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PART II ANALYTICAL WORK

I. ECONOMIC AND INDUSTRIAL DEVELOPMENT

1. Characteristics of Economic Structure

1-1 General Outlook

GNP in 1977/78 was registered as US$4,510 million (at an exchange rate of US$1.00 for PRs 10.0) on the constant market price basis as of 1959/60, and the annual average economic growth rate was 5.1% for the last 6 years. The population of the same year was estimated at about 75.62 million, indicating the annual average rate of increase has been as high as 3% since 1972. Accordingly, GNP per capita is only US$59.7 on the said market price basis.

At a glance over an economic behavior for 6 years from 1972/73 to 1977/78, agriculture accounted for 34.4% of GNP on an average and employed 55% of national labour force. Main agricultural products consisted of wheat, rice, cotton and sugar canes. Speaking qualitatively as well as quantitatively, this country is still staying at the stage of mono-cultural economy.

Manufacturing industry occupied 14.7% of GNP on the annual average for these 6 years. Textile industry mainly processing cotton is the representative industry provided with mass-production facilities in this country and accounts for 27.3%, on an average, of all the production of manufacturing industry and 30.8% of the total export.

The above-mentioned general view of economic structure and numerical values thereof indicate that, generally speaking, this country is staying at a stage of unstable development of economy and industry handicapped by a heavy dependence upon the weather and other natural conditions which is characteristic of mono-cultural economy, and also by the backwardness in transportation and other distribution systems.

With regard to resources of energy and industrial raw materials,

both indispensable to modernization of economy and industry, the country is devoid of many mineral resources and is forced to import almost all of those from abroad. This handicap directly effects the chronic deficit in international payments. This chronic financial burden, in turn, invites lack of sufficient funds for introducing large-scale projects necessary for economic development. In reality, this country has to depend upon aids and cooperations from abroad for almost all the funds in need. The present state of the Inter Governmental Group for Pakistan is a proof of these circumstances in itself.

Formation of a social capital for education, insured medical service, transport and communication, housing, water supply and drainage,thermo-energy and others, is indeed the foundation for development of national economy. In this respect, there is still much to be done. Administrative and social systems and institutions for promotion of this social capital are not yet established to satisfy the needs in Pakistan.

For these reasons, in comparison of Pakistan with other South-Western countries of the same region, the share of large and middle-scale manufacturing industries in gross capital formation is about 5 - 10% higher than that of these countries, and also the ratio of the production of manufacturing industries to GNP is about 2.3 - 9.5% higher than that of the said countries. In view of this fact, this country is advanced to some extent in industrialization as compared with the said other countries.

1-2 Outlook by Industry

In regard to achievements of GDP based of "Constant Factors for 20 years from 1950 to 1970 before the separation of Bangladesh, the real growth rate on an annual average was registered as 4.8%. In separate consideration of the fore and aft halves, the said growth rate was 6.3%, during 1960s meaning a relatively remarkable acceleration compared with that of 1950s. In terms of the increase

of population in these two periods, the annual average growth rate in 1960s was 3.0% in contrast with 2.5% in 1950s, so that the real production per capita fluctuated up and down at the low level of US$50-55 throughout the whole periods. Compared with the achievements in other South-Western Asian nations where these populations grow at annual rates of 1.7 to 2.4% and their real productions per capita stay at US$53.5 - 59.5, the standard of living in this country is not high enough.

For 5 years (1972/73 - 1977/78) after the separation of Bangladesh, the real growth rate of GDP in the present Pakistan economic circles increased by 22%, or 4.1% on an annual average. In terms of the amount of production, US$3.23 billion as of 1969/70 (US$4.33 billion in current prices) increased to US$3.5 billion of 1973/74 (US$6.04 billion in current prices), and further to (US$4.27 billion of 1977/78, US$15.27 billion in current prices). However, the annual average growth rate of population in 1970s was as high as 3.0%, so that the production per capita in 1977/78 is merely US$59.7, indicating an increase of only 10.8% through the last 5 years with an annual average increase of 2.1%.

This tardy progress of such numerical values are nevertheless to be rated high to a certain extent in consideration of the adverse effects enumerated as follows:

(1) While agriculture was the mainstay of economic activities in Pakistan, the separation of Bangladesh caused negative effects on these economic activities.

(2) Confusions of policies, organizations and institutions were caused by the socialistic regime and its political measures represented by the nationalization of key industries.

(3) Disastrous floods and droughts created a failure of the crops of main agricultural products.

(4) In addition, in the latter half of 1973, the oil-shock triggared the world depression and soaring prices, giving a serious damage of the national economy of this country which makes it a rule to depend upon an import from abroad for almost all the energy resources and the industrial materials.

The average growth rate of GDP by industry over the last 5 years is shown in order of size: construction 10.8%, finance and insurance 7.4%, electricity and gas 6.9%, defense and administration 6.1%, service 5.7%, wholesale and retail business 4.8%, transportation and communication 4.4%, agriculture 2.6%, and manufacture 1.9%. Viewed from the categorical tendency of industries, the decreased share of agriculture from 35.5% to 32.2% was offset to some extent by the increase of the tertiary industry from 43.8% to 47.1%. But in regard to the secondary industry - an index of economic and industrial development -, its share of about 20% was not changed without any appreciable sign of growth.

As for international payments in the same period of last 5 years, the international trade import recorded 17.1% increase of an annual average, and the total import in 1977/78 is expected to have reached about US$2.8 billion. On the other hand, the export grew by 6.4% on an annual average, and the total export in 1977/78 is estimated at about US$1.3 billion. In the result, a simple cumulative deficit in trade balance in these 5 years reached about US$5.4 billion. However, in Current Transactions, remittances from imigrant workers in Middle-East oil producing countries are increasing - an annual amount of about US$1.2 billion in 1977/78 -, and are expected to improve more or less the unfavorable international balance. The deficit in this account in 1977/78 is estimated at about US$660 million.

For the last 5 years, agriculture accounted for about 35% of the total export on an annual average. In recent years, tractors and other agricultural machines together with chemical fertilizers have been introduced, and irrigation facilities arranged in place. In

addition, preferential treatments for purchasing prices of agricultural products are offered to the producers, so that every crop is steadily increasing. But agriculture in this country is still staying at the stage of entire labour intensiveness, being primarily dependent upon natural conditions, and its infrastructure is not satisfactorily developed. Accordingly, its annual growth rate has been fluctuating up and down between minus 2.1% and plus 4.5%.

In manufacture, the leading role is played by the light industry, processing the primary products such as cotton, sugar canes, vegetables, tobacco leaves and others, into textile, sugar, edible oil, tobacco and other products respectively.

Thus, the light industry in this country is heavily depending upon the amount of agricultural production, and thereby very unstable in its industrial structure. A large fluctuation of an annual average growth rate of this industry between minus 1.0% and plus 9.7% in these 5 years is enogh to illustrate the fact.

Furthermore, small and medium manufacturing industries, which act as sub-structures of industrial modernization and as a foundation for the national economic development, have not fully been fostered. Their production of added values in 1978 accounts for only 3.4% of GDP. This low output was caused by a heavy dependence on import for their industrial raw materials and also by scarce opportunities for small capitals to take part in this sector of industry.

However, in recent years, the development of large-scale industry using mineral as raw materials has been promoted by international aids. The large-scale projects in this field will, upon completion, give a strong impact on modernization of the industrial structure of this country without fail. At the same time, the development of KSEW (Karach Shipyard & Engineering Works), the only enterprise of heavy industry in this country, is expected

to contribute to modernization of industry and further, to the overall development of the national economy.

In regard to labour force, the age-structure of productive population is similar to that of national population of a pyramidal type. The productive population itself increased from about 18 million in 1972/73 to about 21 million in 1977/78, indicating an annual average growth rate of 3.0%.

However, out of the above 21 million in total, young workers (10 - 19 years old) count 4.5 million, so that unskilled workers always occupy a considerable weight. The trouble is, skilled workers prefer to flow into Middle-East region, pursuing higher income in this area, rather than stay in home labour market. This unfavorable environment of the labour market has not been improved yet.

