

### **3. COMPARISON OF PORT TARIFF STRUCTURES**

#### **3.1 Modification of the Model Port Tariff Structure for comparison**

It is difficult to compare port tariffs among ports accurately because of diversity in their systems and regulations, the existence of pricing by long-standing agreements and the influence of the exchange rate. Furthermore, in some cases port charges, tariff levels and data are confidential and difficult to obtain.

In the current study overall systems of port tariff structures and types of charges have been surveyed through visiting ports in the ESCAP region and reviewing relevant literature. Port charges are defined as those used in the individual ports. Charging units and recipient and payer of port charges are also compared. The port tariff structure used for comparison is the ESCAP/UNDP Model Port Tariff Structure with slight modifications to allow for a more appropriate base for comparison. Nomenclatures for the same kind of port charges are unified for the purpose of comparing port tariffs. The use of a model makes a comparison achievable as any comparison against other approaches would be impossible to document because of the variation in approaches. The characteristics of the port tariff structures of individual ports or countries have been analysed. Alternative approaches to the simplification, standardization and unification were also identified.

As described in the previous chapter, the ESCAP/UNDP Model Port Tariff Structure consists of four service groups: navigation, berth, cargo operations and other business. However, after reviewing the data, slight modifications for the purpose of comparison have been made to the model by adding a 'lease group'. This consists of dedicated costs and rental charges in order to reflect the current trends in the operation of world container terminals that make extensive use of leasing charges. In addition, in the navigation service group, conservancy is consolidated into port dues,<sup>4</sup> and minor charges are grouped under ancillary services.

The new modified model tariff structure for comparison purposes is outlined in table 2-3.

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<sup>4</sup> In the ESCAP/UNDP model, it was recommended that whenever possible the conservancy charge be incorporated into port dues.

## COMPARISON OF PORT TARIFF STRUCTURES

**Table 2-3 Model Port Tariff Structure – modified for comparison**

Service group	Component/ type of service	Charging system			
		Basis	Units	Payer	Recipient
Navigation	Port dues	Size of ship	GRT	Shipping line	Port
	Pilotage	Size of ship Time	GRT Hours	Shipping line	Port/Pilotage Association
	Tug services	Tug time involved Size of ship	Number GRT	Shipping line	Port/ Tug owner
	Mooring/unmooring	Size of ship	GRT	Shipping line	Port
	Ancillary services	Various	Various	Shipping line	Port
Berth	Berth hire	Time of ship alongside Size of ship	Hours GRT	Shipping line	Port
	Wharfage	Volume/weight/size of cargo	Tonnes/ TEU/m³	Consignee/ Consignor	Port
	Ancillary services	Amount consumed	Various	Shipping line	Port
Cargo operations	Stevedorage	Volume/weight/size of cargo	Tonnes/ TEU/m³	Shipping line	Provider of service
	Wharf handling	Volume/weight/size of cargo	Tonnes/ TEU/m³	Consignee/ Consignor	Provider of service
	Extra-movement	Volume/weight/size of cargo	Tonnes/ TEU/m³	Consignee/ Consignor	Provider of service
	Special cargo handling	Volume/weight/size of cargo Type of special handling	Unit Types	Shipping line	Provider of service
	Storage	Time	Tonnes/ TEU/m³ Days	Consignee/ Consignor	Provider of service
	Packing/unpacking	Volume/weight/size of cargo	Tonnes/ TEU/m³ Unit type	Shipping line	Provider of service
	Equipment/service/ facility hire	Hours of use by item	Hours	Stevedore	Equipment/ services owner
Other Business	Real estate,licensing, management services and consultancy etc.	Various	Various	Hirer	Port
Lease	Dedicated costs	Lease area	Various	Lessee	Port
	Rental charge	Lease area	Various	Lessee	Port

Notes: GRT = gross registered tonnage

TEU = twenty-feet equivalent units

## 3.2 Comparison of tariff structures

### 3.2.1 Navigation group

#### (a) *Port dues*

Port dues are levied in 18 out of 21 ports in the region included in this study. They are called harbour dues in some ports. The port of Sydney does not charge a port entrance fee in any type of charge. In Ho Chi Minh City, port dues are charged in the name of 'marine safety dues' and in Colombo as entering dues conservancy.

