[132].

Private sector participation is not without costs to the taxpayers. Past experience has taught the policy makers that private investors look for various credit enhancements such as government guarantees and subsidies, e.g., off-take arrangements in the power sector, for risk capital to be deployed. Perception of various risks that could undermine the infrastructure project's financial viability has been used to justify the provision of even comprehensive guarantees that provide cover not only from fundamental risks such as political and regulatory risk, foreign exchange risk, site availability risk and others but also market or commercial risk. Thus, the determined effort to bring in the private sector through solicited and unsolicited projects, joint venture and concession agreement has given rise to contingent liabilities. Those liabilities could pose a serious threat to fiscal stability if

[132] Congress is currently deliberating on proposed legislation to create a semi-autonomous revenue collection agency that will take the place of the Bureau of Internal Revenue. The Bureau of Customs always gives the slowing down of the economy and the trade liberalization as reasons for its weak collection performance. It seems that corruption and smuggling, among others, are equally strong reasons for the dismal collection performance of the revenue collection agencies.

not properly managed. In this regard, the paper has suggested a policy framework for managing guarantees and contingent liabilities.

The paper pointed out that the government has started to move away from the provision of comprehensive guarantees toward providing cover only "core guarantees." The principle followed is that the assignment of risk to the contracting parties, that is, government and private sector, respectively, should be based on the ability of the party concerned to address or absorb the specific risk.

To build the confidence of private investors in infrastructure, there is a need to maintain a stable macroeconomic environment and to continue with economic and financial reforms that will deepen the financial and capital markets. Infrastructure projects are vulnerable to currency and maturity risks, a source of uneasiness to the private investor. The maturity structure of bank liabilities cannot simply match the long-gestation of infrastructure projects, hence the need for the development of long-term peso debt finance. This will also take care of currency risks that arise because the infrastructure project generates revenues in pesos while the loan exposure is denominated in foreign currency.

Official development assistance is a vital source of financing. The country has had a bad record of low utilization of this resource. The main culprits are the weak fiscal position of the government and various project implementation factors. The government has to address these problems in order to take full advantage of the relatively cheap financing available from both bilateral and multilateral sources of financing. Because of the current focus on local infrastructure, there is a need to develop local governments' capacity to use ODA funds, tap private sector expertise and resources through instruments like bond flotation, and identify and manage local infrastructure projects.

Finally, the importance of an efficient and effective regulatory framework cannot be overemphasized. Liberalization and privatization of infrastructure does not necessarily imply economic efficiency. Incumbency advantages of an established firm can frustrate the competition from new players if it retains control of the bottleneck facility. Competition legislation can remedy or prevent uncompetitive corporate structures, monopolistic price setting or cartel behavior but efficient regulation to implement it is critical.

Efficient regulation is critical to promote competition, create an environment for greater private investments and ensure the availability of services to the public at fair prices. Market-oriented reforms have introduced a wider range of issues than the traditional problem of tariff or rate setting in the pre-reform period. Regulatory issues cover (a) industry structure (monopolistic, competitive); (b) conduct (e.g., pricing, determination of access rates, interconnection rules in telecommunications); and (c) performance (quality and compliance with obligations to uphold public welfare). This indicates the need for efficient and effective regulatory bodies and the rationalization of the infrastructure bureaucracy by separating policy, regulatory and implementation functions within each sector.

Regulatory bodies should be independent and accountable to avoid regulatory capture. All these point to the need to install a regulatory framework for the infrastructure sector that is clear, predictable and competitive. Such a regulatory framework will help minimize uncertainty and risks in the concerned sector and thus, the need for government guarantees

for certain risks. Clarity of procedures for bid and award and dealing with disputes and unforeseen events in an infrastructure sector is indispensable for the private participation in the infrastructure sector. Certainty about government's role in implementing commitments, e.g., tariff adjustment gives private investors a measure of comfort and finally, competitive process assures the private proponent that it will be able to charge tariffs that will enable the recovery of costs and generation of profits. This will also help minimize the demand for guarantee for market-related risks.