1-3 The Fifth Five Year Plan

The Fifth Five Year Plan drawn up in June, 1978 is a middle-range economic plan for 1978/79 - 1982/83.

The objects of this plan are to eliminate various defects produced in the course of the past economic development, to modernize economic and social structures by raising productivity of agriculture and industry in good harmony with each other toward steady development of these sectors, and whereby to expand employment to heighten the standard of living of the nation.

For attainment of such objects, the study set up the following macro-ecomonic targets:

Sector		Annual Average Growth Rate
1. Agriculture		6.0%
(1) Main Crops	7.0%	
(2) General Crops	6.8%	
(3) The Others	3.7%	

Sector			Annual Average Growth Rate
2. Manufacture			10.0%
	(1) Large-scale	12.0%	
	(2) Small-scale	3.0%	
3. Construction			8.4%
4. Trade, Transportation			7.7%
5. The Other			4.9%
6. GDP			7.0%
7. Population			3.0 ∿ 2.5%

2. Analysis and Forecast of Development

2-1 Premise and Postulate

It goes without saying that it is very difficult to analyze and to forecast the future development of Pakistan economy on the basis of the above-mentioned observations and the plan drawn up by Pakistan authorities concerned. However, according to the fundamental numerical values in "Pakistan Economic Survey 1977/78", "Statistic Year Book 1977", "The Fifth Five Year Plan (1978-1983)" and "Statistic Division, Port and Shipping Wing, Ministry of Communications", and in reference to the main fundamental economic indices for 8 years from 1969/70 to 1976/77, it would be possible to draw out a calculation of transformation parameters by means of correlation and regression analyses.

Accommodating these results to System Dynamics Model, we tried to carry out three sets of simulation. A flow chart for the fundamental causal sequence is shown in Chart 1-7.

The simulations drew out calculations for 31 years (1976 - 2006) in a long-term forecast, the results of which are offered in Tables I-1-1 to I-5. Main points of the outcome of the above simulations are summarized later.

In this case, Simulation-1 corresponds to the lowest growth rate of the expected GDP, while Simulation-3 stands approximately for the rate set up in the Fifth Five Year Plan and Simulation-2, the inter-mediate between the above two.

2-2 Results of Simulation-1

GDP in 1983 will amount to US$5,260 million, and its average growth rate since 1978 is 3.4% per annum.

In this case, as the trend forecast shows, the agricultural prpduc-tion will hardly increase (US$1,450 million in 1983), and the growth rate of industrial production is only 3.6% on an annual average (1978 - 1983). Only in the tertiary industry, its growth rate reaches 5.4%.

On the other hand, the labour force increases in paralled with the national population growth, and the spreading of unemployment will unavoidably follow.

Meanwhile, the rate of increase of the consumer prices tends to rather go down, and the amount of currency in circulation will not appreciably increase.

Summarizing the results of Sumulation-1, the aids from abroad as an external incentive factor will be kept low-toned, and the growth of local consumption as an internal factor will not be active enough either, at the low rate of 3.7%, exhibiting a case pattern of inactivity in both elements of the national economy.

2-3 Results of Simulation-2

In 1983, GDP will reach US$5,600 million and its annual average growth rate for 1978 - 1983 is estimated at 4.6%. The economic activity is assumed to become animated to some degree in this year. In the same period, annual average growth rates will be 1.2% for agriculture, 5.8% for manufacture and 6.3% for the ter-tiary industry, indicating a sign of industrial development is

gradually sprouting in its trend.

The consumer prices will go up by 8 - 9% on an annual average in these five years, but the currency in circulation will not increase so much. Meanwhile, investments will grow up by 5.5% on an annual average, and the local consumption will increase by 5.1%, also - a case pattern suggesting a potentiality of much more development in the course of the next Five Year Plan which is following.

2-4 Results of Simulation-3

In 1983, GDP is going to draw near to US$6,000 million and its average growth rate for these five years will reach 5.9%. Thus, agricultural production begins to proceed on its path in this year, and the annual average growth rate of added values of industrial production required by the national economy will reach 8.1%, outdoing that of the tertiary industry. This fact shows that the typical trend of modernized structure of economy begins to prevail in this country.

Productivity per capita will reach 3.4% in an annual average growth rate, and the consumer prices will go up by 9.4 - 10.4%. The currency in circulation is expected to increase by 5 - 8% during the period of the next Five Year Plan. Investments will be encouraged and the annual average growth rate is assumed to be 8.7% in these five years, and the local consumption will increase by 6.4% on an annual average, too.

2-5 Conclusion of Analysis

Various conditions necessary for achievement of the objects of the Fifth Five Year Plan, namely, the annual average growth rate of GDP of 7.0% (GNP of 7.2%) were put in the Simulation-3. Notwithstanding this, System Dynamics Model indicated only 5.9% of annual average growth rate of GDP in the period of the Fifth Five Year Plan. In a longer span of time, however, the growth

rate of more than 9% could be expected. So long as the outcomes of the above three simulations are concerned, any significant development cannot be expected in the Simulation-1, but in both the Simulations-2 and -3, the achivement of large-scale projects involved will effect an impact on economic development, and is expected to exert a substantial drive on development of economy in and after the next plan. In the Simulation-3, the growth rate of industrial production outran that of the tertiary industry as mentioned before. Taking account of the present economic structure of this country, however, this assumption and others in the Simulation-3 seem to contain many elements more or less too much optimistic, and from this point of view, the study leads to the conclusion that in light of its propriety and soundness among others, the Simulation-2 is the most realistic one.

3. Correlation with Trade

3-1 Premise and Postulate

Starting from the aforesaid analysis of economic and industrial development, the study turned to work a quantitative analysis and a forecast of trade - the starting point of the main subject of this survey. This work was conducted for the period of the Fifth Five Year Plan and for the subsequent years up to 2006, covering 31 whole years. The amount of trade is expressed in metric ton. The outcomes of the three cases of simulation studied in correlation with the analysis and the forecast of economic development mentioned in the foregoing paragraphs, are shown in Table I-1-1 to I-5.

Forecasting was conducted in the same way as in the case of macro-economy. In other words, the data in "Port and Shipping Wing, Ministry of Communications", "Pakistan Economic Survey 1977/78" and others were mainly used, and the System Dynamics Model, by which real achievement values for eight years (1969/70 - 1976/77)

were put in a macro-economic forecast system, was relied upon likewise.

The quantitative correlation between trade and macro-economy coming out of our simulations is summarized hereunder.

3-2 Results of Simulation-1

In case that the annual average growth rate of GDP is 3.4% during the period of the Fifth Five Year Plan, amount of Trade in 1978 will register 12.22 million metric ton (MT), and 15.5 million MT in 1983, with an annual average growth rate of 4.9%. The same growth rate for general cargo is estimated at 3.6% and for liquid and dry bulk cargo, at 5.3%.

The growth rate varies according to trade regions: 4.0% for the Americas, 4.5% for Europe, 5.0% for Asia-Oceania, and 6.0% for Middle-East and Africa.

3-3 Results of Simulation-2

During the same period, if the annual average growth rate of GDP registers 4.6%, the volume of trade in 1983 will reach 16.8 million MT, with an annual average growth rate of 6.5%. Similarly to the foregoing, general cargo and liquid/dry bulk cargo increase at annual average rates of 4.4% and 7.1% respectively.

The growth rate by region is: 5.5% for the Americas, 6.0% for Europe, 6.6% for Asia-Oceania and 7.7% for Middle-East and Africa.

3-4 Results of Simulation-3

In case that the annual average growth rate of GDP reaches 5.9%, the volume of trade in 1983 is estimated at 18.23 million MT. Viewed from the type of cargo, general cargo increases by 5.3% at an annual average rate, and liquid and dry bulk cargo, by 8.9%.

The growth rate by region is: 7.1% for the Americas, 7.7% for Europe, 8.2% for Asia-Oceania and 9.4% for Middle-East and Africa.