Light dues are charged in the following ports Colombo, Hong Kong, Port Klang, and Yangon while light and buoys dues are levied in the ports of Kaohsiung and Yokohama.

Conservancy is not levied in most of the ports in the region, with the exception of Yangon port, where conservancy is levied to the cargo as a port entrance fee. It is recommended to consolidate conservancy into port dues.

Tonnage is levied in the following ports: Kaohsiung, Osaka, Saigon Port, Shanghai, and Yokohama. It is recommended that tonnage charges be incorporated into port dues.

#### (b) *Pilotage*

Pilotage is levied in all 21 ports surveyed. However, in some ports of Australia, the Philippines and Singapore the pilot service is provided by the private sector. Pilot attendance/detention fee and premium for pilot officer are additionally charged in some ports.

#### (c) *Tug services*

A tug service charge is levied in most of the ports surveyed, except Chennai and Yangon. It is charged in the name of *towage* in the following ports of Auckland, Karachi, Mumbai, Sydney and in the name of tug hire in Kaohsiung and Shanghai. Tug boat assistance is additionally charged in some ports.

#### (d) *Mooring/unmooring*

It is called line handling in 12 ports out of 21 included in the study. It is not levied however, in the following ports: Auckland, Bangkok, Busan, Colombo, Jakarta, Laem Chabang, Manila, Port Kelang and Yangon.

Anchorage is charged in the following ports: Busan, Colombo, Hong Kong, Jakarta, Manila, Mumbai, Port Klang, Shanghai and Yokohama. In Jakarta port, anchorage means port dues. Berthing services are charged in the ports of Singapore and Yangon.

(e) *Ancillary services*

Fire and emergency services are charged only if those services are used. This charge is included in the tariff schedules of the ports of Bangkok, Colombo and Karachi.

### 3.2.2 Berth group

(a) *Berth hire*

Berth hire is charged under different names in different ports. The ports charging as berth hire include Auckland, Bangkok, Chennai, Laem Chabang and Mumbai. It is called dockage in the ports of Busan, Colombo, Hong Kong, Kaohsiung, Manila, Port Klang, Singapore and Yokohama. Berth hire is charged as hire of wharf in Saigon port, as berthage in Shanghai, and in the name of *facilities and services* in Sydney. In Jakarta port, it is levied in the name of wharfage/quay dues.

(b) *Wharfage*

It is usually levied on cargoes as port entrance fee. However, in the ports of Jakarta, Osaka, Saigon and Shanghai, wharfage is levied on ships entering the ports.

(c) *Ancillary services*

Ancillary services such as cleaning wharfs, water supply, telephone, garbage and security are included in the tariff schedules of some ports. They are charged only when used.

### 3.2.3 Cargo operation group

It is difficult to obtain data to assess and compare charges related to cargo operation. There are some discrepancies between general cargo berths and dedicated container terminals. Even in container terminals, the lease rate is dependent upon the individual agreements between port authority and users.

Stevedorage is charged in the ports of Hong Kong, Shanghai and Singapore. In Auckland this, plus wharf handling, is levied in the name of goods wharfage. Wharf handling is levied in Colombo.

## COMPARISON OF PORT TARIFF STRUCTURES

As for equipment hire, hiring service is charged in Colombo port. In Mumbai port, mobile crane & equipment is charged, in addition to normal container freight charges, which leads to an abnormally high total port charge.

Storage is levied in most ports of the region. It is sometimes charged in the name of demurrage.

Packing/unpacking or vanning/devanning is charged in many ports of the region, including Colombo. Weighbridge is levied in some ports including Shanghai. Lift-on/lift-off is charged in Colombo, Shanghai and Singapore ports. It is often levied in the name of mounting/demounting. Off-dock container yard charge is levied in Busan port.

Collective charges are levied based on the terminal lease in most of the container terminals, including Busan, Hong Kong, Singapore and Yokohama ports.

### **3.3 Characteristics of port tariff structures by country**

#### **3.3.1 Australia - Sydney**

##### Navigation service group

Tonnage rates are applied to vessels. Light dues are charged to vessels. Pilotage and mooring services etc. are specified in the group.

##### Berth group

Berth hire is charged under the title of ship's berth hire. Wharfage is charged as cargo berth hire.

