

Annexure - 1

Report of the Committee on Estimation of Costs And Benefits of Pre-Shipment Inspection (PSI)⁴⁷

Cost And Benefits of Pre-Shipment Inspection

This note attempts to estimate the potential costs and benefits which might result from the proposed introduction of Pre-shipment Inspection (PSI) program in Bangladesh. On the cost side the issue is relatively simpler since it primarily involves the fees payable to the PSI agents, including some sensitivity analysis on the possible fee structure and the size of imports under the exclusion list. However, on the estimation of benefits, the problem is much more difficult. In one hand, any estimation of potential financial benefit is likely to be plagued by rough assumptions leading to potentially large margin of variations ; on the other hand, there may be numerous benefits no such estimates are possible, we also try to indicate the potential sources of these benefits in this note.

I. Cost Estimates

Generally the fee structure for PSI consists of an *ad valorem* fee and a minimum fee. Cross country experience indicates that the *ad valorem* fee ranges between 0.60 to 1.25 percent of the cost and freight (C & F) value of goods shipped, with the average ranging around 0.90 percent of the C & F value. The minimum fee is

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generally being around US\$ 300 per consignment. Because of this minimum fee the effective average cost for PSI could be significantly higher than the standard modest fee of less than one percent ; indeed, for a shipment of US\$ 2500, the effective cost increases to 11 percent of the C & F value (Table I). In order to avail the lower average PSI rate of 0.90 percent, the value of import shipments need to exceed US\$ 30,000. Examination of value of shipments based on customs data indicates that more than 80 percent of shipments will be worth more than US\$ 2500, and thus, should come under the proposed PSI scheme ; thus for bulk of imports into Bangladesh, the fee for PSI inspection will range between 10 percent to 0.90 percent, depending on the value of shipments.

Although it is believed that most of the shipments will be in excess of US\$ 2500, because of the incidence of higher effective rate of PSI fee for low value goods, which account for most of our shipments in terms of numbers, a threshold of US\$ 2500 would imply an average effective rate of 3.5 percent. Since shipments in the range of US\$ 5,000 - 10,000 accounts for more than 40 percent of shipments, and shipments upto that category is believed to account for no more than 60 percent of shipments, very few shipments would get the benefit of the lower *ad valorem* inspection fee of around 0.90 percent. Indeed, preliminary reports from the Chittagong Customs House where most of the high value shipments arrive, indicates that the number of shipments carrying goods in excess off US\$ 30,000 account for less than 5 percent of the total shipments. Thus, the key to a potential reduction in the effective fee for PSI lies with the attainment of a lower minimum inspection fee. A reduction in the minimum inspection fee to a level of US\$ 250 from the more likely rate of US\$ 300 would reduce the effective rate of PSI fee to around 2.9 percent (Table 2). Since the Pre-shipment inspection agent will be selected through tenders, the trade-off between minimum fees and flat *ad valorem* fee needs to be very carefully

weighed. A higher flat rate fee without any minimum fee within bounds may be preferable to a lower flat rate fee with a minimum fee. Indeed, a minimum fee of US\$ 250 and a threshold limit of US\$ 5000 will reduce the effective rate to 1.8 percent (Table 3).

Another important element of the cost is the coverage of the PSI programme. A threshold level of US\$ 2500 would exclude 22 percent of the shipments from the PSI network based on clearance through the Chittagong port and this would be higher for other Custom Houses/Stations. In addition to the threshold the coverage of the PSI would be limited by the exclusion list. At present imports like crude petroleum oil, aircrafts, locomotives, ships above 3000 DWT, and defense stores are expected to be excluded from the PSI. Rough estimates indicates that these (excluding defense) and other minor exclusions would account for 10 percent of value of imports based on the payments data. Preliminary estimates based on 3.5 percent average rate of fee and exclusion of 32 percent of imports from PSI 2.2 percent from threshold and 10 percent on account of exclusion factor would cost the economy about US\$ 90 million for fiscal year (FY) 1990/91 on an annualized basis. With the growth in import payments, the cost is projected to increase to US\$ 99 million and US\$ 108 million, respectively, in FY 1991/92 and FY 1992/93 (Table 4).