3-5 Conclusion

In the synthesis of the above-mentioned simulation results, correlative coefficients between the growth rate of trade expressed in MT and the real growth rate of GDP in the period of the Fifth Five Year Plan are shown as follows:

Case	Growth Rate Ratio of Trade Volume to GDP	Growth Rate Ratio of General Cargo Volume to GDP
Simulation-1	1.43	1.056
Simulation-2	1.39	0.955
Simulation-3	1.36	0.892

Based on the target value of the Fifth Five Year Plan, that is to say, 7.0% as the real growth rate of GDP on an annual average, the total volume of trade in 1983 must amount to 19 million MT. As mentioned in the paragraphs 2 - 5, the Simulation-3, in which various factors necessary for achievement of this object were put in, indicates the annual growth rate of GDP as 5.9%, and the total trade volume as 18.23 million MT in 1983 against the planned object of 19 million MT. In view of the present trade structure subject to natural conditions, this result seems rather too much optimistic.

Concerning the economic development at present, if Pakistan wants to keep on the real growth rate of GDP at 4.1 - 5.2% level on an annual average, which is a popular percentage among other South-West Asian countries (excluding Bangladesh), at least 4.6% of real growth rate of GDP on an annual average is required as shown in the Simulation-2, and in this case the volume of trade in 1983 will register 16.8 million MT.

Compared with 12.28 million MT of trade in 1978, this figure indicates the increase of trade by 36.8% during the five years.

II. SEA-BORNE CARGO MOVEMENT

1 Total Cargo Movements

The relationship between the macro-economy and the trade volume has been made clear in the previous Chapter I-3, the simulations in economic developments. The study would like to make, in this Chapter, the forecast of cargo movements and the trade share of Pakistani vessel's in five years to come, on the basis of the achievements of the cargo movements in the past, standing on the actual shipping business and also, comparing the study with the outcome of the above-mentioned economical simulations. In order to forecast the future trend of the total cargo movements on the basis of the past achievements "bird's-eye view" should be applied, taking into consideration of as long term as possible.

The cargo movements of exports and imports in the past 30 years are shown in Chart II-1, where are clarified the following 3 points that (1) the total cargo movements have been steered mainly by importations, that (2) several evident ruggednesses have been indicated and that (3) the volume of cargoes has been increased by about 3.3 times during the past 30 years. Out of the above 3 points, as Factors (1) and (3) are self-explanatory with this Chart, the Factor (2) should hereby be analyzed.

When the average growth rates per annum were taken up with the intervals of 10 years, the growth rates of total cargo movements would be 2% in an average in the first decade, 7.5% in the second and 3% in the third and the last one, while the rates considered in the duration of the last 20 years, the average rate came to 5% and of all 30 years, 4%. As the low growth rate in the first decade could be taken as the one in the period for normalization after the national independence,

the above average growth rate of about 5% in the last two decades should be considered as the minimum necessary rate on the long term aspect which should be maintained at least for a time to come.

The development figures of the economy which was clarified in the previous Chapter I has been achieved with the above-mentioned necessary minimum. That means that the case when this value could not be maintained in the year to come would only be the case when the economic growth rate were under the past achievements. The necessary minimum, minutely analyzed, shows the undulate curve with several ups and downs. The volumes of cargoes on the spots of peaks are expanded as shown in the following table.

Table 200. Cargo Volumes at Peaks

Year	Volume (1000 k/t)	Intervals (Years)	Growth rate (%)
1951-52	3,824		
1956-57	4,357	5	2.7
1960-61	5,059	4	3.8
1964-65	7,931	4	11.9
1966-67	9,216	2	7.8
1970-71	9,587	4	1.0
1972-73	10,513	2	4.7
1977-78	11,758	5	2.3

The annual growth rate of the cargo movements as shown above for whole duration in average, taken at peaks, is 4.9%, while sharp rises in cargo movements appeared with the intervals of 4 or 5 years.

The cargo movement went straightly downhill since the oil crisis in 1973-74, successively for 5 years until 1977-78, when the cargo movements showed sudden increase in the form of sharp peak (21.2% above the one in previous year) by the push-up of the enlargement of the importations.

Furthermore, referring to SIM-2 in the previous Chapter I-3, the export and import volumes for five years to come are estimated as follows:

Table 201 Export and Import Volumes

Unit (1,000 K/T)

	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	Growth Rate
Export	2,840	3,153	3,501	3,885	4,311	4,784	11.0%
Import	8,918	9,329	9,759	10,207	10,676	11,166	4.6%
Total	11,758	12,482	13,260	14,092	14,987	15,950	6.3%

2 Type of Cargoes

Cargoes for foreign trade of Pakistan are classified in 4 groups: (1) Liquid Bulk, (2) Dry Bulk, (3) General Cargo and (4) Dry Bulk for Karachi Steel Mill (Iron Ore and Coking Coal).

The annual amounts of main commodities imported or exported for the past 5 years are shown in Tables II-2 and II-3. Table II-4 shows the cargoes classified by kind, to make the drift of cargo movement clear, based on the above 2 tables.

The types of vessels used for sea-borne cargoes are determined by kind of cargoes. The actual cargo movements by kind of cargoes in the past should be examined to trace the trend in the duration of 5 years to come.

2-1 Liquid Bulk

The liquid bulk, the main of which are the crude oil and petroleum products for imports and petroleum products for exports, accounts for about 50% of the total cargo movements as shown in Table II-4. As these two kinds occupied 91% of the total cargo movements of Liquid Bulk in the average in the past 5 years, the analysis of these two could be the fundamentals for the forecast of the trend in Liquid Bulk in future.

There are two kinds of statistical data regarding imports and exports of petroleum (ref. Table 202), by the comparative study of which, because of some discrepancies found between them, the average annual growth rate of 5% in the past 9 to 10 years and 3.9% in the past 8 years were revealed. (In calculations for the above, the large statistical discrepancies found in 1969/70, was excluded.)

Furthermore the average annual growth rate could be mentioned being 4.3 - 4.7% in the period after 1972/73, when three different statistical data give the same value in the total cargo movements mentioned in later stage.

Table 202 Main Commodities (Petroleum) of Liquid Bulk

Unit (1,000 K/T)

Year	Import		Export		Total	
	(a)	(b)	(a)	(b)	(a)	(b)
1968/69	3,244		234		3,478	
1969/70	3,364	3,355	1,364	690	4,728	4,045
1970/71	3,517	3,602	595	593	4,112	4,195
1971/72	3,476	3,568	551	635	4,027	4,203
1972/73	3,552	3,642	814	719	4,366	4,361
1973/74	4,010	4,010	297	654	4,307	4,664
1974/75	3,937	4,074	162	311	4,099	4,385
1975/76	3,788	3,753	323	381	4,111	4,134
1976/77	4,000	3,826	291	478	4,291	4,304
1977/78	4,618	4,697	768	783	5,386	5,480

Source : (a) Pakistan Economic Survey 1977-78, Table 17 (Figures Converted to metric ton) and Table 29/Table 11.5 (for 1977/78).

(b) Port & Shipping Wing, Ministry of Communication.

According to the Fifth Five Year Plan, the domestic consumption of petroleum products in the final year of the plan is expected to be 5.4 million tons with an annual growth rate of 5.4% and the home production of crude oil which has stayed at about 550,000 tons successively in last two years sets its target in the final year of the Fifth Five Year Plan at about 1.7 million tons. For the purpose of saving foreign currencies, it is aimed at to keep the quantity of import crude oil at the same level as in or at slightly below the level as in 1977/78.

But the amount of about a million tons of petroleum products, which have no international agreed price, have been imported annually in these several years and this trend seems to continue for several years to come. Exports of surplus petroleum products have also been energetically pushed forward under a long term contract. In respect to petroleum products, as mentioned above, Pakistan will naturally make efforts to control import and increase the domestic production for the purpose of improving the international balance of payment.

It is assumed that the cargo movements of Liquid Bulk would expand at an annual growth rate of 5% or so.

2-2 Dry Bulk

The amount of dry bulk, which consists mainly of wheat and fertilizer for imports and rice for exports, accounts for around 25% of total cargo movements though it varies from year to year. As these three commodities occupied 87% of the total Dry Bulk in an average in the last 5 years, the analysis of these three could be the basis for the forecast of the trend in Dry Bulk in future as observed in the previous section.