Regulatory design for each infrastructure sector is a complex and difficult task. Its accomplishment is not an overnight task but is the result of painstaking study, deliberation and public discussion. This certainly points the immediate need of the hour: research, policy analysis and identification of an efficient regulatory framework and institutional arrangement.

GML/8/13/02 Tokyo, Japan
Revised April 12, 2003, Makati

Annex A

Financing Experience of Local Corporations

(1) Power

First Philippine Holdings Corporation (FPHC) is the holding company of all power generation projects of Benpres Holdings Corporation (BHC) owned by the Lopez family. FPHC has investments in natural gas and diesel power plants, as well as in oil pipeline, transmission lines, engineering and construction. It also owns an industrial estate that sources all its power requirements from FPHC. All projects were funded through a mix of equity from FPHC stockholders and foreign business partners, offshore loans and private placements raised mainly in international capital markets. MERALCO and NAPOCOR buy the power produced by FPHC, hence mitigating market risks. FPHC also holds a 3.7% stake (worth about P20.6 billion) in the Manila Electric Rail and Light Company (MERALCO), which is the power distribution company of Benpres.

Manila Electric Rail and Light Company (MERALCO) is the 5th largest company in the Philippines. It is a member of the Benpres Group and serves as the largest contributor to the income stream of FPHC. It is publicly listed and thus, enjoys a wide ownership by some 85,000 stockholders. Meralco generates revenues from a customer base of 3.1 million in 1997 reflecting a 7% increase from the previous year. New business establishments, factories, additional households and electrification of rural communities contributed to the increase in the country's electricity requirements.

The Alcantara Group of Companies (AGC) is another family-owned holding company. AGC infrastructure projects have solely been in power generation. They have so far completed 3 diesel power plants in Iligan City ($58 million), Zamboanga ($110million) and General Santos ($60 million). All three are fully operational and enjoy a 100% "take or pay" arrangement with NAPOCOR.

(2) Telecommunications

BayanTel is the telecommunications company of the Benpres Group. It had a subscriber base of 244,442 in 1997. BayanTel's capital expenditures in 1998 were funded by a combination of equity, loans and internally generated cash. It issued U$ 130 million worth of convertible preferred shares and guaranteed the U$ 70 million syndicated loan facility of ICC Telecoms, a subsidiary of BayanTel. The US$70 million loan was arranged by Chase Manhattan Asia Ltd., and Bayerische Landesbank, which divided the loan into a U$ 40 million 10 year debt and a U$ 30 million 3 year revolving loan. Overall, BayanTel has incurred U$ 300 million in long term loans with maturities ranging from 7-10 years. It is able to pass on the foreign exchange risk to consumers through the Currency Exchange Rate Adjustment (CERA) clause provided in their contract with the NTC.

Globe Telecom is the digital cellular company of Ayala Corporation. Due to the high capital investment requirement of the company, it did not post positive earnings before taxes, depreciation and amortization until 1997 since it was launched in 1995. Net loss for the year was a P870 million due to expenses incurred in expanding the Globe Handyphone GSM network and the completion of a national transmission network. Despite this, its debt to equity ratio has remained to be a healthy 60:40. Moreover, total assets have increased by 64% in 1997 compared to the previous year, reaching P16.3 billion.

(3) Transport

First Philippine Infrastructure Development Corporation (FPIDC) is Benpres' holding company for toll road projects. Its main project at present is the North Luzon Expressway (NLE), incorporated as the Manila North Tollways Corp (MNTC). Benpres and First Philippine Holdings Corp (FPHC) own 60% while PNCC owns 20% and their French partner Transroutte S.A. owns 20% of the project. The NLE is a P16 Billion, 7-year infrastructure development project, which was forged after the success of the Subic-Tipo Road built by FPDIC in time for the APEC Conference in 1996. The MNTC has a 30-year BOT contract for a 171-km expressway under an amended toll operating agreement, which allows them to increase toll rates over time with no direct government guarantee. MNTC will rehabilitate, modernize and expand the NLE, extend it to Clark and Subic, as well as build the northern portion of C-5. The NLE will be funded mainly through a combination of equity from MNTC stockholders and debt composed of loans and convertible bonds. For phase 1 of the 3 phases for NLE development, about P7 billion will be raised from a consortium of foreign and local banks. So far, 7-8 local banks and 5 foreign banks have already been short-listed for financing purposes.