However the above estimates may be qualified in light of two important factors :

- (i) The experience of other countries indicate that there may be a tendency to split the shipments into smaller amounts in order to avoid the PSI.
- (ii) The Government by skillful negotiations may reduce the minimum fees in order to achieve cost reductions taking into account the specific nature of imports into Bangladesh: the high incidence of low value shipments makes the effective rate of fee extremely sensitive to the minimum fee negotiated with the PSI agent.

Taking these two factors and assuming that the government succeeds in reducing the minimum fee the cost estimates provided above could be significantly reduced. As represented in Scenario II which assumes a threshold limit of US\$ 2500 and a minimum fee of US\$ 250 per shipment and an increase in the number of consignments due to the expected splitting and exclusion factor of 15 percent, the potential payments could be reduced by as much as 30 percent (Table 4). Based on Scenario II, the PSI cost is projected to increase to US\$ 68 million and US\$ 75 million, respectively, in FY 1991/92 and FY 1992/93.

However, the saving potential from the cost side would be maximum under Scenario III, which stipulates a higher threshold limit at US\$ 5000, minimum fee of US\$ 250 per shipment and exclusion factor of 15 percent. Under this scenario, total cost will decline to US\$ 32 million in 1990/91 compared with US\$ 90 million estimated under Scenario I. Similar cost savings follows in subsequent years. It may be noted, that the cost estimates provided in above scenarios could be somewhat lower if we allow for the PSI costs already being incurred by various government agencies and private enterprises under bilateral arrangements.

II. Estimate of Potential Benefits

a. Foreign Exchange Saving

Our analysis is limited to estimation of foreign exchange savings and to the increase in revenue to the government resulting from introduction of PSI. The methodology for estimating foreign exchange savings is based on the use of historically observed difference between payments data for imports (based on balance of payments) and the customs data compiled by the National Board Revenue. Historically, the payments data is around 30 percent higher than the customs data (Table 5). However, much of the difference can be attributed to different methods of accounting,

The major adjustments include : adjustments for imports under back-to-back letter of credit arrangements ; adjustments for under invoicing; allowance for indirect financing of smuggling through the over-invoicing; and an allowance for potential errors and omissions resulting from goods not cleared from the port and other incompleteness of the data. The adjustment for underinvoicing has been made since it is believed that significant proportion of high duty imports by the private sector are imported at an underinvoiced price and these are partially financed through over-invoicing based on Table 8. Even after allowing for these adjustments the import payments exceeds the arrival of goods by 136 million for the FY 1990/91 (Table 6). This amount is projected to increase to US\$ 187 million by FY 1992/93. The proposed PSI arrangement can potentially lead to a saving of the stated amount by preventing over-invoicing and other irregular banking and trade practices.

b. Revenue Gains

The revenue gains to the government as estimated in this note follows from the gains in foreign exchange and the assumption that this foreign exchange savings will lead to a corresponding increase in imports. Revenue gains to the government has two components :

- (i) additional imports due to prevention off over-invoicing; and
- (ii) through prevention of underinvoicing.

Although under- invoicing has been excluded earlier as a component of foreign exchange saving, prevention of this would lead to additional revenue earnings for the government. Using the average effective rate of duty on imports (40 percent, including sales tax and development surcharge), the estimated revenue gains would be Tk. 660 crore (equivalent to US\$ 184 million) in FY 1990/91 on an annualized basis. This revenue gain is projected to increase to Tk. 840 crore (equivalent to US\$ 233 million) by FY 1992/93.