There is only one kind of statistical data on import of wheat, while there are two on trade of rice and fertilizer. Table 203 shows that the average growth rate of import was 10.7 or 10.9% in the past 9 years, based on the above data, the discrepancy of which were coordinated in the comparative study of the Dry Bulk cargo movements in the past 9 or 10 years.

Table 203 Main Commodities of Dry Bulk

Unit (1,000 K/T)

Year	Wheat	Rice		Fertilizer		Total	
	(b)	(a)	(b)	(a)	(b)	(a)	(b)
1968/69		140		331			
1969/70	285	91	106	662	699	1,038	1,090
1970/71	365	9	193	301	265	675	823
1971/72	932	198	185	159	198	1,289	1,315
1972/73	1,478	789	772	354	404	2,621	2,654
1973/74	967	597	516	670	774	2,234	2,257
1974/75	1,435	478	450	294	318	2,207	2,203
1975/76	1,447	782	795	311	329	2,540	2,571
1976/77	409	945	910	527	550	1,881	1,869
1977/78	1,045	(896)	806	(434)	605	2,375	2,456

Source : (a) Pakistan Economic Survey 1977-78, Table 29 and Pakistan Statistical Yearbook 1977, Table 4.12.
(b) Port & Shipping Wing, Ministry of Communication.

The domestic production of wheat has leveled off these two years at about 8.9 million tons. According to the Fifth Five Year Plan, however, the target production in the final year is set at about 13 million tons. To achieve this target, the average annual growth rate should be 7.8%, although the annual average growth rate of wheat production for the preceding 5 years has been 3.7%. The rice production in 1977/78 is expected to be around 2.9 million tons. The Fifth Five Year Plan sets the target of rice production at about 3.9 million tons in the final year and it should be vital to attain this target, to increase the production at a rate of 6.1% annually, although the annual average in the past five years has been 4.5%.

Corresponding to the plan for expanding agricultural production, the demand for chemical fertilizer would surely become large. For the preceding 5 years, the fertilizer production has increased at an annual rate of 3.5% in average. The Fifth Five Year Plan, however, expects that the production of fertilizer should be increased in the final year 4 times as much amount as the existing amount with an annual growth rate of 33%.

On the aspect of the movements of the main commodities of Dry Bulk such as wheat and rice, the annual growth rate of 11% could be maintained in an average as in the past, unless injuriously affected by wheather conditions, pests and other diseases. Considering that Liquid Bulk and Dry Bulk are treated in one kind in the previous Chapter I-3 and further, in order to compare these with the outcome of study in this Chapter, the changes in cargo movements in the past are shown in Table 204(1), where the movements of each kind of cargoes are combined together, based on each data.

Table 204(1) Total Cargo Movement (1)

Unit (1,000 K/T)

Year	Main Commodities of Liquid/Dry Bulk		General Cargo
	(a)	(b)	(b)
1968/69			
1969/70	5,766	5,135	1,900
1970/71	4,787	5,018	2,388
1971/72	5,316	5,518	2,040
1972/73	6,987	7,015	2,682
1973/74	6,541	6,921	2,684
1974/75	6,306	6,588	2,636
1975/76	6,651	6,705	2,798
1976/77	6,172	6,173	2,913
1977/78	7,761	7,936	2,987

Source : (a) Figures in Table 202 & 203 added.

(b) Figures in Table 202 & 203 added, except General Cargo, Port & Shipping Wing, Ministry of Communication.

Table 204(2) Total Cargo Movement (2)

Unit (1,000 K/T)

Year	(a)	(b)	(c)		
			Foreign	Coastal	Total
1968/69	8,436		6,828	1,609	8,437
1969/70	9,450	7594	7,557	1,893	9,450
1970/71	9,587	8,218	8,219	1,369	9,588
1971/72	9,455	8,479	8,756	699	9,455
1972/73	10,513	10,512	10,504	8	10,512
1973/74	10,486	10,682	10,632	21	10,653
1974/75	10,001	10,158	10,144	15	10,159
1975/76	9,925	10,076	9,963	20	10,083
1976/77	9,591	9,704	9,572	17	9,589
1977/78	(11,182)	11,758			

Source : (a) Pakistan Economic Survey 1977-78, Table 49.

(b) Port & Shipping Wing, Ministry of Communication.

(c) Pakistan Statistical Yearbook 1977.

With the exception of the discrepancies in 1969/70 between two data on the petroleum movements, the average growth rates of 7.1% and 6.8% annually in the past 8 years could be obtained and these values are nearly the same as 7.1% growth rate in the forecast in the simulation, projected in the previous Chapter I.

It is, therefore, considered reasonable that the forthcoming average growth rate should be set at about 7% annually.

2-3 General Cargo

General cargo, the main commodities of which are iron and steel products for imports and cotton for exports, occupies 25 to 30% of total cargo movements although there were some changes from year to year.

Table 204(1) is the only one statistical data which seems to show the actual results of total cargo movements of sundry goods in the last 9 years. According to the table, the average annual growth rate in the duration of 9 years is found to be 5.8%, while in the duration of 8 years, as in the case of bulk cargo, the rate drops down to 3.3%. The volume of the general cargoes is obtained by deducting the main types of cargoes, which were found to be Liquid Bulk and Dry Bulk in Pakistan, from the total cargo volumes. It should be noted, however, that there are three different kinds of statistical data on the total cargo movement as shown in Table 204(2). The average growth rate of sundry goods' movements can be calculated as to be 2.2% annually, as no notable differences are found among all these figures after 1972/73.

The forecast growth rate of general cargo movements being 4.4% per annum as assumed in the previous Chapter I, is considered reasonable, taking into account the fact that (1) the study of general cargo movements is limited contractedly as the statistical data available is only one, different from Liquid Bulk and Dry Bulk, that (2) it is difficult to foresee the future trend by analyzing the past records of the several main commodities and that

(3) the actual past records of growth rates fluctuate from 2.2% to 5.8% as per respective terms. Based on the actual analysis of respective cargo movements of Liquid Bulk, Dry Bulk and General Cargo done in this Chapter and further, on the simulation made in Chapter I, the aggregate forecast of future cargo movements is shown in Table 205, in various cases 1, 2 and 3.

Table 205 Forecast of Cargo Movement

Case 1

Unit (1,000 K/T)

Year	General Cargo	Liquid & Dry Bulk		Total
		Liquid	Dry	
	3.6%	3.8%	8.4%	
1977/78	2,987	6,200	2,571	11,758
1978/79	3,095	6,436	2,787	12,318
1979/80	3,206	6,680	3,021	12,907
1980/81	3,321	6,934	3,275	13,530
1981/82	3,441	7,197	3,550	14,188
1982/83	3,565	7,471	3,848	14,884

Case 2

Year	General Cargo	Liquid & Dry Bulk		Total
		Liquid	Dry	
	4.4%	5.0%	11.0%	
1977/78	2,987	6,200	2,571	11,758
1978/79	3,118	6,510	2,854	12,482
1979/80	3,256	6,836	3,168	13,260
1980/81	3,399	7,177	3,516	14,092
1981/82	3,548	7,536	3,903	14,987
1982/83	3,705	7,913	4,332	15,950

Case 3

Year	General Cargo	Liquid & Dry Bulk		Total
		Liquid	Dry	
	5.3%	6.4%	14.2%	
1977/78	2,987	6,200	2,571	11,758
1978/79	3,145	6,597	2,936	12,678
1979/80	3,312	7,019	3,353	13,684
1980/81	3,488	7,468	3,829	14,785
1981/82	3,672	7,946	4,373	15,991
1982/83	3,867	8,455	4,994	17,316

Note: (1) Annual growth rate based on the following

1) General Cargo: As per SIM-1, 2 & 3

2) Liquid & Dry Bulk

Case 2 - As per assumed growth rate of Liquid Bulk & Dry Bulk respectively studied in this chapter, aggregating 6.9% per annum in average

Case 1 & 3 -- From SIM-1 & 3 and above Case 2, calculated as follows:

	Case 1	Case 3
Liquid	$5 \times \frac{5.3}{6.9} = 3.8$	$3 \times \frac{8.9}{6.9} = 6.4$
Dry	$11 \times \frac{5.3}{6.9} = 8.4$	$11 \times \frac{8.9}{6.9} = 14.2$

(2) According to the additional data supplied by PNSC, PRL and NRL in their document dated 3rd April, 1979 and Pakistan Edible Oils Corporation, Ltd. in their letter dated 5th April, 1979, the movement of Liquid Bulk, except Molasses, for five years to come is projected as follows:

Year	Import		Export	
	Crud Oil	Pet. Prod.	Edible Oil	Pet. Prod.
1978/79	3,600	1,536	202	636
1979/80	3,600	1,354	209	1,183
1980/81	3,600	1,435	236	1,296
1981/82	3,600	1,496	260	1,234
1982/83	3,600	1,787	260	1,212

As mentioned above, 7% or so is considered reasonable as the combined average growth rate of Liquid Bulk and Dry Bulk, as a result of studies in the previous Chapter I (SIM-2) as well as in this Chapter. Concerning the respective growth rates of both Bulk Cargoes, the outcome of this Chapter will be adopted for the further analysis. (Liquid 5%, Dry 11% - Aggregate average growth rate is 6.9%.). Accordingly, the study would come in depth on the basis of those figures as shown in case 2 of Table 205.