Ayala Land Incorporated (ALI) is a subsidiary of Ayala Corporation. The infrastructure projects of ALI have been mainly in rail. It is part of the consortium that won the bid for the Edsa-MRT, which is expected to be operational by November 1999. The government guaranteed fixed revenues of 15% to the consortium, which totally eliminated all market risks.[133] The government's decision to avoid giving market risk guarantee in the future has greatly affected the viability of ALI's prospective investments in regional transport,

[133] The government reviewed later its guarantee policy and decided to avoid giving guarantee to market risks.

particularly its unsolicited proposal to the Department of Transportation and Communication (DOTC) for the rehabilitation and management of the Philippine National Railways Southrail line. This is the Manila-Calabarzon Expressway or MCX Project, which has first pass approval under the Infrastructure Coordinating Council (ICC), but is still pending final approval by the proper government authorities. Financially, ALI has maintained a strong and solid balance sheet in 1997 with low debt to equity ratio of 0.33:1 as of year-end 1997. It also has minimal exposure to foreign currency-denominated loan with only U$23.5 million foreign borrowings.

(4) Water

Manila Water Company Incorporated (MWC), a member of Ayala Corporation, took over the eastern Metro Manila concession of the MWSS in August 1997. It is a 25-year concession agreement with government. MWC is a consortium led by Ayala Corporation in partnership with Bechtel Enterprises Inc., United Utilities Inc. and Mitsubishi Corporation. Funding for this project was a combination of equity from stockholders and foreign business partners, and loans mainly from abroad.

Maynilad Water Incorporated of Benpres Group operates the western half of the MWSS Metro Manila Concession Area. In the next 25 years, it will invest P180 billion for the expansion, rehabilitation and modernization of the 104-year old water distribution system. So far, the project has been funded solely by equity worth P1.5 billion from stockholders. In 1998, the company tapped the financial markets to raise U$ 350 million through a combination of debt and private placements, which will cover its capital requirements for the next 5 years. The company is a 60-40 partnership between Benpres and Suez Lyonnaise des Eaux of France, a world leader in the water industry. The project enjoys no direct government guarantees, but foreign exchange risks causing extraordinary price adjustments may be passed on to the consumers pending approval of a mechanism allowing such by the MWSS regulatory board.

The choice of modalities for financing an infrastructure project will depend to a large extent on the underlying nature of the undertaking itself. It is, therefore, necessary to examine the nature, structure, as well as trends in Philippine infrastructure projects first, to determine how best to finance them and to determine what structures are necessary or require further strengthening for further development.

References

Accelerating Growth Investment and Liberalization with Equity (AGILE). 2001. "Towards a Framework for Managing Contingent Liabilities of the Government of the Philippines." January. Unpublished report submitted to the Department of Finance.

AGILE. 2001. "Estimation of Contingent Liabilities, Risk, Exposure and Prudent Guarantee Provision for the Philippine Government." March. Unpublished report submitted to the Department of Finance.

Alonzo, Ruperto and San Pedro, Wilbert. 1996. "The Philippine Telecommunications Industry." *PIDS Development Research News. Vol XIV No. 4*. Makati: Philippine Institute for Development Studies.

Asian Development Bank. 2000. "TA 3235-PHI: Review of Cost Recovery Mechanisms for National Irrigation Systems Draft Final Report." Manila: ADB

Asian Development Bank. 2001. "Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Water Supply."

