

Analysis of Fishing Ports in the Philippines

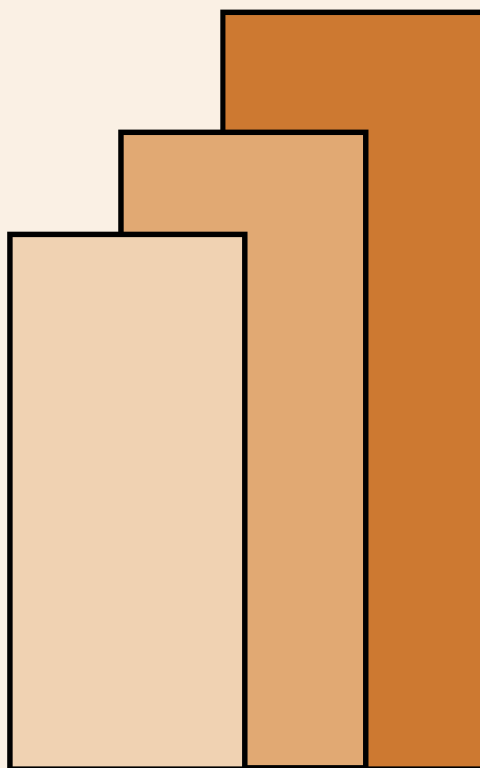
Danilo C. Israel and Ruchel Marie Grace R. Roque

DISCUSSION PAPER SERIES NO. 2000-04

The *PIDS Discussion Paper Series* constitutes studies that are preliminary and subject to further revisions. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements. The studies under the *Series* are unedited and unreviewed.

The views and opinions expressed are those of the author(s) and do not necessarily reflect those of the Institute.

Not for quotation without permission from the author(s) and the Institute.



January 2000

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

This paper investigated fishing port development in the Philippines in light of the perceived problems of port underutilization, marine resource depletion and other issues. It found that most of the existing regional ports were underutilized and the existing municipal ports were grossly inadequate to serve the coastal communities. The paper suggested specific measures to address these and other problems related to fishing port development.

Analysis of Fishing Ports in the Philippines

by

Danilo C. Israel
and
Ruchel Marie Grace R. Roque*

I. Introduction

The adequate provision of fishing ports and post-harvest facilities is critical to the full development of the Philippine fisheries sector. The widely dispersed fishing areas of the archipelago require strategically-sited landing points where catch can be immediately sold, stored, processed or shipped to markets. Furthermore, the highly perishable nature of fish necessitates the provision of enough facilities so that post-harvest losses, estimated at about 20 to 40 percent of total output, can be significantly reduced (Mendoza 1996).

Although fishing ports are highly needed, there are concerns about the construction of more of them in the country. Among these is the issue of underutilization of existing ports. Specifically, it has been argued that some regional fishing ports have significant excess capacity at present and the building of new ones may only exacerbate the problem (Davila 1996). Another important concern is marine resource depletion. It has been feared that putting up more fishing ports can encourage stock overfishing which is already going on at a very rapid and alarming rate (e.g. Israel and Banzon 1998).

* Ph.D. in Natural Resource Economics/Research fellow and former research assistant, respectively, of the Philippine Institute for Development Studies, NEDA sa Makati Bldg., 106 Amorsolo Street, Legaspi Village, Makati City.

While the above-mentioned concerns may be valid, the demand for additional fishing ports and post-harvest facilities remains today. For many coastal towns and regions which do not have ports, provision is viewed as indispensable to full economic development. Other than this, like other public infrastructure projects in the country, the acquisition of new ports is seen as a reflection of the political clout and ability of local and regional leaders to deliver to their constituents. It is no wonder that the interest in fishing port development has been intense not only in fishing communities but also among policy-makers and politicians.

II. Objective, Data and Organization

Few studies have looked into the development of fishing ports and post-harvest facilities in the Philippines. Furthermore, the available works have been cursory in nature (Mendoza 1996, Davila 1996). A detailed study which looks into fishing port development vis-à-vis its problems has yet to be conducted.

The objective of this paper is to investigate fishing port development in light of the perceived problems of port underutilization, marine resource depletion and related issues. This effort intends to contribute to existing knowledge about fishing ports and post-harvest facilities and suggest specific courses or actions which can be implemented for their future development.

The paper uses secondary data from the Philippine Fisheries Development Authority (PFDA), Bureau of Agricultural Statistics (BAS), National Statistics and Coordination Board (NSCB), Project Management Office (PMO) of the Department of Public Works and Highways (DPWH) and

other institutional sources. To augment the secondary information, primary data were also gathered from key informants from said institutions. In addition, a brief survey done through mailed questionnaire was conducted covering coastal municipalities with operating ports to generate data and information on municipal ports.

The paper is organized as follows. The next section reviews the administrative and legislative aspects of fishing ports. A profiling of ports in general and regional and municipal fishing ports in particular follows. This section is then succeeded by a the analysis of the different problems associated to fishing port development. The penultimate section presents suggestions for future port development while the last section provides the conclusions.

III. Laws and Institutions Governing Port Development

The coordinated thrust to develop fishing ports and post-harvest facilities in the country commenced in 1976 with the passing of Presidential Decree No. 977 (Table 1). This law created the Philippine Fish Marketing Authority (PFMA) which was tasked to address fish marketing problems due to inadequate fish marketing infrastructure, poor fish handling practices, chaotic system of distribution and limited post harvest processing technology. The agency was originally placed under the Ministry of Natural Resources (MNR).

In 1981, the PFMA was transferred to the National Food Authority (NFA) whose functions and powers encompassed all basic food commodities, including fish. Then, one year later, Executive Order No. 772 amended

Table 1. National fisheries postharvest agencies and related legislation in the Philippines, 1976-1998

Agency	Year	Relevant Legislation	Description
Philippine Fish Marketing Authority, Ministry of Natural Resources	1976	P.D. No. 977	created the Philippine Fish Marketing Authority
Philippine Fisheries Development Authority, Ministry of Natural Resources	1982	E.O. No. 772	amended Presidential Decree No. 977
Philippine Fisheries Development Authority, Department of Agriculture	1984 to present	E.O. No. 965	renamed the PFMA to PFDA and placed it under the jurisdiction of the DA

Note: PD means Presidential Decree and EO means Executive Order

Source: PFDA (1998)

P.D. No. 977 and moved the PFMA back to the MNR to implement the Integrated Fisheries Development Plan (IFDP). In 1984, the PFMA was renamed the Philippine Fisheries Development Authority (PFDA) through E.O. No. 965 and placed under the jurisdiction of the Department of Agriculture (DA). The PFDA, which remains to this day, has been mandated to strengthen the government's thrust in balancing production ventures with adequate post-harvest support facilities through the establishment and administration of fish ports, fish markets and other infrastructure. This specific role is first and foremost among the objectives of the agency (List 1).

The organizational structure of the PFDA is illustrated in Figure 1. The corporate powers are exercised by the Board of Directors which is composed of the Secretary of the DA as Chairman, Administrator of the NFA as Vice-Chairman, Secretaries of the DPWH, Department of Trade and Industry (DTI) and Department of Environment and Natural Resources (DENR) as members and two representatives from the fisheries private sector. The everyday affairs of the PFDA is managed by the General Manager who is supported by the Assistant General Manager.

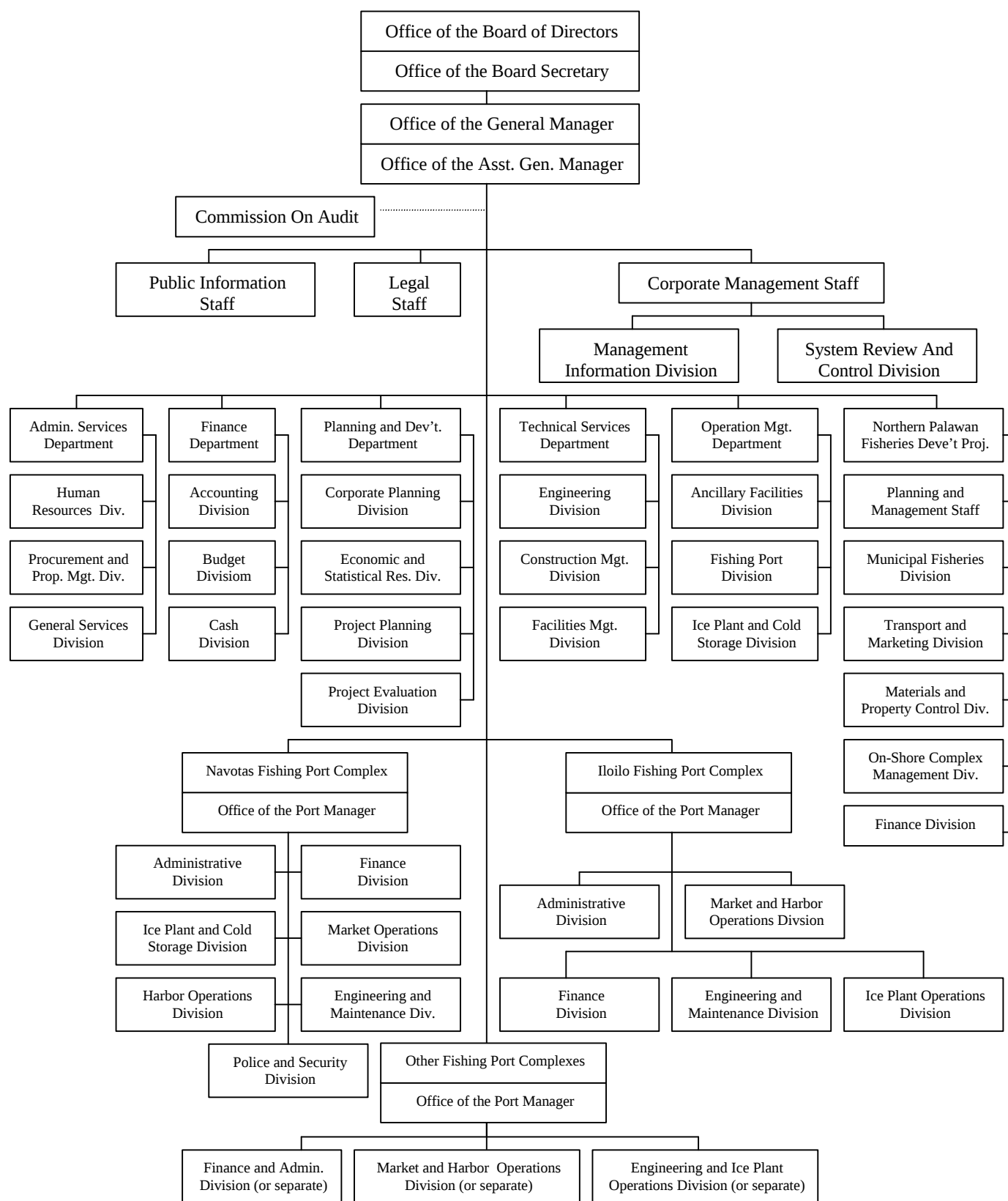
At present, the PFDA manages only the regional fishing ports although in the past, some municipal fishing ports were also run by its Operation Management Department under the Municipal Fishing Port Development Project. With the implementation of the Local Government Code (LGC), the control over all the municipal ports, including those which used to be managed by the PFDA, has been devolved to the Local Government Units (LGUs).