The average growth rate of the total cargo movements in the above case 2 is incidentally 6.3% and on the other hand, 6.5% according to SIM 2 in Chapter I. There are no big differences between the above two.

2-4 Dry Bulk for the Karachi Steel Mill

Although in the previous Chapter Dry Bulk exclusive for Karachi Steel Mill is unitedly treated as Liquid and Dry Bulk, a separate study in this Chapter would be made on the assumption that the Government Plan for Karachi Steel Mill will proceed as originally designed. According to the Fifth Five Year Plan, the Karachi Steel Mill will start operation partly in 1980/81 and come to the full extent in 1983/84. Materials, such as iron ore and coal for iron and steel production, will have to be imported all in all and coking coal, too, of which however only a part can domestically be supplied. According to the Pakistan Economic Survey 1977/78, the steel production is set at about 120,000 tons to 400,000 tons for 1980/81 and about 880,000 to 1,160,000 tons in 1983/84 when the plant is in full operation. In the Fifth Five Year Plan, the production target for 1982/83 is set at 800,000 tons and after 1980/81 when the construction of Port Qasim will be completed, all materials for Karachi Steel Mill from abroad will be landed there.

The Dry Bulk movements for the Karachi Steel Mill is estimated as follows:

Table 206. Dry Bulk for Karachi Steel Mill

Unit (1,000 K/T)

Year	Coal	Iron Ore	Manganese	Total
1980/81	539	868	21	1,428
1981/82	971	1,570	31	2,572
1982/83	1,151	2,020	41	3,212
1983/84 onward	1,151	2,030	41	3,222

The following table shows the comparison of the forecast total cargo movements in the final year of the Fifth Five Year Plan of 1982/83 as calculated and shown in Table 205, with the results in SIM. 1, SIM. 2 and SIM. 3 in Chapter I.

Table 207. Comparison of Total Cargo Movements

Total Cargo Movement in Prospect

Unit (1,000 K/T)

Result in Capter I		Result in This Chapter	
SIM 1	15,495	Case 1	14,884
SIM 2	16,795	Case 2	15,950
SIM 3	18,229	Case 3	17,316

The difference of the figures from 4 to 5% gained in this Chapter and in the former Chapter would be caused by the following facts that (1) the calculations in this Chapter is on fiscal year basis, while ones in former chapter on calendar year basis and that (2) the way of treatment for Dry Bulk exclusive for Karachi Steel Mill is not identical for the both.

3 Cargo Movements by Route

3-1 Actual Results

In an attempt to foresee the cargo movements based on the study of the actual results by trade route, the lack and inadequacy of statistical data and the inconsistency of statistical figures in reference materials make it very difficult to foresee the cargo movements in detail by trade routes, types of commodities and exports/imports and therefore, the rough estimation is applied on the basis of the analyses described in and after the Chapter II-3-2. The statistical materials available for indicating the total cargo movements of Pakistan by trade route and by region are limited to those as shown below:

Table 208. Materials of Trade Amounts

1. Pakistan's Foreign Trade by Area/Country or Territory during the Years 1974/1975 to 1976/1977.
2. Cargo Tonnage and Freight Earnings in Respect of Pakistan's Imports (or Exports) handled by NSC's (or PSC's) Vessels by Area, Commodity, Country/Port during the Period (January-December) 1976.
3. Quantum of Pakistan's Exports and Imports handled by Foreign Vessels during the Year 1976.

The material No. 1 is most comprehensive and convenient, but the figures on total cargo movements per annum largely vary from those in Table II-4. For instance, the total cargo movements in 1974/75 in the material No. 1 are by 2.2 million tons less than that in the table and in 1975/76 by 2.77 million tons less than that, too. On the other hand, the total cargo movements in 1976/77 in the material No. 1 is about 350,000 tons more than that in the table. This difference of 350,000 tons is of course least between the material and the table for all three years mentioned above. However, in the year of 1976/77, the material No.1 indicates the imports to be 5.77 million tons

instead of 7.33 million tons indicated in the table and the exports to be 4.29 million tons instead of 2.37 million tons in the table. The statistical material No.2 describes the actual amounts of cargoes lifted by Pakistani vessels in the calendar year of 1976, while the material No.3 shows the volumes lifted by foreign vessels in the same year. By combining these two amounts together, the total cargo movements by regions in 1976 are to be obtained.

There still exists, however, a basic inconsistency that the material No.3 shows both the imports and the exports by regions, some in S/T (freight tons) and the others in M/T (weight tons), while No.2 uses all over the unit of K/T (weight tons). Therefore, measuring the total cargo movements in the single unit is impossible. On condition of the above difficulties and the inconsistency of the reference materials, the data on total cargo movement in 1976/77 in the material No.1 having a comparatively little errors, seems to reflect considerably correct state of cargo movements by route.

Consequently the actual results of cargo movements in the past and at present were summarized into Column (a) of Table 209 showing the cargo movements by regions and by main countries.

Table 209 Pakistan's Foreign Trade by Area/Country during the year 1976/77

Area/Country	Volume (1,000 K/T)				Value	
	(a)		(b)		(Million Rs.)	
1. American Region	1,414	14.1	894	9.2	4,746	13.8
(a) North America	(1,163)	(11.6)	(735)	(7.6)	(4,571)	(13.3)
U.S.A.	(902)	(9.0)			(3,975)	(11.6)
(b) Central America	(116)	(1.2)			(68)	(0.2)
(c) South America	(135)	(1.3)			(107)	(0.3)
2. Western Europe	1,848	18.4	1,168	12.0	9,381	27.3
(a) E.C.	(1,292)	(12.9)			(7,977)	(23.2)
Netherlands	(286)	(2.8)			(730)	(2.11)
U.K.	(290)	(2.9)			(2,204)	(6.4)
(b) E.F.T.A.	(274)	(2.7)			(1,083)	(3.2)
(c) Others	(282)	(2.8)			(321)	(0.9)
3. Eastern Europe	1,442	14.3	912	9.4	1,529	4.5
U.S.S.R.	(973)	(9.7)			(683)	(2.0)
4. Middle East	1,620	(16.1)	4,370	450	7,779	22.7
(a) R.C.D.	(146)	(1.5)			(999)	(2.9)
(b) Asian Countries	(1,369)	(13.6)			(6.479)	(18.9)
Dubai	(725)	(7.2)			(701)	(2.0)
(c) African Countries	(105)	(1.0)			(301)	(0.9)
5. African Countries other than M.E.	791	7.9	500	5.2	608	1.8
6. Asian Countries excluding M.E.	2,814	28.0	1,779	18.3	9,541	27.8
Japan	(800)	(8.0)			(4,204)	(12.3)
Sri Lanka	(409)	(4.1)			(880)	(2.6)
Singapore	(792)	(8.0)			(347)	(1.0)
7. Oceania	127	1.2	8.1	0.9	722	2.1
	10,056	100.0	9,704	100.0	34,306	100.0

Source : Volume (a) Pakistan's Foreign Trade by Area/Country or Territory during the years 1974/75 to 1976/77, Port & Shipping Wing, Ministry of Communication.