#### **3.3.2 China - Shanghai**

##### Navigation service group

Tonnage due is charged for port dues based on NRT (0.71 yuan renminbi). Quarantine is charged per ship's visit (1,560 yuan renminbi). Line handling, pilotage, towage, launch hire and husbanding fee (agency fee) are specified in the navigation service group.

## COMPARISON OF PORT TARIFF STRUCTURES

### Berth group and cargo operation group

Tariffs of the public berths specify berthage, stevedorage (lump-sum charge) and special cargo handling etc.

In the private container terminals, stevedorage (contract rate), berthing fee, weighting, line handling, lift-on/lift-off, and storage charges are applied collectively based on contract.

### 3.3.3 Hong Kong, China - Hong Kong

#### Navigation group

Light due (HK\$57/100NRT/Call) and anchorage due are levied separately. Mooring/unmooring, towage and pilotage are specified in the group.

#### Berth group

For the public cargo working area, berthing permit is charged to shipping lines. For the private container terminals, dockage is charged in line with or separately from stevedorage.

Port tariffs in the private container terminals are dependent upon the negotiation between the terminal operators and shipping lines. Port tariffs are charged collectively (through-put rate) as follows; terminal charge (stevedorage + marshalling yard fee + container yard charge + lashing fee + line handling + tally) plus storage, special cargo handling and extra movement if used.

### 3.3.4 India - Mumbai, Chennai

#### Navigation group

In Mumbai port, towage includes tug assistance and pilot boat charge. Anchorage fees are charged after 30 days from the day following the completion of anchoring.

#### Cargo operations group

Mobile cranes and equipment charge is charged additionally in Indian ports. This is one of the major reasons for the high port price in Indian ports. In Mumbai port dry dock charge is levied for docking and undocking.

### 3.3.5 Indonesia - Jakarta

Pilotage includes a premium for a pilot officer.

Anchorage dues could be combined into port dues, and wharfage/quay dues could be renamed as berth hire.

### 3.3.6 Japan – Yokohama and Osaka

#### Navigation group

In Japanese ports, port dues are applied to all entering vessels on the basis of GRT. Tonnage is additionally charged to the foreign vessels on the basis of NRT per voyage or year. Anchorage is charged after 48 hours if used.

Pilotage is charged according to bay and harbour districts.

In Yokohama port, mooring/unmooring charge (rope tying and untying) is levied.

#### Berth group

In Yokohama port, if dockage is charged, wharfage is exempted. Rental charges for use of land are levied per m<sup>2</sup>-month.

In Osaka port, wharfage is only applied to foreign vessels.

#### Cargo operations group

In Osaka and Yokohama ports, cargo operation charges are dependent upon the negotiation between the terminal operators and the shipping lines.

Harbour transportation services charges are levied for transporting cargo from aboard a berthed ship to inside transit shed/open storage yard per ton.

### 3.3.7 Malaysia - Port Klang

#### Berth group

Berthing charge is used for berth hire. Wharfage is levied differently for the foreign going ships and domestic trade ships.

### 3.3.8 Myanmar - Yangon

#### Navigation group

Pilotage is calculated using GRT and draft. Charges for pilot attendance and detention are included in the pilotage.

Port dues and light dues are charged for the ship's entrance using GRT. Berthing services charge is levied as mooring/unmooring charge.

Conservancy is levied as cargo's entrance charge.

#### Berth group

Berth hire is included in the berth group.

### 3.3.9 New Zealand - Auckland

The port tariff structure of Auckland port is the simplest in the region.

#### Navigation service group

All the navigation service charges are combined into a collective marine charge (port dues, pilotage, towage, linesmen charges) per GRT. A minimum charge (\$1,735) is applied).

Vessel moves are levied for the dead ship's movement between berths or wharves on request.

#### Berth group

Berth hire (per GRT) includes a connection fee for one telephone. Other charges such as lay-up berthage after seven days, water, shore power and garbage collection (only in conventional ports) are included in this group.

#### Cargo operations group

The goods wharfage charge includes stevedorage and wharf handling charges for a full container load/REEFER, empty container, less than container load devanned on wharf and trans-shipment.

Facility charges (facilities fee, shed charge and reefer power supply per cargo working vessel) and demurrage/storage/trans-shipment charges, and weighbridge are levied besides goods wharfage.



### 3.3.10 Pakistan - Karachi

#### Navigation group

The pilotage fee includes pilot attendance fees. Tug service includes launch hire and is used as towage.