List 1. Objectives of the Philippine Fisheries Development Authority

- a. establish fish ports, markets, ice plants and cold storages, and other supportive facilities necessary for the efficient handling and distribution of fish and fishery products;
- b. provide essential fisheries-related post-harvest services that would improve the quality of fish products that could compete in the global market;
- c. encourage the development of new products and provide an environment that is conducive to the growth of private business enterprises;
- d. open avenues for additional employment opportunities as new fishery infrastructure and related industries are established;
- e. sustain promotional activities for exportation of traditional and non-traditional fishery products to traditional and non-traditional export markets; and
- f. help improve the income of small fishermen, fishfarmers and fishworkers through the provision of services and facilities which add to the value of their produce.

Source: PFDA (1998)

Figure 1. Philippine Fisheries Development Authority Organizational Chart



Source: PFDA

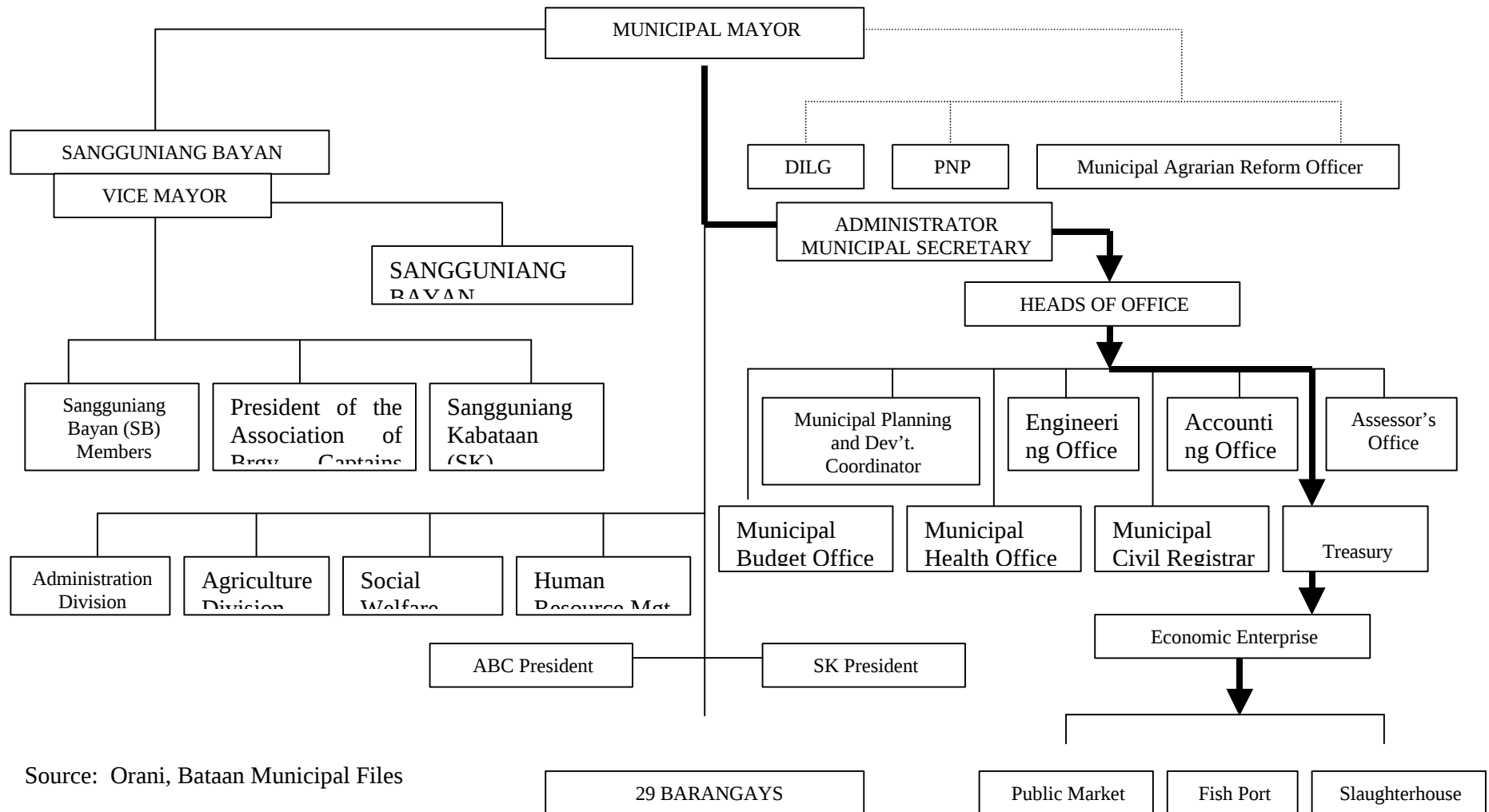
The management of a typical municipal fishing port can be explained by using the coastal municipality of Orani, Bataan, as example (Figure 2). The mayor of the town, through the municipal administrator and the municipal secretary, runs all public economic enterprises, including the fishing port. As in many other coastal municipalities, the Orani government hires a supervisor who actually runs the fishing port (Figure 3). This person manages a staff who are tasked to undertake different activities, including the checking and inspection of the unloading of fish, issuance of bills and receipts, collection of fees, gathering and compiling of fishery statistics and other important functions.

IV. Profile of Ports and Post-Harvest Facilities

4.1 All ports

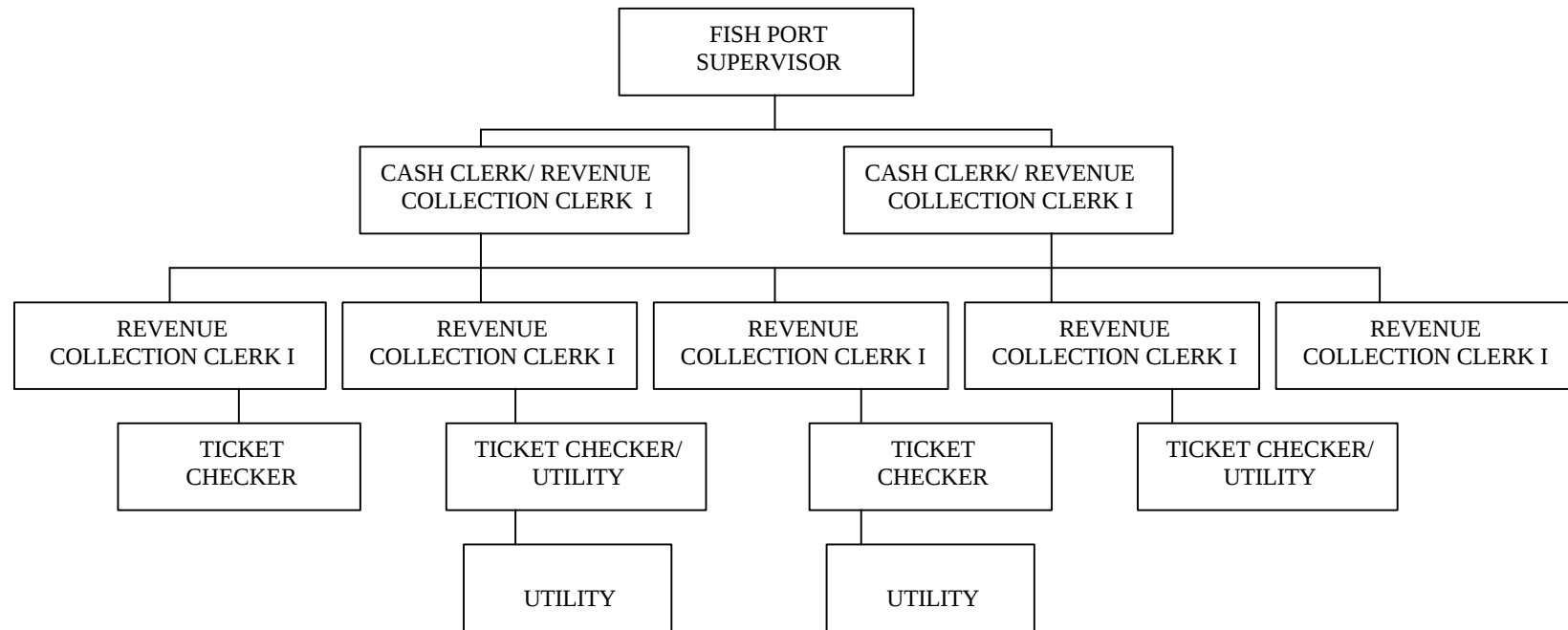
Ports in the Philippines are classified as fishing ports, feeder ports or commercial ports. Fishing ports, which are either municipal or regional, are those which primarily serve the fishing industry and function as the main collection and distribution center of fish. Feeder ports are ports constructed primarily to provide linkages among neighboring small islands and nearby urban centers and generally cater to small passenger and fishing vessels. Commercial ports are either private, which serve the needs of their owners, or public which are owned and operated by the government and cater to the general public and vessels with weight of more than 30 tons.

Figure 2. Organizational Chart of the Municipality of Orani, Bataan



Source: Orani, Bataan Municipal Files

Figure 3. Organizational Chart of the Fish Port Management of the Municipality of Orani, Bataan



Source: Orani, Bataan Municipal Files

As of 1997, there were a total of 1,494 ports in the country (Table 2). Of this number, 447 or 29.9 percent were fishing ports, 214 or 14.3 percent were feeder ports and 833 or 55.8 percent were commercial ports. Fishing ports, therefore, were only a small component of the total number of ports. Of the 833 commercial ports, 502 or 60.3 percent were private while 331 or 39.7 percent were public.

A majority of all ports, 1,403 or 93.9 percent, were operating while a minority, 91 or 6.1 percent, were not operating (Table 3). Regions IV, X, VII and VI had the most number of ports while Regions II, XII, I and the Autonomous Region of Muslim Mindanao (ARMM) had the least. Expectedly, more ports were in regions which have longer coastlines while less were in those which have shorter coastlines or were almost landlocked. Although the National Capital Region (NCR) has the largest regional population in the country, it was among those with less ports due to its very short Manila Bay coastline.