Value Table 31 of Pakistan Economic Survey 1977-78.

Note : Volume (b) Volume for each area adjusted with the corrected total volume and volume for Middle East.

Of such countries, those sharing more than 2.5% of total cargo movements are listed for reference.

3-2 Outlook

Some discrepancies among the figures in the Column (a) in Table 209 should be corrected. The total cargo movements of 10.056 million tons in the Column (a) in Table 209 is to be 9.704 million tons referring to Table II-4. All figures of total cargo movements by region were corrected proportionally according to the volume in each region and the results gained are as follows:

Table 210. Cargo Movements by Region

	Unit (1,000 K/T)
1. America	1,365
(a) North America	1,122
2. Western Europe	1,783
3. Eastern Europe	1,392
4. Middle East	1,563
5. Africa	763
6. Asia	2,715
7. Oceania	123
Total	9,704

Even after the corrections, there are found still some discrepancies in the figures relating to Middle East. Table II-2 shows the amount of petroleum imported in 1976/77, 3.826 million tons, almost all of which seems to have come from Middle East. In addition, Table 213 reveals that Pakistani vessels exported about 147,000 tons of cargo to Middle East in the calendar year of 1976, 93% of which, about 136,000 tons, was rice. Rice exported by Pakistani vessels in 1976 amounted to about 227,000 tons in total according to the original data in Table 213. There are no first hand materials avialable for the total volume of the rice export for that particular year.

The total volume in 1976 may be assumed to be about 853,000 tons based on the data in 1975/76 and 1976/77, in Table II-3. It could be presumable that Pakistani vessels would take a share of about 27 per cent in the total exports of rice. When the same share could be applied to the total exports to Middle East, where the rice export would take the highest portion, the total export to the above area would amount to 544,000 tons. The total cargo movements "to and from" Middle East of 4.37 million tons can be obtained in adding the amount of petroleum imports above-mentioned, to the total exports. As a result, the amounts of trade relating to Middle East should be increased by 2.807 million tons more than the volumes as adjusted above and 2.807 million tons were proportionally reduced in 6 regions other than Middle East and Column (b) of Table 209 showing the volumes, then trade shares of Pakistan by region can be obtained. In addition, Table 209 indicates the values and the shares of Pakistani trade by region for reference.

There exists a particular trend that in North America, West Europe and Asia where Japan is dominant in international trade, the share is higher in values than in volumes, while in Middle East and Africa, vice versa. Table II-10 shows the records of exports and imports respectively in values and shares in the regional trades for the past 5 years, while Table II-11 shows the trend in the regional trades based on the total values and shares of both exports and imports. Based on the total volumes and shares of Table 209 as studied above and taking into account the trend of regional trades for the past several years (Table II-11), a slight corrections have been tried to obtain the anticipated future trade shares. The growth rates of cargo movements by region were decided referring to SIM 1, 2 and 3 in Chapter I. The growth rate for Middle East only should have been so corrected that it might reflect the actual trend as the volume of cargo for the said region has been corrected from the standpoint of actual business. Table 211 foresees the cargo movements in respect of each region in five years to come.

Table 211 Estimated Cargo Movement by Trade Route

Unit (1,000 K/T)

Area	Share	Case No.	Growth rate (%)	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Middle East	45%	1	5.0	5,291	5.556	5.833	6.125	6.431	6.756
		2	6.3	5,291	5.624	5.979	6.355	6.756	7.184
		3	8.3	5,291	5.730	6.206	6.721	7.279	7.874
Asia	18%	1	5.0	2,116	2,222	2,333	2,450	2,572	2,701
		2	6.6	2,116	2,256	2,405	2,563	2,732	2,913
		3	8.2	2,116	2,290	2,477	2,680	2,900	3,138
Western Europe	12%	1	5.1	1,411	1,483	1,559	1,638	1,722	1,809
		2	6.8	1,411	1,507	1,609	1,719	1,836	1,961
		3	8.4	1,411	1,530	1,658	1,797	1,948	2,112
Eastern Europe	9%	1	3.8	1,058	1,098	1,140	1,183	1,228	1,275
		2	5.3	1,058	1,114	1,173	1,235	1,301	1,370
		3	6.8	1,058	1,130	1,207	1,289	1,376	1,470
North America	7%	1	3.7	823	853	885	918	952	987
		2	5.2	823	866	911	958	1,008	1,060
		3	6.8	823	879	939	1,003	1,071	1,144
Africa	5%	1	4.7	588	616	645	675	707	740
		2	6.3	588	625	664	706	751	798
		3	7.9	588	634	685	739	797	860
Others	4%	1		471	490	512	541	576	616
		2		471	490	519	556	603	664
		3		471	485	512	556	620	718

Note: 1) Cargo share slightly adjusted and rounded off, referring to Table 209 & Table II-11.

2) Annual growth rate in each area as per SIM-1, 2 & 3 in Chapter I-3 except in Middle East, whose growth rate is slightly adjusted as a result of modification of cargo share. (Refer to Table 209).

As case 2 was judged to be reasonable when studying the cargo movement by types in the previous section, case 2 in Table 211, the total volume of which is the same as the conclusion of study in the previous section, is adopted as reasonable as far as regional trade is concerned.

4 Trade Share of Pakistani Vessels

4-1 Overview

The volumes of cargoes shipped by Pakistani and foreign vessels and their trade shares are shown in Table II-13, where the trade share of Pakistani vessels is shown to be around 10 per cent in an average. In consideration of the kinds of vessels owned by Pakistan being mostly general cargo vessels and of the kinds of cargoes they handled, a possible trade share of Pakistani vessels can be figured out provisionally as follows:

Table 212. Trade Share

Unit (%)

	Case 1	Case 2	Case 3	Case 4
1973/74	10.6	22.8	30.5	43.1
1974/75	7.2	17.1	20.9	28.5
1975/76	10.7	24.3	32.5	39.3
1976/77	12.5	24.6	34.8	42.3
1977/78	7.9	17.8	24.5	31.5

Case 1 Trade share in case total cargo for shipment is as shown in Table II-13.

Case 2 Trade share in case petroleum and wheat in Table II-2, and petroleum products in Table II-3 are excluded from the load for shipment.

Case 3 Trade share in case in addition to the above commodities, fertilizer in Table II-2 and rice in Table II-3 are excluded.

Case 4 Trade share in case only the general cargo indicated in Table II-4 is taken up for shipment.

As mentioned previously, Pakistani fleet mainly consists of general cargo vessels and cargoes carried by them, therefore, are considered substantially as being composed of General Cargoes. Except the case that the whole bottom is filled up by a single commodity, however, cargoes of Dry Bulk such as fertilizer and rice must actually be carried by the general cargo vessels. The actual trade share by Pakistani vessels is assumed to be around 28% in the middle between the above mentioned case 3 and case 4 in the year 1977/78.

The trade share of Dry Bulk such as rice and fertilizer can be estimated as 4%.

The actual liftings by Pakistani vessels in that year were 913,000 (K/T), the contents of which could be assumed to be as follows:

	Unit (1,000 K/T)
General Cargo	2,899 x 28% = 812
Dry Bulk	2,466 x 4.1% = 101
Total	913

Note: Afghan cargo in transit is excluded.

The latter studies shall be made based on the above assumption. Concerning Dry Bulk and Liquid Bulk, a considerable demand for transportation is expected as shown in Table 205. However, the existing Pakistani fleet participates almost in the carriage of General Cargo and only a Part of Dry Bulk cargoes are carried by General Cargo Vessels in tramper and in regular liner services. As a state-own shipping company, the well-balanced composition of the fleet is desirable as mentioned in the next Chapter in respect of the fleet composition. Participations in all fields of shipping is considered to be the future object. Considering the fact that Pakistan at present has no specialized carriers for Dry Bulk and Liquid Bulk and must start from the very beginning and further,

that the replacement of aged liners is urgently required, the urgency for aquiring such specialized carriers will be secondary.

The trade shares for trampers, tankers and specialized carriers for Karachi Steel Mill are studied in the next Chapter together with the development plan of the merchant fleet.