#### Cargo operation group

The group consists of the basic tariff (loading & unloading charges, terminal handling charges, special cargo handling, extra movement, storage charges), demurrage charges, parking charges, and issue of weighment certificate in detail.

### 3.3.11 Philippines – Manila

#### Navigation group

Anchorage dues are specified in the port tariff. However, they are not levied in practice.

Tug service and pilotage are supplied by the private sector and are not specified in the port tariff.

#### Berth group

Berth hire is charged in the title of dockage at berth per GRT per calendar day. The rate is applied differently to government ports and private ports.

Entrance/clearance for customs clearance and immigration, pier lighting and reefer charges are charged as miscellaneous charges.

#### Cargo operation

Stevedorage includes the loading and unloading, lashing/unlashing, lifting and closing of hatch covers.

### 3.3.12 Republic of Korea - Busan

#### Navigation group

In Busan port, anchorage dues are additionally charged for the ship's staying at anchorage in gross tonnage.

### Berth group

Dockage is used as berth hire. Wharfage is levied for the cargo passing from navigation aids in the channel to cargo handling and storage facilities. This means that wharfage covers its own function, plus port dues for cargo.

### Cargo operation group

Off-dock container yard charge is levied for the container cargo on condition that 60 per cent of the container throughput of a liner shipping company is regarded as being processed in the off-clock container yard.

### 3.3.13 Singapore

The port tariff structure of Singapore Port is nearly identified to Port Tariff Structure Standards.

### Navigation group

Tug and pilotage services are provided by the private sector and their charges are not included in the port tariff.

### Berth group

Berth hire is charged in the title of dockage on the basis of length overall of vessel-hours.

Mooring/unmooring is levied as berthing/unberthing services per berthing or unberthing. Lashing/unlashing charge is levied per container (S\$3).

### Cargo operations group

Stevedorage consists of the basic rate, rehandling charge, lift on/off charge etc.

Storage charge is subdivided as follows: full/empty/trans-shipment and period.

### 3.3.14 Sri Lanka – Colombo

The port tariff structure of Colombo port is subdivided in detail, especially in stevedorage related charges.

### Navigation group

For port dues, entering dues and overhour dues and light dues are charged separately.

## COMPARISON OF PORT TARIFF STRUCTURES

Pilotage consists of pilotage payable on each arrival and professional pilot fees on the basis of 30,000 DWT.

Anchorage is charged from the fifth day of using anchorage for port entry.

### Berth Group

Berth hire is charged per 100 gross tonnage as dockage. A rental charge for occupying a berth at a wharf is levied after one hour from completion of discharging/unloading.

### Cargo operations group

Harbour tonnage dues are levied on the ship in addition to stevedorage for the laden containers discharged/loaded.

Movement of container is charged for the movement of containers from ship to marshalling yard. Lifting-on/lifting-off is charged as mounting & de-mounting containers.

Hiring services consists of hire of forklift truck & cranes and other equipment.

Stevedorage-related charges are subdivided to a very detailed level. It would be possible to assist users by simplifying them.

### 3.3.15 Taiwan Province of China – Kaohsiung

Container terminals are leased to the liner shipping companies and the public entity in Kaohsiung

### Navigation group

A tonnage due is charged to shipping companies as port dues on the basis of NRT (NT\$6.0). Buoyage is also charged to shipping lines.

Pilotage is charged based on the draft (per foot) and tonnage (per 500 GRT).

Wharfage is charged to a consignee for the use of water facilities and navigation aids.

### Berth group

Berth hire is charged in the name of dockage.

### Private container terminal

Container terminal charges are applied collectively to container cargoes as an agreement tariff (stevedorage + marshalling yard fee + container yard charge + lashing fee + line handling + tally + gate fee) in addition to over-storage and extra movement if used.

### 3.3.16 Thailand - Laem Chabang

The port tariff structure of Laem Chabang port is subdivided into great detail, especially in stevedorage-related charges (wharf handling and extra-movement). Hire of equipment and admission fee for gate and Customs office are levied additionally.

#### Navigation group

Pilotage service is provided by the private sector and is not specified in the port tariff. Pilotage includes a pilot transportation fee.

#### Berth group

Berth hire is levied per 100 GRT/hour and includes rope boat service (mooring/unmooring).