4.2 All fishing ports

Of the 447 fishing ports in the country in 1997, seven were regional ports and 440 were municipal ports (Table 4). All the regional ports and 405 or 92 percent of the municipal ports were operating. Regions IV, V, VI and VII had the most number of fishing ports while NCR and Regions XII, III, and XI had the least. As expected, the regions which have larger fishing sectors and populations had relatively more fishing ports. Although it had the least number of fishing ports of all the regions, the NCR has the largest regional fishing port in the country, the Navotas Fishing Port Complex located in the Municipality of Navotas.

Table 2. Inventory of ports in the Philippines, by region and type, 1997

Region	Total	Type				
		Fishing Ports	Feeder Ports	Commercial		Total
				Private	Public	
PHILIPPINES	1,494	447	214	502	331	833
NCR	71	3	0	64	4	68
Region I	43	18	6	8	11	19
Region II	33	19	6	4	4	8
Region III	52	12	3	27	10	37
Region IV	258	82	55	52	69	121
Region V	115	66	7	18	24	42
Region VI	149	47	11	67	24	91
Region VII	160	42	16	60	42	102
Region VIII	141	37	26	42	36	78
Region IX	76	23	4	21	28	49
Region X	202	53	56	52	41	93
Region XI	109	19	9	60	21	81
Region XII	38	10	0	21	7	28
ARMM	47	16	15	6	10	16

Note: The CARAGA region was still part of Region X in this classification.

Source: NSCB (1998)

Table 3. Inventory of ports in the Philippines, by region and status, 1997

Region	Total	Status			
		Operational	% to Total	Non-Operational	% to Total
PHILIPPINES	1,494	1,403	93.9	91	6.1
NCR	71	66	93.0	5	7.0
Region I	43	38	88.4	5	11.6
Region II	33	29	87.9	4	12.1
Region III	52	45	86.5	7	13.5
Region IV	258	240	93.0	18	7.0
Region V	115	105	91.3	10	8.7
Region VI	149	149	100.0	0	0.0
Region VII	160	146	91.3	14	8.8
Region VIII	141	131	92.9	10	7.1
Region IX	76	73	96.1	3	3.9
Region X	202	190	94.1	12	5.9
Region XI	109	108	99.1	1	0.9
Region XII	38	36	94.7	2	5.3
ARMM	47	47	100.0	0	0.0

Source: NSCB (1998)

Table 4. Distribution of fishing ports in the Philippines, by region and status, 1997

Region/Province	Total	Regional (all operational)	Municipal		
			Total	Operational	Non-Operational
PHILIPPINES	447	7	440	405	35
NCR	3	1	2	2	0
Region I	18	1	17	15	2
Region II	19		19	17	2
Region III	12		12	11	1
Region IV	82	1	81	75	6
Region V	66	1	65	60	5
Region VI	47	1	46	46	
Region VII	42		42	37	5
Region VIII	37		37	33	4
Region IX	23	1	22	21	1
Region X	21		21	16	5
Region XI	16	1	15	15	
Region XII	10		10	8	2
ARMM	16		16	16	
CARAGA	35		35	33	2

Source: NSCB (various years)

4.3 Regional fishing ports

In 1997, the seven existing regional ports were the Navotas Fishing Port Complex; Iloilo Fishing Port Complex in Barangay Tanza, Iloilo City, Iloilo in Region VI; Zamboanga Fishing Port Complex in Barangay Sangali, Zamboanga City in Region IX; Camaligan Fishing Port Complex in Barangay Dugcal, Camaligan, Camarines Sur in Region V; Lucena Fishing Port Complex in Barangay Dalahican, Lucena City in Region IV; Sual Fishing Port Complex in Barangay Poblacion, Sual, Pangasinan in Region I; and the Davao Fishing Port Complex in Barangay Daliao, Toril District, Davao City in Region XI. In 1998, another regional fishing port, the General Santos Fishing Port Complex in Barangay Tambler, General Santos City in Region XI started operating bringing to eight the current total number of regional fishing ports.

The Navotas Fishing Port Complex was the first regional fishing port built (Table 5). Its construction started in 1973 and was financed by a loan and technical assistance from the Asian Development Bank (ADB). The port was completed in 1976 and started operating a year after. After the Navotas port, other regional fishing ports were constructed using funds from the government and loans from the Overseas Economic Cooperation Fund (OECF). The construction of the Iloilo, Zamboanga, Camaligan, Lucena and Sual fishing ports under the Fishing Port Package I (FPP I) started in 1982. In the same year, construction of these fishing ports were suspended due to cost-cutting measures and revisions. The suspension was lifted soon after

Table 5. Year of construction, suspension, lifting of suspension, completion and operation of regional fishing ports in the Philippines

Fishing Ports Complex	Construction	Suspension	Lifting of Suspension	Completion	Operation
Navotas	1973	n.a.	n.a.	1976	1977
Iloilo	1982	1982	1982	1985	1985
Zamboanga	1982	1982	1982	1985	1986
Camaligan	1982	1982	1985	1990	1991
Lucena	1982	1982	1985	1991	1992
Sual	1982	1982	1985	1990	1992
Davao	1993	n.a.	n.a.	1994	1995
General Santos	1994	n.a.	n.a.	on-going	1998

Note: n.a. means not applicable

Sources: PMO Fishing Ports-DPWH, PFDA Files

for the Iloilo and Zamboanga ports and in 1985 for the Lucena, Camaligan, and Sual ports. The Iloilo port was completed and started operating in 1985. The other ports were completed in the years thereafter and all were in operation by 1992.

The regional fishing ports in Davao and General Santos were built under the Fishing Port Package II (FPP II). The construction of the Davao port started in 1993 and was completed in 1994. The port commenced operation the year after. The establishment of the General Santos port started in 1994 and is still continuing at present even as operations are ongoing.

Available data on the construction costs of the regional fishing ports are limited but they show that of those constructed under the FPP I, the most expensive are the Iloilo and Zamboanga ports while the least expensive are the Camaligan and Sual ports (Table 6). By area, the Navotas port is the largest, followed by the Iloilo, Zamboanga and General Santos ports. The smallest ports are the Camaligan, Sual and Davao ports. On a per hectare basis and irrespective of the years they were built, the costliest ports are the Camaligan, Davao and Sual ports while the least expensive are the Iloilo, Lucena and Zamboanga ports.

Available data for 1999 show that the Navotas port contributes the most to employment in terms of number of people employed, followed by the Iloilo and Zamboanga ports (Table 7). The Sual, Camaligan and Davao ports add the least to employment. This information indicates that in general, the regional ports contribute modestly to employment directly. Nevertheless,

Table 6. Construction costs of the regional fishing ports in the Philippines

Fishing Port Complex	Cost (P)	Area (Ha)	Cost/Ha (P)
Navotas Fishing Port Complex	n.d.	47.5	-
Iloilo Fishing Port Complex	597,945,898	21.0	28,473,614
Zamboanga Fishing Port Complex	477,245,668	12.5	38,179,653
Camaligan Fishing Port Complex	137,325,726	1.6	85,828,579
Lucena Fishing Port Complex	283,976,020	8.7	32,640,922
Sual Fishing Port Complex	219,340,989	3.2	68,544,059
Davao Fishing Port Complex	354,450,703	4.5	78,766,823
General Santos Fishing Port Complex	n.a.	11.0	-

Note: n.a. means not applicable (no final data yet)

n.d. means no data available

Source: DPWH PMO-Fishing Ports Completion Reports (various years)

Table 7. Direct employment in the regional fishing ports in the Philippines, 1999

Port Complex	Total Number of Employees	%
Navotas Fishing Port Complex	254	39.32
Iloilo Fishing Port Complex	88	13.62
Zamboanga Fishing Port Complex	84	13.00
Camaligan Fishing Port Complex	38	5.88
Lucena Fishing Port Complex	61	9.44
Sual Fishing Port Complex	21	3.25
Davao Fishing Port Complex	39	6.04
General Santos Fishing Port Complex	61	9.44
Total	646	100.00

Source: PFDA Files

their overall employment significance should be great because of the extensive backward and forward linkages which regional ports have with the rest of the local, regional and national economy.

4.4 Municipal fishing ports

Of the 405 operating municipal fishing ports in 1997, more were in Regions IV, V and VI and less were in the NCR and Regions XII, III and XI (Table 8). The provinces with the most number of operating municipal ports were Surigao del Norte, Quezon and Negros Occidental while those with the least were Batanes, Zambales, Aurora, Camiguin and Davao del Sur which only had one fishing port.

V. Problems in Fishing Port Development

5.1 Underutilization of existing regional fishing ports

A way of evaluating whether or not regional fishing ports are indeed underutilized is by comparing port usage projections, when the ports were still planned, and the actual usage, when they were already operating. If the ratio of actual usage to projected usage is less than one, then underutilization occurs. A ratio of one indicates full utilization while more than one implies overutilization.

Some data on the projected usage of most of the regional fishing ports were available although no projections can be had for the Navotas and General Santos ports (Table 9). Furthermore, the available projections were only for specific years. Of those with data, the Iloilo, Lucena and Davao

Table 8. Inventory of operating municipal fishing ports in the Philippines, by province, 1997

Region/Province	No. of Operating Fishing Ports	% of Provincial Total to National Total
PHILIPPINES	405	100.00
NCR	2	
Region I	15	
Ilocus Sur	2	0.49
La Union	3	0.74
Pangasinan	10	2.47
Region II	17	
Batanes	1	0.25
Cagayan	14	3.46
Isabela	2	0.49
Region III	11	
Bataan	8	1.98
Bulacan	2	0.49
Zambales	1	0.25
Region IV	75	
Batangas	9	2.22
Cavite	4	0.99
Marinduque	7	1.73
Mindoro Occidental	5	1.23
Mindoro Oriental	4	0.99
Palawan	9	2.22
Quezon	20	4.94
Romblon	3	0.74
Aurora	1	0.25
Rizal	7	1.73
Laguna	6	1.48
Region V	60	
Albay	16	3.95
Camarines Norte	9	2.22
Camarines Sur	12	2.96
Catanduanes	4	0.99
Masbate	11	2.72
Sorsogon	8	1.98

Table 8. Continued...