4-2 Cargo Movement by Route

Table 213 is the only data now available, showing the results of all cargoes by route handled by Pakistani vessels. It was compiled from the actual cargo liftings made by NSC and PSC in the calendar year 1976 and classified by regions, kinds of commodities, countries and ports.

The total cargo liftings made by Pakistani vessels amounted to 789,000 Tons by Table 213, while the annual amount reached over one million tons either in 1975/76 or in 1976/77 by Table II-13.

Table 213 Cargo Tonnage Handled by Pakistani Vessels by Area during 1976

Unit (Metric Ton)

Area/Country	Import	Export	Total
U.S.A./Canada	12,206	15,515	27,721
Europe	156,949	185,037	341,986
U.K.	66,859	51,868	118,727
Continent	64,296	129,701	193,997
S. France	25,794	—	25,794
Eastern Europe	—	3,468	3,468
Middle East	—	146,632	146,632
Africa	3,782	57,729	61,511
Asia	140,114	71,096	211,210
Japan	97,874	26,961	124,835
South Korea	11,941	—	11,941
North Korea	—	927	927
Hong Kong	8,911	2,306	11,217
China	—	13,998	13,998
Taiwan	97	—	97
Singapore	5,386	671	6,057
Malaysia	2,212	—	2,212
Indonesia	48	10,499	10,547
Thailand	505	676	1,181
Sri ranka	13,140	1,156	14,296
Maldive Island	—	9,068	9,068
Bangladesh	—	4,834	4,834
Total	313,051	476,009	789,060

Source : Cargo Tonnage and Freight Earnings in respect of Pakistan's Imports (or Exports) Handled by NSC's (or PSC's) Vessels by Area, Commodity, Country/Port during the Period (January-December) 1976, Port & Shipping Wing, Ministry of Communication.

If the figure in Table 11-13 were considered correct, there might be many ommissions in Table 213. According to the source material of Table 213, of all trades between Pakistan and Middle East, the region of which seemes outside the route of regular liners services, almost all exports are occupied by rice, while the imports seem to be occupied by petroleum. Similarly, as concerns African trade, almost all are occupied by rice export.

The important routes of Pakistan regular liners are those of, "to and from" UK/Continent, Asia and USA/Canada. As observed previously, Pakistan exports and imports are mainly occupied by petroleum and its products and Bulk cargoes. As their vessels are general cargo ships, the actual lifting of cargoes other than general cargoes could not well be prepared. Thinking about the above conditions, the study will be concentrated hereafter in the following three main liner routes.

From the study on each commodity according to the original source of Table 213, it is certain that the actual liftings made by Pakistani vessels on the UK/Continent route consist mainly of cargoes for regular liners, containing rice for export and ores and others for import, but both in small quantity. When the study was made at Karachi Port, a foreign vessel was found carrying wheat in whole bottom from West Germany.

On the Asian route, the percentage of rice and ores are about 15% of total cargoes handled by Pakistani vessels. Of the total liftings by NSC on the USA/Canada route in 1976/77, about 84 per cent were imports, of which wheat seemed to account for a large part. Now it should be noted that Table 213 shows exports exceeding imports and the total liftings by Pakistani vessels amount only to 27,721 K/T, instead of the facts that the actual cargo liftings by NSC alone amounted to so much as 126,090 R/T, while another material registering the actual loading for import only indicates 107,293 R/T as the amount of shipments in 1976/77. In view of this discrepancy, there might be many errors in Table 213. The regional trend of cargo movements is thus studied according to Table 213 and to its original material source.

The study would be concentrated on the volume of General Cargoes for regular liners on the three major liner routes in future and it is applied to the study on shipping demands in the next Chapter.

Almost all cargo movements for Middle East and Africa are occupied by Liquid Bulk and Dry Bulk as already mentioned.

The movements of General Cargoes are assumed to be mainly on these three major routes and the General Cargo movements in the routes other than the above three are estimated to cover about 15% out of the total cargo movements. Based on the above assumption, the annual General Cargo volumes as adopted in case 2 in Table 205 are distributed to the three major routes, based on the shares indicated in Table 211. Thus, the forthcoming trade-wise cargo movements are calculated as shown in Table 214.

Table 214. Estimated General Cargo Movement in Main Liner Trade Area

Unit (1,000 K/T)

Area	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Europe	1,143	1,193	1,246	1,300	1,357	1,417
Asia	1,016	1,060	1,107	1,156	1,206	1,260
North America	380	397	415	433	453	472
(3 Main Areas' Total)	(2,539)	(2,650)	(2,768)	(2,889)	(3,016)	(3,149)
Other Areas	448	468	488	510	532	556
Total	2,987	3,118	3,256	3,399	3,548	3,705

Note: 1) Total General Cargo to be as per Table 205 case 2

2) Share of 3 Main Areas to be assumed 85% of total general cargo.

3) Share of each Main Area to be assumed based on Table 211,

Europe : 45%
Asia : 40%
N. America: 15%

As mentioned previously, the trade share of General Cargoes by Pakistani vessels in 1977/78 are assumed to be 28%. According to the Fifth Five Year Plan, the target of trade share for the owned vessel is set at 42.6%. In order to achieve this target it is necessary that the annual cargo liftings by Pakistani Merchant Marine should be increased by 13.6% per year. Furthermore in order to achieve the trade share of 40% which is the standard as indicated in U.N. Convention on a Code of Conduct for Liner Conferences, the growth rate of 12.2% per annum should be necessitated as indicated in Table 215(1). Moreover, even if Pakistani flag vessels should be able to lift all volume of cargo increased (annual growth rate of 4.4%), their trade share would barely come to 41.9% after five years to come. All of those targets of trade share are rather high, taking into account of the present canvassing record and ability of Pakistani Merchant Marine. Especially in view of the present canvassing ability of Pakistani Merchant Marine, it is considered excessive to set the trade share of 40%, which is defined in U.N. Convention on a Code of Conduct for Liner Conferences, as the target for five years to come although this target may be recommendable as the long range target, which should be achieved by making unbroken effort of canvassing from now on.

The enforcement of the cargo reservation law (Own cargo by Own vessels.) brings rather disadvantages for the promotion of canvassing of the Pakistani Merchant Marine and is not recommendable, because the adoption of the law is apt to deprive the shippers of their option of shipments and hamper the development of the shipping trade, and moreover, causes retorts of the shipping countries who assert the freedom of the shipping trade.

Accordingly the realistic target may be 35% which will presumably be attainable as a whole, considering the fact that PNSC has the *plan to increase their share by about 1% with their effort of canvassing every year and on top of that taking 40% of the forthcoming increased part of cargo volume (growth rate of 4.4% per annum).

Note: * Refer to the Operating Plan of European Trade complied by PNSC (Reference Materials Table III-10)

The annual cargo liftings by Pakistani vessels in the share of 35% are shown in Table 215(2). Furthermore, the annual cargo liftings to maintain the present share of 28% are indicated in Table 215(3).

Table 215(1) Pakistan's Max. Share of 40% for General Cargo in 1982/83

Unit (1,000 K/T)

Area	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Europe	320	359	402	451	506	567
Asia	284	319	357	401	449	504
North America	106	119	134	150	168	189
Other Areas	125	140	157	176	198	222

Table 215(2) Pakistan's Share of 35% for General Cargo in 1982/83

Unit (1,000 K/T)

Area	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Europe	320	349	381	416	454	496
Asia	284	310	339	370	404	441
North America	106	116	127	138	151	165
Other Areas	125	137	149	163	178	195

Table 215(3) Pakistan's Share of 28% for General Cargo

Unit (1,000 K/T)

Area	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Europe	320	334	349	364	380	397
Asia	284	297	310	324	338	353
North America	106	111	116	121	127	132
Other Areas	125	131	137	143	149	156

4-2-1 UK/Continent Route

Looking at the present status of European trade, NSC has the statistical data on European route made by the Shipping Conference, which shows the actual liftings by Pakistani vessels for the last these years as shown in Table 216.