III. Cost Benefit Analysis

Cost-benefit analysis based on three scenarios are presented in Table 7. The net benefit under Scenario I is expected to be Tk. 800 crore (US\$ 230 million) and the corresponding ratio of cost to benefits as percent of benefits to the Government will be around 28 percent in FY 1990/91. This scenario is based on the assumption that the threshold level would be at US\$ 2500 and the minimum fee of US\$ 300 per shipment, and thus, represents a somewhat pessimistic scenario. If the Government succeeds in getting a reduction in the minimum fee to US\$ 250 per shipment, as assumed under Scenario II, the net benefit may increase to more than Taka 965 crore (US\$ 268 million), on an annualized basis in the first year. The corresponding cost to benefit ratio will decline to 19 percent, indicating that the benefits to the Government might be more than 5 times the costs of the PSI arrangement. The most desirable outcome has been shown under the Scenario III ; this assumes that the minimum fee will be US\$ 250 threshold of US\$ 5000. Under this scenario, the net gain will be ratio will be around 10 percent indicating that potential benefits could be as high as 10 times of the costs.

IV. Limitations of the Analysis

So far in this analysis we have not covered potential savings to the private sector through the reduction in time of clearance and the consequent interest saving and other no quantifiable benefits resulting from timely marketing of products.

V. Tables of Data

Data relevant to this cost-benefit analysis are presented in seven Tables given in the following pages.

Table 1 : Distribution of Consignments by C & F Value, First Quarter 1990

Value of shipments	Chittagong Custom House (Numbers)	In Percent of Total	Value of import (Cr. Tk.)	Average value of shipments (In 1000 Tk.)	Effective PSI rate of fees (In %)
Below US\$ 2000	4298.00	18.32	15.47	36.00	.....
US\$ 2001-2499	550.00	3.62	6.89	81.00	.....
US\$ 2500-2999	938.00	4.00	9.29	9.00	10.91
US\$ 3000-3499	771.00	3.29	9.02	117.00	9.23
US\$ 3500-3999	688.00	2.93	9.29	135.00	8.00
US\$ 4000-4499	578.00	2.46	8.84	153.00	7.06
US\$ 4500-4999	699.00	2.98	11.95	171.00	6.32
US\$ 5000-10000	10983.75	46.81	296.56	270.00	4.00
US\$ 10000-20000	2929.00	12.48	158.17	540.00	2.00
US\$ 20000-30000	366.13	1.56	32.95	900.00	1.20
US\$ 30000 +	366.13	1.56	1298.02	35452.99	0.90
Total	23467.01	100.01	1856.45	791.09	3.49

Memorandum items :

US\$ 5000 +	14645.00	62.41	1849.38	126.28	80.99
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Source : Custom House, Chittagong.

Table 2 : Scenario II : Determination of the Average Effective Fee for PSI Scheme

Value of shipments	Chittagong Custom House (Numbers)	In Percent of Total	Value of import (Cr. Tk.)	Average value of shipments (In 1000 Tk.)	Effective PSI rate of fees (In %)
Below US\$ 2000	4298.00	18.32	15.47	36.00	.....
US\$ 2001-2499	850.00	3.62	6.89	81.00	.....
US\$ 2500-2999	938.00	4.00	9.29	99.00	9.09
US\$ 3000-3499	771.00	3.29	9.02	117.00	7.69
US\$ 3500-3999	688.00	2.93	9.29	135.00	6.67
US\$ 4000-4499	578.00	2.46	8.84	153.00	5.88
US\$ 4500-4999	699.00	2.98	11.95	171.00	5.26
US\$ 5000-10000	10983.75	46.81	296.56	270.00	3.33
US\$ 10000-20000	2929.00	12.48	158.17	540.00	1.67
US\$ 20000-30000	366.13	1.56	32.95	900.00	1.00
US\$ 30000	366.13	1.56	1298.02	35452.49	0.90
Total	23467.01	100.00	1856.45	791.09	2.91

Memorandum items :

US\$ 5000	14645.00	62.41	1849.38	126.28	80.99
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Source : Based on data collected from Chittagong Custom House for the period January -March 1990.