Region/Province	No. of Operating Fishing Ports	% of Provincial Total to National Total
Region VI	46	
Aklan	4	0.99
Capiz	3	0.74
Iloilo	13	3.21
Guimaras	6	1.48
Negros Occidental	20	4.94
Region VII	37	
Bohol	16	3.95
Cebu	17	4.20
Negros Oriental	2	0.49
Siquijor	2	0.49
Region VIII	33	
Leyte	7	1.73
Eastern Samar	5	1.23
Southern Leyte	3	0.74
Northern Samar	3	0.74
Western Samar	3	0.74
Samar	12	2.96
Region IX	21	
Zamboanga del Norte	3	0.74
Zamboanga del Sur	13	3.21
Basilan	5	1.23
Region X	16	
Misamis Oriental	9	2.22
Misamis Occidental	6	1.48
Camiguin	1	0.25
Region XI	15	
Davao del Sur	1	0.25
Davao del Norte	5	1.23
Davao Oriental	5	1.23
South Cotabato	2	0.49
Sarangani	2	0.49

Table 8. Continued...

Region/Province	No. of Operating Fishing Ports	% of Provincial Total to National Total
Region XII	8	
Marawi	4	0.99
Cotabato City	2	0.49
Sultan Kudarat	2	0.49
ARMM	16	
Maguindanao	5	1.23
Tawi-Tawi	3	0.74
Sulu	8	1.98
CARAGA	33	
Agusan del Norte	6	1.48
Agusan del Sur	2	0.49
Surigao del Norte	22	5.43
Surigao del Sur	3	0.74

Source: NSCB Files

Table 9. Projected port usage of regional fishing ports in the Philippines, 1983, 1990, 1995, 2000, 2005

Fishing Port Complex	Projected Port Usage (MT)				
	1983	1990	1995	2000	2005
Iloilo Fishing Port Complex	60,500	86,300	n.p.	89,300	n.p.
Zamboanga Fishing Port Complex	5,747	5,759	n.p.	5,775	n.p.
Camaligan Fishing Port Complex	8,946	11,150	n.p.	12,870	n.p.
Lucena Fishing Port Complex	29,417	33,158	n.p.	33,911	n.p.
Sual Fishing Port Complex	4,960	7,892	n.p.	9,347	n.p.
Davao Fishing Port Complex	n.p.	n.p.	15,250	19,550	22,200

Note: n.p. means projections were not available

Source: DPWH PMO-Fishing Ports Files

ports were planned to service the largest volumes of fish on an annual basis while the Zamboanga, Zual and Camaligan ports were projected to handle the least load.

For actual port usage, data on the volume of unloadings for all the regional fishing ports were available beginning 1989 and for the specific years they have been in operation (Table 10). The Navotas port had the largest reported annual unloading on average followed by the Iloilo and Zamboanga ports. The Sual, Camaligan and Davao ports had the smallest annual unloading.

The computed ratios of actual port unloading to the projected port usage are shown in Table 11. The years 1990 and 1995 were selected as time reference because projected usage and unloading figures for these years were either directly available or could be estimated. In particular, the 1995 data for projected usage for all the ports except the Davao port were computed as the average of the 1990 and 2000 projections since data for this year were not directly available.

The results show that overutilization occurred only in one port, the Zamboanga port, while underutilization happened in 5 regional ports. The underutilization was worst in the Sual, Davao and Camaligan ports. These results support the contention that there is excess capacity in most regional fishing ports. Furthermore, the findings suggest that ports which were the least utilized were those which were the most expensive to build per unit hectare as well (see also Table 6).

Table 10. Volume of unloadings in regional fishing ports in the Philippines (in MT), 1989-1998

Year/ Ports	Navotas	Iloilo	Zamboanga	Camaligan	Lucena	Sual	Davao	Gen. Santos
1989	225,319	14,851	6,548					
1990	237,456	18,690	6,596					
1991	266,108	21,966	11,356	542				
1992	261,952	25,906	12,967	3,336	9,276	199		
1993	260,327	27,172	14,186	2,681	13,511	558		
1994	262,966	24,473	17,203	2,208	11,865	586		
1995	309,439	24,944	19,972	2,528	11,163	431	1,716	
1996	264,457	24,624	23,911	2,220	11,830	788	2,692	
1997	235,881	26,415	16,660	13	14,933	984	1,982	
1998	239,243	26,409	16,085	0	13,919	740	5,312	12,541
Average	256,315	23,545	14,548	1,691	12,357	612	2,926	12,541

Source: PFDA Files

Table 11. Actual usage, projected usage and ratio of actual to projected usage in regional fishing ports in the Philippines, 1990 and 1995

Fishing Port Complex	1990			1995		
	Actual	Projected	Ratio	Actual	Projected	Ratio
Iloilo Fishing Port Complex	18,690	86,300	0.22	24,944	87,800 *	0.28
Zamboanga Fishing Port Complex	6,596	5,759	1.15	19,972	5,767 *	3.46
Camaligan Fishing Port Complex	n.o.	11,150	-	2,528	12,010 *	0.21
Lucena Fishing Port Complex	n.o.	33,158	-	11,163	33,535 *	0.33
Sual Fishing Port Complex	n.o.	7,892	-	431	8,620 *	0.05
Davao Fishing Port Complex	n.o.	n.o.	-	1,716	15,250	0.11

Notes: *Average of 1990 and 2000 projections

n.o. means not yet operating

Sources: Tables 9 and 10

One probable reason for the underutilization of regional fishing ports which comes to mind are limited post-harvest facilities. It is possible that the ports were underutilized because some of their programmed equipment were still not available in the first place. The data indicate that in general, the ports were not equipped with the same facilities (Table 12). The newer ports like the General Santos and Davao ports still did not have some of the important facilities like boat landings, ice storage, and freezers. Of the earlier ports, the Camaligan and Sual ports were the least equipped, particularly in freezers and fuel oil supply. Overall, however, the ports were generally well equipped according to plan, a fact which was confirmed by key informants at the PFDA. Hence, the underutilization in these ports could not have been due to limited post-harvest facilities

Another potential reason for the underutilization of the regional ports is declining fish catch. This problem is serious because if it is indeed true, certainly there will be less fish to land and process in the ports resulting to underutilization. Furthermore, when the volume of fish catch goes down at the regional level, there will be less economic rationale to build additional regional ports.

It is helpful to look into the type of catch landed into the regional ports by fisheries subsector to investigate the potential relationship between declining catch and port underutilization. In general, it can be assumed that the fish usually landed into regional ports come from the commercial fisheries. In addition to this, some harvest coming from aquaculture may find their way into regional ports. On the other hand, the catch from the municipal fisheries

Table 12. Major facilities of regional fishing ports in the Philippines, 1998

Facilities	Navotas	Iloilo	Zamboanga	Camaligan	Lucena	Sual	Davao	Gen. Santos
Port Facilities								
Breakwater	0	0	x	x	0	x	0	x
Reclamation	0	0	0	0	0	0	0	0
Com. Boat Landing	0	0	0	x	0	x	0	x
Mun. Boat Landing	x	0	0	x	0	0	x	x
Pier	0	x	0	0	0	0	x	x
Navigation Aid	0	0	0	0	0	0	0	0
Slipway	x	0	0	x	0	0	x	x
Building								
Shed	x	0	x	x	x	x	x	x
Wholesale Market	0	0	0	0	0	0	0	0
Admin. Office	0	0	0	0	0	x	0	x
Frabrication Shop	x	0	0	x	0	0	x	x
Refrigeration								
Ice Plant	0	0	0	0	0	0	0	0
Daily Ice Storage	x	0	0	x	0	0	x	x
Ice Storage	0	0	0	0	0	0	0	0
Contact Freezer	x	0	0	0	0	0	0	0
Air Blast Freezer	0	0	0	x	x	x	x	x
Brine Freezer	x	x	0	x	x	x	x	x
Cold Storage (-5C)	0	0	0	0	0	0	x	0
Cold Storage (-35C)	0	0	0	0	0	0	0	0
Utilities								
Fresh Water Supply	0	0	0	0	0	0	0	0
Seawater Supply	0	0	0	0	0	0	0	0
Drainage	0	0	0	0	0	0	0	0
Sewerage	0	0	0	0	0	0	0	0
Power Supply	0	0	0	0	0	0	0	0
Fuel Oil Supply	0	0	x	x	0	x	0	0
Waste Water Treatment Plant	0	0	x	x	0	x	0	0

Note: 0 means facility available

x means not available

Source: DOTC Report (1998)

are likely landed in the municipal ports and only a small and negligible portion ends up in the regional ports. Hence, the commercial and fisheries production are the relevant sources of fish landed in the regional fishing ports.

The annual volumes and growth rates of the production of commercial fisheries and aquaculture in the regions with regional fishing ports for the 1989-1998 period are shown in Tables 13 and 14. Region IX has the largest average annual catch and has a high annual growth rate for commercial fisheries production. It also has the largest annual total production with aquaculture included. This production performance may explain the overutilization of the Zamboanga port which is located in the region. Region I, on the other hand, has a very low average annual catch and a negative annual average growth rate for commercial fisheries. Furthermore, it has the lowest average annual output even with aquaculture production added. In a similar vein, this performance may explain the high level of underutilization of the Sual port which is in the region. While Region XI has a high average annual growth rate, its average total yearly output from both commercial fisheries and aquaculture is low and this may have caused the underutilization of the Davao port. Added to this, the presence of the General Santos port in the same region could have significantly aggravated the underutilization of the Davao port.

Overall, catch, in terms of volume and growth has a positive relationship to the utilization of the regional ports. This evidence supports the argument that declining production of commercial fisheries and aquaculture has resulted to low landings and consequently excess capacity in the regional ports.