Table 216 Total and Pakistan Flag Lifting on UK/Cont. Conference

(Unit (R/T))

Area	1975		1976		1977	
	PFG	Total	PFG	Total	PFG	Total
UK-Cont./Pak.	174,606 (49.6%)	352,266 (100%)	220,740 (48.5%)	454,941 (100%)	223,654 (49.8%)	449,369 (100%)
Pak./UK-Cont.	73,139 (49.6%)	147,593 (100%)	78,261 (55.8%)	140,259 (100%)	66,059 (47.3%)	139,540 (100%)
Sub-Total	247,745 (49.6%)	499,859 (100%)	299,001 (50.2%)	595,200 (100%)	289,713 (49.2%)	588,909 (100%)
(Non-Pool Cargo) UK-Cont./Pak.	65,085		37,963		50,942	
Pak./UK-Cont.	46,714		90,360		111,657	
Sub-Total	111,799		128,323		162,599	
Grand Total	359,544		427,324		452,312	

Source: NSC

The table makes clear that the Pakistani vessels kept on about 50% share of cargoes which are pooled in by the Conference on the route between their home country and U.K./Continent. But the trade share of Pakistani vessels (including non-pool cargoes or shipments made by outsiders) can not be extracted.

In order to calculate the shipping volume on Pakistani vessels for years to come, the conversion of weight ton into freight ton should be made in comparison of each of their volume between kilo tons shown in Table 213 and freight tons shown in Table 216. However, in the case of export, the volume calculated in weight tons became larger than the one calculated in freight tons which would be inconsistent in the statistics. Although the ratio of the weight ton to the freight ton depends on the kinds of cargoes to be handled, usual and average ratio would be 70 to 100, which stays not so far from the truth.

The calculation of the ratio between the export and the import, including all cargoes carried by outsiders, is impossible. However, considering the fact that the ratio between exports and imports was figured out to be 38 to 62, based on an average of actual loadings by Pakistani vessels for the past three years, from 1975 to 1977, on Table 216, it is considered reasonable that import ratio would be 60 to 65%.

4-2-2 Asia Route

On the Asian route, Persian Gulf is in the most important position. Five Japanese shipping companies join the Conference controlling this route, that is, the Japan/India-Pakistan-Gulf/Japan Conference (JAPERCON).

Table 217 Total and Pakistan Flag Lifting on JAPERCON

Unit (R/T)

Area	1975		1976		1977	
	PFG	Total	PFG	Total	PFG	Total
Japan/Pak.	128,550 (24.5%)	525,096 (100%)	171,639 (23.5%)	729,512 (100%)	95,891 (20.1%)	476,432 (100%)
HK/Pak.	846 (3.9%)	21,487 (100%)	2,381 (9.6%)	24,788 (100%)	1,721 (6.7%)	25,872 (100%)
Pak./Japan	28,426 (34.9%)	81,543 (100%)	25,461 (54.7%)	46,531 (100%)	24,243 (46.3%)	52,356 (100%)
Pak./HK	20,511 (10.1%)	202,607 (100%)	43 (0.1%)	39,317 (100%)	2,292 (6.3%)	36,264 (100%)
Import	129,396 (23.7%)	546,583 (100%)	174,020 (23.1%)	754,300 (100%)	97,612 (19.4%)	502,304 (100%)
Export	48,937 (17.2%)	284,150 (100%)	25,504 (29.7%)	85,848 (100%)	26,535 (29.9%)	88,620 (100%)
Total	178,333 (21.5%)	830,733 (100%)	199,524 (23.7%)	840,148 (100%)	124,147 (21.0%)	590,924 (100%)

Source: Statistics of JAPERCON

Note : Year covers from April to March.

The sphere under the Conference's jurisdiction is from Japan and/or Hongkong to the west coast of India, Pakistan and the Gulf ports and vice versa. The membership of the Conference consists of 12 shipping companies including 5 companies of Japan. From Pakistan, NSC is a member of the Conference jointed in April 1965, withdrew in November 1971 and rejoined in April 1975.

According to Table 213, Japan and Hongkong occupy about 64 percent of the cargo movements on the Asian route. The actual liftings by JAPERCON for the last three years are shown in Table 217, where Pakistani vessels are keeping the trade share of about 20% in the Conference Area. As in the case of European route, it is impossible to figure out the trade share of Pakistani vessels, out of the total cargo movements including outsiders in the Asian route which covers the Far Eastern trade.

In order to calculate the shipping volume on Pakistani vessels for years to come, the weight tons were converted into the freight tons in the same way as in the case of European route.

Here again, however, a statistical discrepancy came out that in the case of exports a volume calculated in weight tons became larger than the one calculated in freight tons. As the ratio fluctuates depending on the kinds of cargoes carried, as in the case of European trade, the ratio of freight ton to weight ton could be set at 100 to 70, which would make no big difference from the actual portion. The rate of imports is estimated to be about 65% based on Table 213 and 217.

4-2-3 USA/Canada Route

On the USA/Canada route, Table 213 has many omissions of statistical figures as already pointed out and no statistical materials are prepared by the related Conferences such as available in the European and Asian routes. The recent import and export cargo movements obtained from NSC at the time of site survey is the only one shown in Table 218 for a reference.

Table 218 Pakistan Flag Lifting on USA/Canada Line

Unit (R/T)

Area	1975/76	1976/77			1977/78
	Import	Import	Export	Total	Import
Canada	26,861	46,793			43,998
U S A	71,414	60,500			37,957
Total	98,275	107,293			81,955
America (NSC)		106,183	19,907	126,090	

Source: NSC

For the purpose of estimating the lifting volume by Pakistani vessels for years to come, the ratio of freight ton to weight ton is assumed to be 100 to 70 as in the case of European and Asian routes, which would be close to the actualities. The rate of import by Pakistani vessels is estimated to be about 85%.

III. MERCHANT FLEET

1 Present Status of the National Fleet

1-1 Present Fleet Composition

Pakistan national fleet is composed of 48 vessels which are 23 ocean going liners and 1 coaster, operated by NSC and 24 vessels such as liners, trampers, and cargo cum passenger ships, operated by PSC. The particulars of each vessel as to the year of built, the year of purchase, deadweight tons and speed and also the composition by type, age and size are mentioned in Table III-1.

1-2 Types of Ships and Business Fields

As above mentioned, the business fields of the national fleet is clasified into two, (1) liners mainly operated by NSC and (2) trampers and cargo cum passenger ships mainly operated by PSC.

The national line without owing any bulk carrier and tanker at present, entirely depend the transportation of these cargoes on chartered vessels.

1-3 Main Liner Trade Routes

The national line presently operating the following three (3) main liner services. The details of their operations, such as alloted vessels, sailing frequencies per year, ports of call are shown in Table III-2. Both NSC and PSC are members of the respective Shipping Conferences covering each trade route.

(1) Karachi - U.K./continent route
Operator: NSC and PSC
Conference: Karamahon Conference

(2) Karachi - Far East route
Operator: NSC
Conference: JAPERCON

(3) Karachi - U.S.A./Canada route
Operator: NSC
Conference: WEST COAST OF INDIA AND PAKISTAN
USA CONFERENCE

1-4 Analysis of Operational Records in the Main Liner Services

Analysis of the past business records of NSC in their major liner trade routes, was made based on the records of NSC as shown in the following tables.

(1) Business profit and loss for the year 1975/77 .....Table III-3
(2) Statement of voyage expenses etc., for 1975/77 .....Table III-4
(3) Performance of main liners for 1973/77 .....Table III-5
(4) Annual operating profit and loss by ships .....Table III-6
(5) Efficiency comparison table between existing and newly built vessels .....Table III-7
(6) Statement of idle days during 1975/76 and 1976/77 .....Table III-8
(7) Statement of vessels repairs expenses for 1973/77 .....Table III-9

As can be seen from the above Table III-8, the average berthing delays at port of Karachi due to port congestion was 34 days in 1975/76 and 37 days in 1976/77. Adding average 27 days of repairs to the above berthing delays, the average idle days per vessel would aggregate 2 months per year.

It would be no exaggeration to say that the improvement of operational efficiency of the national fleet entirely depends upon the decrease of berthing delays at port of Karachi by the improvement of facilities and efficiency thereat and the modernization of the fleet itself by the implementation of the fleet replacement plan.