Table 3 : Determination of the Average Effective Fee for PSI Scheme

Value of shipments	Chittagong Custom House (Numbers)	In Percent of Total	Value of import (Cr. Tk.)	Average value of shipments (In 1000 Tk.)	Effective PSI rate of fees (In %)
Below US\$ 2000	4298.00	18.32	15.47	36.00	.....
US\$ 2001-2499	850.00	3.62	6.89	81.00	.....
US\$ 2500-2999	938.00	4.00	9.29	99.00	.....
US\$ 3000-3499	771.00	3.29	9.02	117.00	.....
US\$ 3500-3999	688.00	2.93	9.29	135.00	.....
US\$ 4000-4499	578.00	2.46	8.84	153.00	.....
US\$ 4500-4999	699.00	2.98	11.95	171.00	.....
US\$ 5000-10000	10983.75	46.81	296.56	270.00	3.33
US\$ 10000-20000	2929.00	12.48	158.17	540.00	1.67
US\$ 20000-30000	366.13	1.56	32.95	900.00	1.00
US\$ 30000 +	366.13	1.56	1298.02	35452.49	0.90
Total	23467.01	100.01	1856.45	791.09	1.80

Memorandum items:

US\$ 5000 +	14645.00	62.41	1849.38	126.28	1.80
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Source : Based on data collected from Chittagong Custom House for the period January - March 1990.

Table 4 : Comparison of Alternative Cost estimates of PSI under alternative Scenarios, 1990/91 -91/92

	1990/91	1991/92	1992/93
	(In millions of US dollar)		
Projected value of imports	3799	4153	4561
Potential imports under PSI			
Scenario I 1/	2583	2824	3101
Scenario II 2/	2143	2342	2572
Scenario III 3/	1786	1952	2144
Alternative, effective PSI fees			
Scenario I 1/	3.49	3.49	3.49
Scenario II 2/	2.91	2.91	2.91
Scenario III 3/	1.80	1.80	1.80
Alternative payments to PSI agents			
Scenario I 1/	90	99	108
Scenario II 2/	62	65	75
Scenario III 3/	32	35	39
Memorandum items :			
Scenario I 1/			
Shipments outside the scope of PSI	32	32	32
Shipments under \$ 2500	22	22	22
Exclusion factor	10	10	10
Scenario II 2/			
Shipments outside the scope of PSI	44	44	44
Shipments under \$ 2500	29	29	29
Exclusion factor	15	15	15
Scenario III 3/			
Shipments outside the scope of PSI	53	53	53
Shipments under \$ 5000	38	38	38
Exclusion factor	15	15	15

Source : Data obtained from IMF and NBR staff.

- 1/ assumes a threshold limit of US\$ 2500, minimum fee of US\$ 300 per shipment, *ad valorem* fee of 0.90 percent.
- 2/ assumes a threshold limit of US\$ 2500, minimum fee of US\$ 250 per shipment, *ad valorem* fee of 0.90 percent and increase in the number of consignment below the threshold limit due to expected higher incidence of splitting. Exclusion factor is assumed to increase by 5 percentage points due to prudent selection of additional items for the exclusion list.
- 3/ Assumes a threshold limit of US\$ 5000, minimum fee of US\$ 250 per shipment, *ad valorem* fee of 0.90 percent and an increase in the number of consignment below the threshold limit due to expected higher incidence of splitting. Exclusion factor is assumed to increase by 5 percentage points due to prudent selection of additional items for the exclusion list.