Table 13. Annual commercial fisheries and aquaculture production of regions with regional ports in the Philippines (MT), 1989-1998

Region	Fishing Port	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
NCR	Navotas	203,046	215,637	241,211	228,243	242,685	252,778	284,749	243,936	211,585	221,541	234,541
Commercial	Fishing Port	195,814	208,494	234,256	223,489	233,699	243,432	276,888	239,004	207,337	216,461	227,887
Aquaculture	Complex	7,232	7,143	6,955	4,754	8,986	9,346	7,861	4,932	4,248	5,080	6,654
Region I	Sual	40,247	42,771	46,702	34,797	28,871	21,161	29,549	27,791	22,497	20,339	31,473
Commercial	Fishing Port	3,592	4,028	5,247	3,610	2,444	2,534	1,366	1,923	1,899	1,963	2,861
Aquaculture	Complex	36,655	38,743	41,455	31,187	26,427	18,627	28,183	25,868	20,598	18,376	28,612
Region IV	Lucena	124,535	112,118	139,640	153,620	178,896	257,179	245,367	319,349	319,636	332,871	218,321
Commercial	Fishing Port	61,330	46,510	68,806	68,228	80,215	99,821	99,979	103,456	109,723	118,526	85,659
Aquaculture	Complex	63,205	65,608	70,834	85,392	98,681	157,358	145,388	215,893	209,913	214,345	132,662
Region V	Camaligan	57,259	33,177	32,039	34,445	37,809	43,401	46,813	43,365	45,979	40,259	41,455
Commercial	Fishing Port	44,978	20,088	17,489	18,651	21,035	25,383	19,668	21,013	25,708	23,883	23,790
Aquaculture	Complex	12,281	13,089	14,550	15,794	16,774	18,018	27,145	22,352	20,271	16,376	17,665
Region VI	Iloilo	217,546	224,385	204,321	236,976	259,891	233,286	211,061	206,928	184,425	181,556	216,038
Commercial	Fishing Port	128,725	131,228	98,125	150,081	160,453	145,220	121,590	119,922	121,984	112,824	129,015
Aquaculture	Complex	88,821	93,157	106,196	86,895	99,438	88,066	89,471	87,006	62,441	68,732	87,022
Region IX	Zamboanga	342,106	382,279	386,696	468,623	172,741	206,215	270,530	279,805	285,932	305,304	310,023
Commercial	Fishing Port	82,514	99,373	107,723	143,109	138,490	134,833	170,154	173,382	183,775	188,289	142,164
Aquaculture	Complex	259,592	282,906	278,973	325,514	34,251	71,382	100,376	106,423	102,157	117,015	167,859
Region XI	Davao and	54,685	62,398	71,986	68,942	67,942	55,710	65,624	87,832	84,802	115,499	73,542
Commercial	Gen. Santos	45,148	52,141	60,542	51,446	44,503	37,604	47,343	68,589	68,272	99,999	57,559
Aquaculture	Fishing Port	9,537	10,257	11,444	17,496	23,439	18,106	18,281	19,243	16,530	15,500	15,983
	Complexes											

Note: 1998 figures are preliminary

Source: BAS (Various Years)

Table 14. Annual growth rates of commercial fisheries and aquaculture production of regions with regional ports in the Philippines, 1990-1998 (Percent)

Region	Fishing Port	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
NCR	Navotas	6.20	11.86	(5.38)	6.33	4.16	12.65	(14.33)	(13.26)	4.71	1.44
Commercial	Fishing Port	6.48	12.36	(4.60)	4.57	4.16	13.74	(13.68)	(13.25)	4.40	1.58
Aquaculture	Complex	(1.23)	(2.63)	(31.65)	89.02	4.01	(15.89)	(37.26)	(13.87)	19.59	1.12
Region I	Sual	6.27	9.19	(25.49)	(17.03)	(26.70)	39.64	(5.95)	(19.05)	(9.59)	(5.41)
Commercial	Fishing Port	12.14	30.26	(31.20)	(32.30)	3.68	(46.09)	40.78	(1.25)	3.37	(2.29)
Aquaculture	Complex	5.70	7.00	(24.77)	(15.26)	(29.52)	51.30	(8.21)	(20.37)	(10.79)	(4.99)
Region IV	Lucena	(9.97)	24.55	10.01	16.45	43.76	(4.59)	30.15	0.09	4.14	12.73
Commercial	Fishing Port	(24.16)	47.94	(0.84)	17.57	24.44	0.16	3.48	6.06	8.02	9.18
Aquaculture	Complex	3.80	7.97	20.55	15.56	59.46	(7.61)	48.49	(2.77)	2.11	16.40
Region V	Camaligan	(42.06)	(3.43)	7.51	9.77	14.79	7.86	(7.37)	6.03	(12.44)	(2.15)
Commercial	Fishing Port	(55.34)	(12.94)	6.64	12.78	20.67	(22.52)	6.84	22.34	(7.10)	(3.18)
Aquaculture	Complex	6.58	11.16	8.55	6.20	7.42	50.65	(17.66)	(9.31)	(19.21)	4.93
Region VI	Iloilo	3.14	(8.94)	15.98	9.67	(10.24)	(9.53)	(1.96)	(10.87)	(1.56)	(1.59)
Commercial	Fishing Port	1.94	(25.23)	52.95	6.91	(9.49)	(16.27)	(1.37)	1.72	(7.51)	0.41
Aquaculture	Complex	4.88	14.00	(18.17)	14.43	(11.44)	1.60	(2.76)	(28.23)	10.08	(1.74)
Region IX	Zamboanga	11.74	1.16	21.19	(63.14)	19.38	31.19	3.43	2.19	6.78	3.77
Commercial	Fishing Port	20.43	8.40	32.85	(3.23)	(2.64)	26.20	1.90	5.99	2.46	10.26
Aquaculture	Complex	8.98	(1.39)	16.68	(89.48)	108.41	40.62	6.02	(4.01)	14.54	11.15
Region XI	Davao and	14.10	15.37	(4.23)	(1.45)	(18.00)	17.80	33.84	(3.45)	36.20	10.02
Commercial	Gen. Santos	15.49	16.11	(15.02)	(13.50)	(15.50)	25.90	44.88	(0.46)	46.47	11.60
Aquaculture	Fishing Port Complexes	7.55	11.57	52.88	33.97	(22.75)	0.97	5.26	(14.10)	(6.23)	7.68

Note: 1998 figures are preliminary

Source of data: Table 13

In the literature, the problem of declining fish catch from marine fisheries is already well investigated and has been attributed to a significant extent to overfishing, particularly in traditional fishing areas closer to the coasts. Aside from Israel and Banzon (1998), other works show that the overexploitation of marine fisheries resources has already resulted to the significant and rapid decline in fisheries stocks and, in consequence, the productivity of the entire fisheries sector (e.g. Schatz 1991, Silvestre et al. 1986).

The poor catch of commercial fisheries is exacerbated by another limitation besides overfishing in traditional fishing areas. This is the inability of the local commercial fishing fleet to fish in far-flung, deep sea areas within the Exclusive Economic Zone (EEZ) which are under-fished by Filipinos but actively poached on by foreigners. The poor state of the local commercial fishing fleet was reviewed by Thomas (1998) who argued that not only was the fleet ill-equipped to cover farther areas, many of the boats were also not operating. As of 1997, for instance, between 10 to 50 percent of the commercial fishing boats were inactive, including those in regions where regional ports exist (Table 15). This displacement of many commercial boats and their inability to cover areas far out into the ocean contribute to the low output of commercial fisheries.

5.2 Inadequate number of municipal fishing ports and facilities

In addition to regional fishing port underutilization, another important issue in port development is the inadequate number of municipal fishing ports. In 1997, there were 815 coastal municipalities in the country (Table 16). Since there were 405 operating municipal fishing ports in that year, the

Table 15. Summary of fishing boat displacements in the Philippines, as of 1997

Area & Homeports	BFAR-Registered	Not Operating
Under Fishery Region I Principal Fish Landings: Lingayen, Damortis & some coastal towns	69	50%
Under Fishery Region II Principal Fish Port: Aparri	109	10%
Under Fishery Region III Fish Ports: Bataan, Masinloc, Iba	298	20%
Under Fishery Region IV Fish Ports: Cavite, Batangas, Quezon, Mindoro, Palawan	382	50%
Under Fishery Region V Fish Ports: Bicol Region, Masbate, Catanduanes	145	30%
Under Fishery Region VI Fish Ports: Iloilo, Capiz, Antique, Bacolod, Cadiz	759	35%
Under Fishery Region VII Fish Ports: Cebu, Bohol	116	n.a.
Under Fishery Region VIII Fish Ports: Leyte, Samar	260	n.a.
Under Fishery Region IX Fish Ports: Zamboanga, Basilan, Sulu	296	50%
Under Fishery Region X Fish Ports: Misamis, Surigao (Cagayan de Oro)	49	n.a.
Under Fishery Region XI Fish Ports: Davao, Gen. Santos	602	10%
Under Fishery Region XII Fish Ports: Zamboanga del Sur	3	n.a.
National Capital Region	842	50%
Totals		

Source: Thomas (1998)

Table 16. Operating municipal fishing ports to number of coastal municipalities ratio in the Philippines, by region, 1997

Region	Coastal Municipalities	No. of Operating Fishing Ports	Operating Ports : Coastal municipalities
PHILIPPINES	815	405	0.50
NCR	3	2	0.67
Region I	52	15	0.29
Region II	18	17	0.94
Region III	35	11	0.31
Region IV	110	75	0.68
Region V	83	60	0.72
Region VI	82	46	0.56
Region VII	102	37	0.36
Region VIII	110	33	0.30
Region IX	52	21	0.40
Region X	41	16	0.39
Region XI	38	15	0.39
Region XII	14	8	0.57
ARMM	30	16	0.53
CARAGA	45	33	0.73

Source: NSCB (various years) and BAS Files

national ratio of municipal ports to coastal municipalities was only 50 percent. Furthermore, given that a few municipalities have more than one port, actually more than half of coastal towns had no fishing port to service municipal fishing. If the number of fishing ports do not change over time, the problem worsens as new coastal municipalities are created due to the rising population.

It should be noted that many of the regions which had a relatively low port to municipality ratio were also those without a regional port, such as Regions III, VII, VIII and X. In contrast, many of those regions which had a regional port also had a relatively high ratio, such as Regions IV, V, VI, and IX. These figures suggest that, in general, the provision of both the regional and municipal fishing ports was biased in favor of certain regions at the expense of others.

The results of the brief survey of municipal fishing ports further show that a majority of the municipal fishing ports did not have the needed post-harvest facilities for the proper unloading, selling and processing of fish catch (Table 17). Although most ports had landing keys and market halls, there were a few which did not have these facilities which are supposed to be basic in a port. Many of the ports as well did not have warehouses and ice plants which are important in the proper storage and processing of fish. As a result, most of the fish landed in the ports were sold fresh and only a small portion was either frozen or processed (Table 18). The lack of ice plants is disappointing since a significant number of the municipal ports had electricity and freshwater provisions which are requisites for the operation of such post-harvest facilities (Tables 19 and 20).