#### Cargo operations group

Marine survey service is separately charged.

Container cargo operation charges are subdivided into many items. Equipment hire for crane and truck and admission fee for vehicle and equipment for gate entry and in Customs area are charged additionally.

### 3.3.17 Viet Nam – Saigon Port

#### Navigation group

For port dues, maritime safety dues (0.209-0.282US\$/GRT) and tonnage dues (0.1 US\$/GRT) are charged separately. They are characterized by the offer of a rebate of 30 per cent, 50 per cent or 80 per cent based on the conditions.

#### Berth group

Wharfage is charged to vessels, cargoes and passengers. These three groups could be classified as berth hire, wharfage and passenger fee respectively.

### Cargo operations group

Container in lighterage is charged for the movement of containers in lighterage.

Hire of labour, means and equipment is levied for the hire of skilled/unskilled labour, crane and barge etc., and truck and forklift.

### Other business group

A clearance fee is charged for the vessel entering/leaving the port on the basis of GRT.

## **3.4 Port pricing approaches and systems by country**

### **3.4.1 Port pricing approaches by country**

Reviewing port pricing approaches by country (based on the sample ports) in the ESCAP region reveals that most of countries adopt the principle of cost-based pricing. Some of the countries, however, place more emphasis on market-based pricing including examples of performance-based pricing based upon market size and competition.

#### Hong Kong, China

The cost-based approach is employed, but port pricing is likely to be influenced politically by the Shippers' Association etc. The government is only responsible for the investment in navigation channels. There is no clear expressed criteria for the cost recovery.

#### India

The cost-based approach is adopted, and performance-based and value-based approaches are followed.

#### Malaysia

The port tariff has not been adjusted in Malaysia since 1963. Principles of port pricing in Malaysia are not clear, but it is possible that pricing approaches based on cost-based pricing will be taken if the port tariff is revised in the future.

### Myanmar

In container terminals, the cost-based approach occupies about 70 per cent, the performance-based about 25 per cent, and other approaches about 5 per cent in port pricing.

### Republic of Korea

Four kinds of approaches are adopted in port pricing in the ports of the Republic of Korea. About 42 per cent of port costs was reflected in port prices in 1996.

Port pricing is carried out predominantly based on cost. It was found, however, that costs are not recovered completely in port pricing.

### Singapore

Four kinds of port pricing approaches are basically applied in Singapore. PSA Corporation adopts a market-based approach in that shipping companies are offered special offers according to the long-term contracts.

### Taiwan Province of China

Cost-based and performance-based approaches are dominant in the Taiwanese ports. Trade promotion is also a major consideration in port pricing.

### Thailand

The cost-based approach is the principle, but the target rate of cost recovery is not 100 per cent.

### Viet Nam

It was found through interviews that the cost-based approach occupies 60 per cent, market-based 20 per cent and performance-based and value-based 10 per cent respectively in port pricing. The Viet Nam National Pricing Committee is responsible for managing prices in Viet Nam. Most sectors are free from the Committee's control, but the port sector.

## 3.4.2 Procedure and timing for port tariff revision

### (a) Revision procedure

Generally, the personnel of the responsible departments first review the costs for the facilities and services to produce a tariff revision draft and to discuss the possible problems with the revision. Approval from the related government organizations

## COMPARISON OF PORT TARIFF STRUCTURES

should be obtained, as required, before finally implementing the port tariff revision. An outline of the process in various countries follows.

### Hong Kong, China

Port tariff levels are reviewed every year; a revision draft is reported to the government; approval is sought from the Parliament; port tariff revision is executed.

### Malaysia

A cost review of port facilities and services is conducted; market sensitiveness is reviewed; opinions are collected from related parties; approval from the government (Ministry of Transport) is sought.

### Myanmar

Port authorities recognize the necessity of tariff revision: a prepared revision draft is submitted to the Ministry of Transport; approval from the Parliament through the Trade Commission is obtained; port tariff revision is executed.

### Singapore

There is a practical management review of port tariff levels; the revision draft is reported to the senior management; approval from the Ministry of Communications, Information and Transport through the MPAS Board is sought; the revision is discussed with shipping companies; port tariff revision is executed.

### Taiwan Province of China

Local port authorities recognize the necessity for tariff revision: approval from the Ministry of Transport is obtained; the revision is discussed with related parties; port tariff revision is executed.