Asian Development Bank. 2002. "Key Indicators 2001: Growth and Change in Asia and the Pacific." Manila: ADB

Asian Development Bank. (undated). "National Strategy and Action Plan for the Water Supply and Sanitation Sector." Sanitation Sector Plan Case Studies and Models made in association with Brockman Tym International and Global Works International. Manila: ADB

Austria, Myrna. 2000. "The State of Competition and Market Structure of the Philippine Air Transport Industry." PASCN Discussion Paper No. 2000-12. Makati: Philippine Institute for Development Studies.

Austria, Myrna. 2002. "Philippine Domestic Shipping Industry: State of Competition and Market Structure." PASCN Discussion Paper No. 2002-04. Makati: Philippine Institute for Development Studies.

Azanza, Rodolfo. Undated. "Reforms in the BOT Policy Environment." Unpublished draft policy paper.

Barbara Richard and Thelma Triche. 1994. "Reducing Regulatory Barriers to Private-Sector Participation in Latin America's Water and Sanitation Services," World Bank Policy Research Working Paper 1322, July.

Basilio, Enrico. 2003. "Reforming the Port Sector," Business World, March 4, 2003.

Campos, Edgardo. 1998. "The Role of Governance," in Macaranas, Federico and Clavecilla (editors) Investment Infrastructure Asia. Makati City: Washington SyCip Policy Forum, Asian Institute of Management.,October 22-23.

Center for Research and Communication. (undated)."White Paper on Telecommunications Policy." Pasig City: Center for Research and Communication

Chew and Coughlin. 1998. (in llanto and abrenica)

Chua, Johnson. 1997. "A Review of Telecommunications Policy: Keeping the Lines Open." *Economic Policy Papers*. No.1. Psig City: Center for Research and Communication

Chua, Johnson. 1997. "Telecommunications and the Law: A call for Reason." *Economic Policy Papers*. No.3. Pasig City: Center for Research and Communication

David, Cristina. 1995. "Philippine Irrigation Development: Overview, Determinants, and Policy Issues." PIDS Discussion Paper

David, Cristina. 2000. "MWSS Privatization: Impacts on the Price of Water, the Poor, and the Environment." PIDS Discussion Paper, April

David, Wilfredo. 2000. "Constraints, Opportunities and Options in Irrigation Development." Professional Chair Paper presented at the PIDS-DA-BAR 4th Agricultural Policy Forum on Irrigation Issues, NEDA sa Makati: PIDS.

De la Cruz, Marcelo and Chua, Johnson. 1995. "The Public Telecommunications Policy Act of the Philippines: Shaping the Future of the Telecommunications Industry." *Economic Policy Papers*. No.6. Pasig City: Center for Research and Communication

De Ocampo, Roberto. 1998. "Managing Risk in Infrastructure Financing: Lessons from the Philippine Experience." In Macaranas, Federico and Clavecilla (editors) Investment Infrastructure Asia. Makati City: Washington SyCip Policy Forum, Asian Institute of Management. pp. 65-69

Department of Public Works and Highways. 2002. Unpublished Memorandum addressed for Ms. Linda Templo (Director III) from Ms. Rebecca T. Garsuta (Chief, Development Planning Division) regarding the Updating of Medium-Term Development Plan for Flood Control and Drainage. September 2002.

Department of Transportation and Communications. 2000. "An Infocomms Policy for the Information Economy." Consultative paper. December.

DeVera, Romeo. 2002. "Proposed Policy Framework and Monitoring System to Minimize Contingent Liability Exposure/Risks Associated with Government-Owned and/or – Controlled Corporations in the Philippines." June 21. unpublished report.

Fabella, Raul. 1997. Features of the Emerging World Economic Order: Implications for Growth Policy Options. U.P. School of Economics. Unpublished paper.

Fitzgerald, T. and others. 1997

Guasch, J. Luis and Pablo Spiller. 1999. Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story. Washington, D.C.: The World Bank.

Intal, Ponciano and Llanto, Gilberto M. 1998.

International Finance Corporation. 1996. Financing Private Infrastructure. Washington, D.C.: The World Bank and the International Finance Corporation. 128 pages.