Table 17. Inventory of facilities of operating municipal fishing ports in the Philippines, 1999

Facilities	With	Without	No data
Landing Key/Quay	19	4	2
Market Hall	22	3	0
Warehouse	7	18	0
Ice Plant	2	23	0
Access Road	17	4	4
Parking Area	17	7	1
Others	14	10	1

Note: Others include pump house, food stall, water supply system, electric system, Admin Bldg., canteen, public toilet and guard house

Source: PIDS Survey (1999)

Table 18. Mode of disposal of fish landed at municipal fishing ports in the Philippines, 1999

Distribution	% to Total Fish Landed
Sold Fresh	87.86
Frozen	6.90
Processed	5.24

Note: The percentages are averages of responses provided by 21 respondents

Source: PIDS Survey (1999)

Table 19. Number of operating municipal fishing ports with electricity in the Philippines, 1999

Response	Number	Percentage
With electricity	21	91.3
Without electricity	2	8.7
Total	23	100.0

Source: PIDS Survey (1999)

Table 20. Number of operating municipal fishing ports with fresh water supply in the Philippines, 1999

Response	Number	Percentage
With fresh water supply	20	83.3
Without fresh water supply	4	16.7
Total	24	100.0

Source: PIDS Survey (1999)

The limited post-harvest facilities in many municipal ports must have contributed to the level of post-harvest losses in the fisheries sector. Key informants reported that most losses actually do not involve the physical loss of caught fish. Significant losses happen when landed fresh fish are processed into low value products, such as dried fish, fish sauce and salted fish, simply because there are no facilities to store or process them to retain their original high value. In a significant way, therefore, post-harvest losses in the fisheries sector are more in the form of economic rather than physical losses.

5.3 Poor environmental management practices in fishing ports

Another problem in fishing port development is the inadequate level of environmental management both regional and municipal ports. In the case of regional ports, Table 12 earlier showed that all had drainage and sewage systems that can systematically handle the discharge of solid and liquid wastes produced as by-products of operations. This is a welcome sign that regional ports were designed to properly handle environmentally-related problems. A downside, however, is that only three of the regional ports had wastewater treatment plants which can process and clean used water before they were discharged into the natural marine environment. The rest had no provisions for cleaning wastewater which means that marine pollution and the subsequent problems its causes are environmental and health risks in the ports.

For the municipal ports, survey data indicate that proper environmental management has not been practice also. A substantial number of the ports had no sewage systems which can handle liquid wastes

adequately (Table 21). Furthermore, a majority had no environmental officer designated to undertake environmental management in the port. These poor environmental practices are critical since many of the ports are located in coves, rivers and bays where, due to hydrological and other physical conditions, water pollution from the ports are likely to have significant direct impact on the marine environment and the population living close by (Table 22).

VI. Recommendations

6.1 For regional fishing ports

Based on the foregoing discussions, the improvement of the utilization of existing regional ports should be an immediate objective in fishing port development. Increasing usage will help raise the earnings of the national government from the ports and make them more useful to the local, regional and national economy. The following recommendations are put forward to achieve this:

a. The underutilized facilities of existing regional ports must be considered by the PFDA for use in the processing of other agricultural products such as vegetables, livestock and poultry. Turning the ports into integrated fisheries-agriculture processing centers will improve their economic viability. At present, the PFDA is in fact contemplating on the possible lease of some of the underutilized facilities in regional ports to the private sector. When implemented, these leases should cover agricultural processing activities and be done on a short-term basis initially to accommodate a possible increase in fish landings over the medium or long-term.

Table 21. Number of operating municipal fishing ports with sewage system and environment officer in the Philippines, 1999

	With	Without
Sewage System	11	7
Environment officer	2	13

Source: PIDS Survey (1999)

Table 22. Location of operating municipal fishing ports in the Philippines, 1999

Location	No. of respondents
Cove, River or Bay	8
Open sea	7
Reclaimed area	9
Total	24

Source: PIDS Survey (1999)

b. The capability of the Zamboanga port to handle overutilization should be enhanced by investing in and building additional post-harvest facilities in it. This is necessary to reduce potential post-harvest losses due to over supply of fish in the port. Another option which can be considered is the transfer of movable post-harvest facilities from the underutilized ports to the Zamboanga port, assuming this is technically and economically possible. This transfer should be done only if it will not undermine the operation of the underutilized ports.

On the issue of whether or not new regional fishing ports should be built and where they will be located, a general rule has to be followed. *It is argued that new ports may be established in any region as long as the decision to do so is based on sound technical, financial, economic, environmental and other important considerations and not purely on political reasons.* Ports have to be income-generating enough to be able to at least meet amortization requirements particularly if funding comes not from grants but from foreign or domestic loans. Below are specific suggestions on the construction of new ports.

a. A major basis for the construction of new regional ports should be the levels of commercial and aquaculture production expected in the region. Secondary data on the production performance of regions without regional fishing ports from the BAS are provided in Tables 23 and 24. These and related information must be put to good use in making projections and site-related decisions for new ports. Of course, all eggs should not be placed in one basket as these secondary data are far from foolproof. What is simply

Table 23. Commercial fisheries and aquaculture production of regions without regional ports in the Philippines (MT), 1989-1998

Region	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
CAR	434	433	501	610	2,034	1,773	1,338	824	1,163	887	1,000
Commercial	0	0	0	0	0	0	0	0	0	0	0
Aquaculture	434	433	501	610	2,034	1,773	1,338	824	1,163	887	1,000
Region II	8,736	6,936	8,896	8,607	6,676	4,619	6,000	7,511	9,276	10,382	7,764
Commercial	6,142	4,022	5,570	5,536	3,914	2,659	4,164	5,643	6,920	8,413	5,298
Aquaculture	2,594	2,914	3,326	3,071	2,762	1,960	1,836	1,868	2,356	1,969	2,466
Region III	112,661	118,028	115,641	103,906	101,171	119,529	114,543	110,366	111,005	101,091	110,794
Commercial	9,717	10,321	8,270	6,031	5,573	9,228	8,159	8,291	9,432	10,383	8,541
Aquaculture	102,944	107,707	107,371	97,875	95,598	110,301	106,384	102,075	101,573	90,708	102,254
Region VII	60,445	97,039	135,332	109,342	151,712	129,267	85,721	99,390	103,108	94,233	106,559
Commercial	35,342	70,448	107,900	71,433	63,578	64,000	53,949	58,817	60,599	62,446	64,851
Aquaculture	25,103	26,591	27,432	37,909	88,134	65,267	31,772	40,573	42,509	31,787	41,708
Region VIII	27,065	50,065	51,445	55,212	45,414	43,945	32,957	32,845	33,560	33,032	40,554
Commercial	13,958	35,760	37,312	39,265	31,583	36,175	27,502	28,476	29,465	28,733	30,823
Aquaculture	13,107	14,305	14,133	15,947	13,831	7,770	5,455	4,369	4,095	4,299	9,731
Region X	10,014	7,441	8,843	10,945	9,858	18,752	23,719	19,981	21,167	21,740	15,246
Commercial	6,322	3,520	4,461	5,934	7,974	16,619	21,661	17,729	19,189	19,590	12,300
Aquaculture	3,692	3,921	4,382	5,011	1,884	2,133	2,058	2,252	1,978	2,150	2,946
Region XII	4,220	4,340	4,849	7,593	10,630	8,935	11,453	11,873	17,031	17,607	9,853
Commercial	72	-	-	3,767	6,870	4,843	4,916	4,483	9,506	9,637	4,409
Aquaculture	4,148	4,340	4,849	3,826	3,760	4,092	6,537	7,390	7,525	7,970	5,444
ARMM	2,625	9,743	2,854	9,897	293,067	324,844	375,480	360,811	383,500	367,833	213,065
Commercial	2,625	9,743	2,854	9,897	20,585	33,849	31,181	24,760	26,717	6,717	16,893
Aquaculture	n.d	n.d	n.d	n.d	272,482	290,995	344,299	336,051	356,783	361,116	326,954
CARAGA	859	4,888	1,260	4,389	8,579	7,017	8,118	7,295	7,375	7,840	5,762
Commercial	859	4,888	1,260	4,389	3,440	3,128	4,692	3,585	4,125	4,669	3,504
Aquaculture	n.d	n.d	n.d	n.d	5,139	3,889	3,426	3,710	3,250	3,171	3,764

Note: 1998 figures are preliminary

Source: BAS (Various Years)

Table 24. Growth rates of commercial fisheries and aquaculture production of regions without regional ports, 1990-1998 (Percent)

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
CAR	(0.23)	15.70	21.76	233.44	(12.83)	(24.53)	(38.42)	41.14	(23.73)	23.59
Aquaculture	(0.23)	15.70	21.76	233.44	(12.83)	(24.53)	(38.42)	41.14	(23.73)	23.59
Region II	(20.60)	28.26	(3.25)	(22.44)	(30.81)	29.90	25.18	23.50	11.92	4.63
Commercial	(34.52)	38.49	(0.61)	(29.30)	(32.06)	56.60	35.52	22.63	21.58	8.70
Aquaculture	12.34	14.14	(7.67)	(10.06)	(29.04)	(6.33)	1.74	26.12	(16.43)	(1.69)
Region III	4.76	(2.02)	(10.15)	(2.63)	18.15	(4.17)	(3.65)	0.58	(8.93)	(0.90)
Commercial	6.22	(19.87)	(27.07)	(7.59)	65.58	(11.58)	1.62	13.76	10.08	3.46
Aquaculture	4.63	(0.31)	(8.84)	(2.33)	15.38	(3.55)	(4.05)	(0.49)	(10.70)	(1.14)
Region VII	60.54	39.46	(19.20)	38.75	(14.79)	(33.69)	15.95	3.74	(8.61)	9.13
Commercial	99.33	53.16	(33.80)	(11.00)	0.66	(15.70)	9.02	3.03	3.05	11.97
Aquaculture	5.93	3.16	38.19	132.49	(25.95)	(51.32)	27.70	4.77	(25.22)	12.19
Region VIII	84.98	2.76	7.32	(17.75)	(3.23)	(25.00)	(0.34)	2.18	(1.57)	5.48
Commercial	156.20	4.34	5.23	(19.56)	14.54	(23.98)	3.54	3.47	(2.48)	15.70
Aquaculture	9.14	(1.20)	12.84	(13.27)	(43.82)	(29.79)	(19.91)	(6.27)	4.98	(9.70)
Region X	(25.69)	18.84	23.77	(9.93)	90.22	26.49	(15.76)	5.94	2.71	12.95
Commercial	(44.32)	26.73	33.02	34.38	108.41	30.34	(18.15)	8.24	2.09	20.08
Aquaculture	6.20	11.76	14.35	(62.40)	13.22	(3.52)	9.43	(12.17)	8.70	(1.60)
Region XII	2.84	11.73	56.59	40.00	(15.95)	28.18	3.67	43.44	3.38	19.32
Commercial	(100.00)	-	-	82.37	(29.51)	1.51	(8.81)	112.05	1.38	-
Aquaculture	4.63	11.73	(21.10)	(1.73)	8.83	59.75	13.05	1.83	5.91	9.21
ARMM	271.16	(70.71)	246.78	2,861.17	10.84	15.59	(3.91)	6.29	(4.09)	370.35
Commercial	271.16	(70.71)	246.78	107.99	64.44	(7.88)	(20.59)	7.90	(74.86)	58.25
Aquaculture	-	-	-	-	6.79	18.32	(2.40)	6.17	1.21	-
CARAGA	469.03	(74.22)	248.33	95.47	(18.21)	15.69	(10.14)	1.10	6.31	81.48
Commercial	469.03	(74.22)	248.33	(21.62)	(9.07)	50.00	(23.59)	15.06	13.19	74.12
Aquaculture	-	-	-	-	(24.32)	(11.91)	8.29	(12.40)	(2.43)	-