Table 5 : Comparison of Imports based on Payments and Customs Data, 1984/85-1989/90

	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
	(In Millions of U. S. Dollars)					
Payments Data	2647.00	2364.00	2620.00	2987.00	3373.00	3583.00
Customs Data	1936.58	1645.12	1601.47	2028.05	2225.90	2743.44
	(In Crores of Taka)					
Payments Data	6871.61	7072.14	8026.37	9333.18	10841.83	11800.97
Customs Data	5027.37	4921.55	4906.09	6336.86	7154.71	9035.78
Difference Between Customs & Payments Data In Crore Taka in Percent	710.42 26.84	718.88 30.41	1018.53 38.88	958.95 32.10	1147.10 34.01	839.56 23.43
Memorandum item: Exchange Rate	25.96	29.92	30.64	31.25	32.14	32.94

Source : The National Board of Revenue (NBR) and International Monetary Fund (IMF).

Table 6 : Estimate of Potential Benefits from the PSI, 1990/91-92/93

	1990/91	1991/92	1992/93
	(In millions of US dollars)		
Value of imports			
Payments data	3799	4153	4561
Customs data	2798	3046	3332
Potential net evasion of foreign exchange	136	160	187
Diff. between pay. And Cus. data	1001	1107	1229
Adjustment for under invoicing 1/	280	305	333
Adjustment for financing of smuggli	45	53	62
Adjustment for back to back LC 2/	400	437	480
Adjustment for errors and omissions 3/	140	152	167
Potential loss of revenue	184	207	233
Through evasion of foreign exchange 4/	72	85	100
Through under invoicing of imports	112	122	133
	(In Crores of Taka)		
Value of imports			
Payments data	13676	14951	16420
Customs data	10073	10966	11994
Potential net evasion of foreign exchange	489	575	674
Diff. Between pay. And Cus. data	3603	3985	4426
Adjustment for under invoicing 1/	1007	1097	1199
Adjustment for back to back LC 2/	1440	1574	1729
Adjustment for errors and omissions 3/	504	548	500
Potential loss of revenue	664	745	839
Through evasion of foreign exchange	261	306	359
Through under invoicing of imports	403	439	480
Memorandum item:			
Exchange rate	36	36	36
Average duty rate 4/	40	40	40

Source : Estimates based on IMF projection for imports on payments basis.

- 1/ Assumes that 10 percent of value of imports, based on customs data, reflects the amount of under-invoicing financed through over-invoicing of imports in other categories.
2/ Financing of back-to-back imports are included in the payments data but not included in the customs data.
3/ Includes items like goods not cleared from the port and other incompleteness of the data.
4/ Sum of the net evasion of foreign exchange and the financing of smuggling through over-invoicing.

Table 7 : Estimated Costs and Benefits of the PSI Program : Alternative Scenarios, 1990/91-92/93

	1990/91	1991/92	1992/93
	(In millions of US dollars)		
Overall costs under various Scenarios			
Scenario I	90	99	108
Scenario II	62	68	75
Scenario III	32	35	39
Total benefits under the program			
Benefits Scenario I	320	367	420
Foreign exchange savings	136	160	187
Revenue gains	184	207	233
Benefits Scenario II 1/	312	359	412
Foreign exchange savings	136	160	187
Revenue gains	176	199	225
Net gains to the government			
Scenario I	230	268	312
Scenario II	258	298	345
Scenario III 2/	280	323	374
	(In Crores of Taka)		
Overall costs under various Scenarios			
Scenario I	325	355	390
Scenario II	224	245	269
Scenario III	116	126	139
Total benefits under the program			
Benefits Scenario I	1153	1320	1513
Foreign exchange savings	489	575	674
Revenue gains	664	745	839
Benefits Scenario II 1/	1124	1291	1484
Foreign exchange savings	489	575	674
Revenue gains	635	716	810
Net gains to the government			
Scenario I	528	965	1123
Scenario II	928	1074	1243
Scenario III 2/	1008	1164	1345
	(In percent)		
Ratio of costs to benefits			
Scenario I	28	27	26
Scenario II	19	19	18
Scenario III 2/	10	10	9

Source : Staff estimates

- 1/ Allows for reduction of benefits resulting from higher threshold at US\$ 5000, compared with the threshold of US\$ 2500 assumed in the other scenarios.
2/ Based on Benefit Scenario II and the Cost Scenario III.