### Viet Nam

At the practical level, the Viet Nam National Shipping Lines (VINALINES) and the Viet Nam National Maritime Bureau (VINAMARINE) produce a revision draft and submit it to the Viet Nam National Pricing Committee; approval is sought from the committee instead of Parliament; port tariff revision is executed.

### (b) Revision Periods

Revision or adjustment periods are not definite and are perceived as likely to be shorter in the future. For many countries the target period is one year. Port tariffs are also revised irregularly according to the market situation.

## COMPARISON OF PORT TARIFF STRUCTURES

### Hong Kong, China

Every year port tariff levels are reviewed.

### India

Port tariffs used to be revised every three years, but currently it is two years. In future the port tariff is expected to be revised every year.

### Republic of Korea

Port tariffs are revised every two or three years.

### Singapore

Every year port tariff levels are reviewed. Recently in 1996 port dues were discounted at a 20 percent rate.

### Taiwan Province of China

In Kaohsiung port, port tariffs were revised in 1998. Port tariff levels were on an upward trend until 1998, thereafter the trend was reversed.

### Thailand

Laem Chabang Port tariffs were revised in 1992 and Bangkok Port tariffs were revised in 1996.

### 3.4.3 Reasons for revising port tariffs

One of the major reasons given for port tariff revision is the cost push factor. In some countries the revision is used as a marketing tool to attract ships.

### Hong Kong, China

Basically the cost-push factor is the reason, but political influences from the Shippers' Association are other factors.

### India

Inflation, increasing fuel costs, port workers wage, exchange loss etc. are some of the reasons for a revision.



### Myanmar

Cost push was the major factor in the 1990 revision and inflation including energy prices, in the 1998 adjustments.

### Singapore

Port dues have been discounted at a 20 per cent rate as a promotion tool since 1996.

### Taiwan Province of China

Deficit from port operations, inflation, market development and strengthening competitiveness were the reasons for revision.

### Thailand

Cost push, change of cargo composition rate as cost distribution factor, and change of payer of the tariff caused a revision of port tariffs.

### Viet Nam

Inflation was the prime cause.

### 3.4.4 Incentive systems of port tariff by country

An incentive policy that discounts or exempts port tariffs to strengthen competitiveness is not so prevalent because port tariffs are characterized by public control. Most countries, however, employ some incentives as a policy measure. For private sector operating ports, tariffs are regulated using only upper limit tariffs.

### Hong Kong, China

Container terminal operators are responsible for the port pricing of their own income (cargo handling, berth hire etc.). Port dues, which the Hong Kong Government Marine Department is responsible for levying, are not discounted. The port revenues of the Marine Department are totally returned to the Hong Kong Government.

### India

A volume discount is applied to total service volume.

## COMPARISON OF PORT TARIFF STRUCTURES

### Malaysia

Port tariffs are compulsory. For the private firms port tariffs can be discounted, but not over-charged.

### Myanmar

No discount and incentive rates are applied in port tariffs.

### Singapore

For the trans-shipment cargoes, the Port of Singapore Authority (PSA) Corporation is independently responsible for pricing. Port dues have been discounted at a 20 per cent rate since 1996.

### Taiwan Province of China

Stevedorage can be discounted by 20 per cent, G/C rental charge by 30 per cent and trans-shipment, charge by 50 per cent. But port tariffs can be over-charged.

### Thailand

The trans-shipment cargoes through Laem Chabang port can be discounted for port marketing purposes, but not over-charged.

## 3.4.5 Laws and regulations governing port tariffs by country

The regulatory bodies of port tariffs are generally port authorities. Port tariffs are likely to be controlled by laws and regulation legislated by parliaments.

### India

Major Port Trust Act for major ports trusts, and Indian Port Act for the other ports.

### Malaysia

The Port Authority Act and Acts of Parliament.

### Myanmar

No special laws or regulations.

### Taiwan Province of China

Port Act

## COMPARISON OF PORT TARIFF STRUCTURES

### Thailand

Port Act

### Viet Nam

Two laws related to port tariff regulations are: 137 Decision of Prime Minister (27/4/1992) on Controlling Prices; and Inter-ministerial Circular on the Control of Port Tariff (02/TTLB, 12/4/1993).