Note: 1998 figures are preliminary

Source of data: Table 23

proposed is that cross-section data from surveys and other data gathered by port proponents for making production projections should be counterchecked using the time-series data from the BAS and caution must be exercised in case large discrepancies exist. Decision-makers should be wary of fantastic growth rate projections of landings which cannot be supported by solid evidence but are likely used only to justify the construction of large and expensive ports.

b. Another important basis for choosing sites for new regional ports should be their potential for inter-regional usage. A regional port which is accessible to adjacent regions will have a higher usage than one which has a single region coverage.

c. The conversion or expansion of a municipal port into a regional port should be contemplated first before building an entirely new port. This option can potentially help reduce the costs of the construction of the new port and the transportation networks and other infrastructure necessary to make the port viable.

d. Building incrementally by constructing smaller regional ports at the start may be a better approach rather than directly building bigger ports and should be considered. This approach will help reduce the probability of underutilization due to errors in the estimates of port usage and allow more flexibility in construction..

e. The construction of new ports should be accompanied by the aggressive upgrading and improvement of the commercial fishing fleet. As the poor state of the fleet is a constraining factor to the full use of regional ports, it must be addressed hand simultaneously port development.

Incentives and credit assistance may be contemplated for commercial fishermen to upgrade their boats and gears so they can fish in the EEZ and other in far-flung areas. The Agriculture and Fisheries Modernization Act (AFMA) and the Philippine Fisheries Code are have important provisions for the development of the commercial fishing fleet of the country. It is now the duty of the pertinent national agencies to actually put these provisions into actions.

f. The Environmental Impact Statement (EIS) System should be forcefully applied in the building of new municipal ports. In particular, an Environmental Clearance Certificate (ECC) should be secured before new ports are built. It also goes without saying that the environmental management in the existing regional ports must be improved by conducting environmental impact assessment studies and putting up the environmental facilities needed for these ports.

g. The problem of overfishing in coastal waters must be a significant factor to consider in building new regional ports. Other things the same, ports should be built if they encourage commercial fishing in the EEZ waters and other distant areas. New ports should not be built if they will just exacerbate stock overfishing and the competition between the municipal and commercial fishermen for the rapidly dwindling coastal fisheries resources.

Currently, the PFDA is considering the construction of new regional fishing ports in different areas (Table 25). Without arguing on the merits of these choices, some questions are relevant for initial discussion. In terms of regional fairness and equity, why should a new regional port be put up in Cadiz City when Region VI has an underutilized port in Iloilo City? Will the

Table 25. Proposed regional ports under Fishing Port Package II, Phase II

Region	Province	Municipality/City
Region VI	Negros Oriental	Bayawan
Region VI	Negros Occidental	Cadiz City
Region VIII	Leyte	Tacloban City
CARAGA	Surigao del Norte	Surigao City

Source: PFDA Files

regional catch and growth rates in the CARAGA region, Region VII and Region VIII (see Tables 23 and 24) justify the building of new regional ports in Surigao City, Tacloban City and Bayawan? What are the potential impacts of these new ports on overfishing and the competition between the commercial and municipal fisheries in their regions?

6.2 For municipal fishing ports

Based on the earlier discussions on municipal fishing ports, a major concern in port development should be the upgrading of existing ports so they can contribute better to the growth of the communities they are in. For this effort, the following suggestions are put forward:

- a. Investment in more post-harvest facilities, especially in ice-plants, should be done in municipal ports. The AFMA and Fisheries Code have certain provisions related to the provision of additional post-harvest facilities in fisheries. The actual implementation of the provisions should make the private sector active partners in the development of municipal fishing ports, together with the national government and the LGUs.
- b. The LGUs must improve the environmental management of municipal ports. Necessary facilities, particularly wastewater treatment plants and solid waste disposal sites, must be put up and personnel hired to lessen the pollution that the ports cause. Proper environmental management is necessary to help prevent the ports from becoming the breeding areas of diseases and other problems.

Lat but not least, earlier discussions also point to the need to have new new municipal ports built, especially in localities where there are no existing ports yet. Below are the suggestions for this purpose:

- a. In terms of priority, the national government should support the construction of new ports in coastal towns where there are no ports yet. This should reduce the disparity between municipalities in the provision of municipal ports. Likewise, new ports should be constructed in regions with lower port to coastal municipality ratios. This will lower the disparity between regions.
- b. The level of municipal fisheries and total fisheries production must be an important factor in the decision to build a new port. Other things the same, localities with higher levels of production should be afforded priority compared to other towns.
- c. The inter-municipality use of a new fishing port should be another factor considered in the building of a new port. A port which can service more than one town should have priority over other ports.
- d. The provision of more municipal ports in provinces with very high fisheries production rates must be contemplated. The production performance of these provinces are shown in Tables 26 and 27. Municipalities in Palawan and Sulu, in particular, which are remote provinces which may have benefited less from help coming from the national government, deserve a special look in the decision to build more ports. Targeting these provinces for port development also augurs well with the peace and reconciliation drive of the government with muslim rebels and other separatists.

Table 26. Fisheries production (MT) of major producing provinces, 1987-1998

Region/Province	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
Palawan	68,594	69,196	74,025	74,905	79,030	68,884	100,222	159,856	171,984	241,913	232,236	231,298	131,012
Commercial	23,068	23,852	27,047	16,957	17,555	12,817	21,188	20,063	17,149	17,408	21,735	21,963	20,067
Marine Municipal	45,411	45,237	46,887	57,791	61,353	55,947	56,757	61,297	62,150	61,047	68,109	68,004	57,499
Freshwater Municipal	115	107	91	157	122	120	0	0	0	0	0	0	119
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	22,277	78,496	92,685	163,458	142,392	141,331	106,773
Sulu	21,751	19,019	19,325	21,778	15,566	24,977	201,791	208,968	221,507	206,967	212,761	192,402	113,901
Commercial	1,440	1,497	1,525	5,137	975	8,639	18,244	30,839	29,186	22,453	23,987	3,187	12,259
Marine Municipal	20,251	17,458	17,709	16,569	14,499	16,248	15,019	10,846	13,325	15,654	15,045	15,992	15,718
Freshwater Municipal	60	64	91	72	92	90	0	0	0	0	0	0	78
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	168,528	167,283	178,996	168,860	173,729	173,223	171,770
Tawi-Tawi	14,845	10,646	11,036	12,503	8,105	7,367	111,151	129,909	170,794	173,356	191,533	197,673	86,577
Commercial	640	666	678	4,206	937	0	0	0	0	0	0	0	1,425
Marine Municipal	14,174	9,947	10,323	8,257	7,121	7,321	7,284	6,862	6,041	7,156	10,198	11,380	8,839
Freshwater Municipal	31	33	35	40	47	46	0	0	0	0	0	0	39
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	103,867	123,047	164,753	166,200	181,335	186,293	154,249
Quezon	56,416	70,412	74,055	51,888	74,221	86,038	111,264	124,960	119,225	116,401	116,896	133,312	94,591
Commercial	18,043	18,391	20,999	14,459	29,814	46,131	48,647	64,497	68,378	69,031	70,065	78,076	45,544
Marine Mun	38,201	51,861	52,898	37,224	44,199	39,702	48,438	50,228	42,351	36,032	36,096	38,911	43,012
Freshwater Mun	172	160	158	205	208	205	67	354	771	758	540	102	308
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	14,112	9,881	7,725	10,580	10,195	16,223	11,453
Iloilo	95,051	111,557	109,749	126,787	89,561	152,237	161,408	145,607	135,636	130,734	124,563	122,783	125,473
Commercial	45,864	49,533	46,470	65,953	27,986	90,276	88,251	74,039	65,113	62,624	60,413	60,817	61,445
Marine Mun	48,505	61,274	62,499	60,039	60,682	61,082	54,909	55,848	53,305	51,497	51,256	50,407	55,942
Freshwater	682	750	780	795	893	879	73	138	70	66	41	16	432
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	18,175	15,582	17,148	16,547	12,853	11,543	15,308
Rizal	150,193	133,007	124,433	150,557	148,486	146,215	157,989	171,709	134,543	124,861	113,771	108,431	138,683
Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine Municipal	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater Municipal	150,193	133,007	124,433	150,557	148,486	146,215	131,431	133,776	114,471	108,222	93,363	86,285	126,703
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	26,558	37,933	20,072	16,639	20,408	22,146	23,959
Negros Occidental	126,972	110,973	121,699	121,658	153,411	134,997	193,108	193,522	163,529	142,332	124,705	106,099	141,084
Commercial	60,127	57,873	64,362	34,637	60,272	47,691	50,017	57,046	43,230	40,172	41,351	33,579	49,196
Marine Municipal	66,073	52,251	56,454	85,940	92,085	86,268	79,847	77,958	72,185	64,935	58,728	52,229	70,413
Freshwater Municipal	772	849	883	1,081	1,054	1,038	2,963	3,999	3,261	2,707	2,230	1,046	1,824
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	60,281	54,519	44,853	34,518	22,396	19,245	39,302

Table 26. Continued...