International Finance Corporation. 1998. "Lessons of Experience: Financial Institutions." Washington, D.C.: International Finance Corporation.

International Institute for Management Development. 2001. "The World Competitiveness Yearbook 2001." Switzerland: International Institute for Management Development.

Japan International Cooperation Agency. 2001. "Study on Strengthening of NIA's Management Systems." October.

Joskow, Paul. 1998."Competition and Regulation Policy in Developing Countries," Annual World Bank Conference on Development Economics.

Laffont Jean-Jacques and Jean Tirole. 1993. A Theory of Incentives in Procurement and Regulation. Cambridge: The MIT Press. 705 pp.

Lamberte, Mario and Llanto,Gilberto M. 1995. Financial Sector Development in Asia: The Case of the Philippines in Shahid

Lavado, Rouselle. 2001. "Water Regulation in the Philippines." AIM W.Sycip Policy Center. No. 2, July.

Lewis and Mody . 1998.

Llanto, Gilberto .M. 2000. Fiscal Policy in the Emerging World Environment in Cayetano Paderanga, Jr. (editor). Coming to Grips with Globalization. Quezon City: Center for Integrative and Development Studies, University of the Philippines. pp. 127-154.

Llanto, Gilberto M. and Orbeta, Aniceto, Jr. 199_

Llanto, Gilberto M. and Soriano, Ma. Cecilia. 1997.

Llanto, Gilberto M, Abrenica, Ma. Joy and others. 2000

Mody, Ashok. 1996.

National Economic and Development Authority. 1997. "Philippine Infrastructure Program," presentation to the Philippine National Infrastructure Forum, Mandaluyong City, May 22-23.

National Economic and Development Authority. 2002. Report on the Outcome of the 10th Annual ODA Portfolio Review. Pasig City.

National Economic and Development Authority. 2002. Unpublished Aide Memoire regarding the Flood and Drainage Management Responsibility in the National Capital Region. September 19.

National Land Use Committee. 2000 "National Framework for Physical Planning 2001 – 2030." Draft publication

Medium-Term Philippine Development Plan 1999-2004.

OECD, Regulatory Reform, Privatisation and Competition Policy, Paris, 1992.

Paderanga, Cayetano, Jr. 2000. Dimensions of Globalization in Cayetano Paderanga, Jr. (editor). Coming to Grips with Globalization. Quezon City: Center for Integrative and Development Studies, University of the Philippines. pp. 1-21.

Ramos, Fidel. V. 1998. "Bringing Infrastructure Development to the Market" in Macaranas, Federico and Clavecilla (editors) Investment Infrastructure Asia. Makati City: Washington SyCip Policy Forum, Asian Institute of Management. 1998. pp. 65-69

Republic Act 7718. The Philippine BOT Law.

Roger, Neil. 1999. "Recent Trends in Private Participation in Infrastructure." Public Policy for the Private Sector. Note No. 198. September.

Serafica, Ramonette. 1998. "An Assessment of Infrastructure Policies," PIDS Discussion Paper, May.

Serafica, Ramonette. 2000. "Competition in Philippine Telecommunications: A Survey of the Critical Issues." PASCN Discussion Paper No. 2000-15. Philippine Institute for Development Studies. February.

Smith, Peter. 1997. "What the Transformation of Telecom Markets Means for Regulation." Public Policy for the Private Sector. Note No. 121.The World Bank. July.

Tabingo, 2002. "FOCUS: Cable Television Industry: Wanting in Laws and Rules." BusinessWorld. November 21.

Thobani, Mateen. 1995. "Tradable Property Rights to Water" Public Policy for the Private Sector. Note No. 34. The World Bank. February.

World Bank. 1994. "Philippines Urban Sewerage and Sanitation: National Strategy and Action Plan." Prepared by Camp Dresser & McKee International Inc. January.

World Bank. 2000. Philippines: Country Framework Report for Private Participation in Infrastructure. Draft for discussion. June 22.

World Bank. 2001. "Infrastructure Development in East Asia and Pacific: Toward a New Public-Private Partnership."