Region/Province	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
Zamboanga del Sur	120,133	94,716	101,085	160,398	158,584	212,664	124,229	97,741	89,903	86,964	100,021	98,820	120,438
Commercial	60,864	61,937	63,029	78,741	103,790	137,585	37,851	32,307	27,884	28,259	40,909	46,171	59,944
Marine Mun	58,302	31,756	37,001	80,306	53,279	73,586	70,496	43,850	42,252	38,975	41,307	36,325	50,620
Freshwater Mun	967	1,023	1,055	1,351	1,515	1,493	343	266	573	501	256	186	794
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	15,539	21,318	19,194	19,229	17,549	16,138	18,161
South Cotabato	45,390	49,459	52,451	42,485	63,255	51,206	57,461	36,854	47,406	70,450	65,287	93,962	56,306
Commercial	36,789	40,171	42,531	34,510	56,008	41,503	39,380	32,646	40,816	61,995	57,935	88,023	47,692
Marine Mun	8,294	9,013	9,644	7,768	6,973	9,433	10,697	907	2,065	3,576	3,607	3,305	6,274
Freshwater Mun	307	275	276	207	274	270	647	445	870	862	916	325	473
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	6,737	2,856	3,655	4,017	2,829	2,309	3,734
Cebu	34,783	30,106	36,293	58,379	101,191	70,737	95,522	84,997	72,608	83,770	89,740	83,581	70,142
Commercial	24,080	19,819	24,651	47,796	89,936	53,929	45,233	43,801	41,156	45,951	46,736	49,654	44,395
Marine Municipal	10,692	10,275	11,629	10,569	11,239	16,791	13,188	14,064	16,203	16,689	18,373	17,993	13,975
Freshwater Municipal	11	12	13	14	16	17	17	37	28	28	45	22	22
Aquaculture	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	37,084	27,095	15,221	21,102	24,586	15,912	23,500

Source: BAS Files

Table 27. Growth rates of fisheries production (MT) of major producing provinces without regional ports, 1987-1998

Province	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
Palawan	0.88	6.98	1.19	5.51	(12.84)	45.49	59.50	7.59	40.66	(4.00)	(0.40)	13.69
Commercial	3.40	13.40	(37.31)	3.53	(26.99)	65.31	(5.31)	(14.52)	1.51	24.86	1.05	2.63
Marine Municipal	(0.38)	3.65	23.26	6.16	(8.81)	1.45	8.00	1.39	(1.77)	11.57	(0.15)	4.03
Freshwater Municipal	(6.96)	(14.95)	72.53	(22.29)	(1.64)	(100.00)	0.00	0.00	0.00	-	-	(8.15)
Aquaculture	-	-	-	-	-	-	252.36	18.08	76.36	(12.89)	(0.75)	66.63
Sulu	(12.56)	1.61	12.69	(28.52)	60.46	707.91	3.56	6.00	(6.56)	2.80	(9.57)	67.07
Commercial	3.96	1.87	236.85	(81.02)	786.05	111.18	69.04	(5.36)	(23.07)	6.83	(86.71)	92.69
Marine Municipal	(13.79)	1.44	(6.44)	(12.49)	12.06	(7.56)	(27.78)	22.86	17.48	(3.89)	6.29	(1.08)
Freshwater Municipal	6.67	42.19	(20.88)	27.78	(2.17)	(100.00)	0.00	0.00	-	-	-	(5.80)
Aquaculture	-	-	-	-	-	-	(0.74)	7.00	(5.66)	2.88	(0.29)	0.64
Tawi-Tawi	(28.29)	3.66	13.29	(35.18)	(9.11)	1408.77	16.88	31.47	1.50	10.49	3.21	128.79
Commercial	4.06	1.80	520.35	(77.72)	(100.00)	0.00	0.00	0.00	0.00	0.00	0.00	31.68
Marine Municipal	(29.82)	3.78	(20.01)	(13.76)	2.81	(0.51)	(5.79)	(11.96)	18.46	42.51	11.59	(0.25)
Freshwater Municipal	6.45	6.06	14.29	17.50	(2.13)	(100.00)	0.00	0.00	-	-	-	(7.23)
Aquaculture	-	-	-	-	-	-	18.47	33.89	0.88	9.11	2.73	13.02
Quezon	24.81	5.17	(29.93)	43.04	15.92	29.32	12.31	(4.59)	(2.37)	0.43	14.04	9.83
Commercial	1.93	14.18	(31.14)	106.20	54.73	5.45	32.58	6.02	0.95	1.50	11.43	18.53
Marine Mun	35.76	2.00	(29.63)	18.74	(10.17)	22.00	3.70	(15.68)	(14.92)	0.18	7.80	1.80
Freshwater Mun	(6.98)	(1.25)	29.75	1.46	(1.44)	(67.32)	428.36	117.80	(1.69)	(28.76)	(81.11)	35.35
Aquaculture	-	-	-	-	-	-	(29.98)	(21.82)	36.96	(3.64)	59.13	8.13
Iloilo	17.37	(1.62)	15.52	(29.36)	69.98	6.02	(9.79)	(6.85)	(3.61)	(4.72)	(1.43)	4.68
Commercial	8.00	(6.18)	41.93	(57.57)	222.58	(2.24)	(16.10)	(12.06)	(3.82)	(3.53)	0.67	15.61
Marine Mun	26.33	2.00	(3.94)	1.07	0.66	(10.11)	1.71	(4.55)	(3.39)	(0.47)	(1.66)	0.70
Freshwater Mun	9.97	4.00	1.92	12.33	(1.57)	(91.70)	89.04	(49.28)	(5.71)	(37.88)	(60.98)	(11.80)
Aquaculture	-	-	-	-	-	-	(14.27)	10.05	(3.50)	(22.32)	(10.19)	(8.05)
Rizal	(11.44)	(6.45)	20.99	(1.38)	(1.53)	8.05	8.68	(21.64)	(7.20)	(8.88)	(4.69)	(2.32)
Commercial	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marine Municipal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freshwater Municipal	(11.44)	(6.45)	20.99	(1.38)	(1.53)	(10.11)	1.78	(14.43)	(5.46)	(13.73)	(7.58)	(4.48)
Aquaculture	-	-	-	-	-	-	42.83	(47.09)	(17.10)	22.65	8.52	1.96

Table 27. Continued...

Province	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average
Negros Occidental	(12.60)	9.67	(0.03)	26.10	(12.00)	43.05	0.21	(15.50)	(12.96)	(12.38)	(14.92)	(0.13)
Commercial	(3.75)	11.21	(46.18)	74.01	(20.87)	4.88	14.05	(24.22)	(7.07)	2.93	(18.80)	(1.26)
Marine Municipal	(20.92)	8.04	52.23	7.15	(6.32)	(7.44)	(2.37)	(7.41)	(10.04)	(9.56)	(11.07)	(0.70)
Freshwater Municipal	9.97	4.00	22.42	(2.50)	(1.52)	185.45	34.96	(18.45)	(16.99)	(17.62)	(53.09)	13.33
Aquaculture	-	-	-	-	-	-	(9.56)	(17.73)	(23.04)	(35.12)	(14.07)	(19.90)
Zamboanga del Sur	(21.16)	6.72	58.68	(1.13)	34.10	(41.58)	(21.32)	(8.02)	(3.27)	15.01	(1.20)	1.53
Commercial	1.76	1.76	24.93	31.81	32.56	(72.49)	(14.65)	(13.69)	1.34	44.76	12.86	4.63
Marine Mun	(45.53)	16.52	117.04	(33.66)	38.11	(4.20)	(37.80)	(3.64)	(7.76)	5.98	(12.06)	3.00
Freshwater Mun	5.79	3.13	28.06	12.14	(1.45)	(77.03)	(22.45)	115.41	(12.57)	(48.90)	(27.34)	(2.29)
Aquaculture	-	-	-	-	-	-	37.19	(9.96)	0.18	(8.74)	(8.04)	2.13
South Cotabato	8.96	6.05	(19.00)	48.89	(19.05)	12.22	(35.86)	28.63	48.61	(7.33)	43.92	10.55
Commercial	9.19	5.87	(18.86)	62.29	(25.90)	(5.12)	(17.10)	25.03	51.89	(6.55)	51.93	12.06
Marine Mun	8.67	7.00	(19.45)	(10.23)	35.28	13.40	(91.52)	127.67	73.17	0.87	(8.37)	12.41
Freshwater Mun	(10.42)	0.36	(25.00)	32.37	(1.46)	139.63	(31.22)	95.51	(0.92)	6.26	(64.52)	12.78
Aquaculture	-	-	-	-	-	-	(57.61)	27.98	9.90	(29.57)	(18.38)	(13.54)
Cebu	(13.45)	20.55	60.85	73.33	(30.10)	35.04	(11.02)	(14.58)	15.37	7.13	(6.86)	12.39
Commercial	(17.70)	24.38	93.89	88.17	(40.04)	(16.12)	(3.17)	(6.04)	11.65	1.71	6.24	13.00
Marine Municipal	(3.90)	13.18	(9.12)	6.34	49.40	(21.46)	6.64	15.21	3.00	10.09	(2.07)	6.12
Freshwater Municipal	9.09	8.33	7.69	14.29	6.25	0.00	117.65	(24.32)	0.00	60.71	(51.11)	13.51
Aquaculture	-	-	-	-	-	-	(26.94)	(43.82)	38.64	16.51	(35.28)	(10.18)

Source: BAS Files

e. As in the case of regional ports, The Environmental Impact Statement (EIS) System should be applied in the building of new municipal ports. An Environmental Clearance Certificate (ECC) should be required for new ports to be constructed.

VII. Conclusions

In retrospect, this paper looks into the issue of fishing port development and concludes that it is an effort that should be aggressively pursued by the government. Port development has strong forward and backward linkages to the coastal municipalities, regions and the national economy. Port development, however, should also be approached with caution since an arbitrary and indiscriminate form of development can be irretrievably costly to the entire nation. By way of proper planning and implementation, port development should help lower the significant post-harvest losses in fisheries and result to a better utilization of marine fisheries resources.

References

- Bureau of Agricultural Statistics (Various Years). Fisheries statistics of the Philippines.
- Davila, N, M. (1996). Strategic plan physical infrastructure for fisheries and aquaculture, pp. 90-5. In Main report of the second national fisheries workshop on policy planning and industry development. Bureau of Fisheries and Aquatic Development.
- Israel, D. C. and C. P. Banzon (1998). Overfishing in the Philippine marine fisheries sector. Economy and Environment Program for Southeast Asia. Research Report Series. 32 p.
- Mendoza, L. (1996). Strategic plan for fish post harvest, marketing and infrastructure, pp. 75-89. In Main report of the second national fisheries workshop on policy planning and industry development. Bureau of Fisheries and Aquatic Development.
- National Statistical Coordination Board (1998). Sea port count in the Philippines. Factsheet, November, 1998.
- Philippine Fisheries Development Authority (1998). Philippine Fisheries Development Authority. Primer. 9 p.
- Schatz, R. (1991). Economic rent study of the Philippine fisheries sector. Final Report.
- Silvestre, G., R. Regalado and D. Pauly (1986). Status of Philippine demersal stocks-inferences from underutilized catch rate data, pp. 47-96. In D. Pauly et al. (eds.). Resources, management and socio-economics of Philippine marine fisheries. Tech. Rep. Dep. Mar. Fish. 10: 217 p.
- Thomas, F. (1998). Advocacy paper on increasing competitiveness in the Philippine commercial fisheries industry. Paper presented at the Shangri-La's EDSA Plaza Hotel, Mandaluyong City. 26 p.