

Working Paper Questionnaire No. 8

Name of Paper:

Taxing the Pollution: A Case for Reducing the Environmental Impacts of Rubber Production in Sri Lanka, by Jagath Edirisinghe, Susantha Siriwardana, Sarath Siriwardana and Punsara Prasadith, SANDEE Working Paper No. 30 -08

Abstract:

Most firms that process rubber in Sri Lanka do not comply with national water pollution control standards. This study seeks to estimate a pollution tax that could motivate firms to meet these standards. The authors use data from 62 rubber producing firms in Sri Lanka over three years to estimate a marginal cost function for pollution abatement. They then estimate the taxes that would bring firms into compliance. The tax rate necessary for environmental compliance is 26 Sri Lankan rupees per 100 grams of Chemical Oxygen Demand (COD) per year. While the burden of a pollution tax on the average firm would be 8.6% of annual turnover, the tax burden varies with the size of the firm. The authors suggest that the use of such an economic instrument might motivate the Central Environmental Authority to monitor effluents more carefully and firms to make use of effluents.

Key words: water pollution, effluent taxes, rubber industry, Sri Lanka

Date of Survey: 01/2006 to 04/2006
(dd/m/yr –dd/m/yr)

Place of Survey:

Kalutara, Kegalle, Ratnapura, Colombo, Gampaha and Galle districts in Sri Lanka

Type of Survey: Rubber Factories

Number of Respondents: 62 rubber manufacturing factories

3.2 Annual costs and turn over

Year	Total cost (Rs)	Annual turn-over of Estate (Rs)
2005		
2004		
2003		
2002		
2001		

3.3 Stock at the end of the year

Year	Latex crepe	Scrape crepe	Sole crepe	RSS	Dipped product	Other (specify)
2005						
2004						
2003						
2002						
2001						

4. Input usage

4.1 Estate

4.1.1 Labor & Staff

Year	Labor			Staff	
	Man days	Wage rate	Cost	No of Staff	Cost
2005					
2004					
2003					
2002					
2001					

4.1.2 Other input of estate

Year	Land		Fertilizer		Chemicals	
	Mature	Immature	Qty (kg)	Cost (Rs)	Volume	Cost (Rs)
2005						
2004						
2003						
2002						
2001						

4.1.3 Clones cultivated (Extent under each clone in Ha)

Year	RRISL 100	RRISL 101	RRISL 102	RRISL 103	PB86	Other (Specify)
2005						
2004						
2003						
2002						
2001						

4.2 Factory

4.2.1 Input usage

Year	Labor			Chemicals		Fuel		Power Cost	Water (Rs/ year)
	Man days	Wage rate	Cost	Vol	Cost	Amount	Cost		
2005									
2004									
2003									
2002									
2001									

4.3 Expenditure on man power

Number of Employees

Year	Estate		Factory		Office		Total wage bill /year for the whole
	Casual	Perma- nent	Casual	Perman- ent	Casual	Perma- nent	
2005							
2004							
2003							
2002							
2001							

4.4 Rent

- Do you pay rent for factory / estate? Y / N.
- If yes;

Year	Area rented (Ha)	Rent pre unit area
2005		
2004		
2003		
2002		
2001		

5. Capital stock

5.1 Value of capital stocks in the estate

Year	Val. of Buildings	Plant and Machinery	Vehicles	Other	Total
2005					
2004					
2003					
2002					
2001					

5.2 Depreciation rates used

- For buildings.
- For plants and machinery's.

Part 2

Water pollution abatement

6. Do you operate a treatment plant? Y / N.

- If yes go to 7
- Else go to 8

7.1 General technical details

7.1.1 Total capacity of the factory.....

7.1.2 Avg. running capacity / per day (25%, 50%, 75% other).

7.1.3 Avg. volume of untreated waste water generated per day.....

7.1.4 Nature of treatment (primary, secondary, tertiary).....

7.1.5 Total cost of the investment (Rs).....

7.2 Economic details

7.2.1 Year of the installation of the treatment plant.....

7.2.2 Value of capital stock of treatment plant

Year	Value	Year	Value	Year	Value
2005		2003		2001	
2004		2002			

7.2.3 Number of people employed in treatment plant

Year	Engineers	Supervisors	Skilled labors	Unskilled labors	Other
2005					
2004					
2003					
2002					
2001					

7.2.4 Annual labor cost (Rs)

Year	Salary (Supervisor, Engineer etc connected to ETP)	Total labor cost
2005		
2004		
2003		
2002		
2001		

7.2.4.1 Breakdown of labor cost in 2005

Item	Man days 2005	Total labor cost
Repairs		
Cleanings		
Other		

7.2.5 Annual maintenance expenditure (Excluding wages)

Year	Maintenance exp.
2005	
2004	
2003	
2002	
2001	

7.2.6 Annual material cost (Rs)

Year	Material cost
2005	
2004	
2003	
2002	
2001	

7.2.7 Annual material cost (Fuel & Power)

Year	Energy cost
2005	
2004	
2003	
2002	
2001	

7.2.7.1 Electricity consumption

	Aerator	Sludge pump	Effluent pumping
No of Motors			
Horse power			
Running duration / day			

7.2.7.2 Rate at which electricity is change (Rs / unit).....

7.2.8.1 What is the total annual expenditure for the treatment plant

Year	Cost (Rs)
2005	
2004	
2003	
2003	
2001	

7.2.9 Where does the treated water discharge?

Stream River Paddy field other

7.2.10 Do you have any complaints on environmental pollution by the factory?

Y / N

If yes,

7.2.10.1 From where, Factory Villagers Your workers
 Other

7.2.10.2 Why did your company decide to invest on a treatment plant.....

8.0 Please fill for those factories that do not have a treatment plant

8.1 Why have you not invested in a treatment plant?

No complaint High cost Low profitability from rub
 Don't knew about treatment Plants not importa
 Other.....

8.2 Do you think that effluent has any environmental hazard? Y / N

8.3 Are there any complaints on environmental pollution by your factory Y / N
 IF yes, from where

Within factory Villagers Others

8.4 What was the complaint?

- Smell.....
- Contaminated water ways.....
- Increased disease incidences
- Any other.....

9.0 Influent and effluent characters (Fill the table below, after the sample is analyzed)

9.1 Influent quality

Date(collected)	Date Analyzed	BOD	COD	PH	TSS	TS

9.2 Treated effluent quality

Date(collected)	Date Analyzed	BOD	COD	PH	TSS	TS

10. Environmental regulations

10.1 Agencies or persons (government / private) with whom the firm has been interacting in the recent past in connection with the pollution abatement

- 1.....
- 2.....
- 3.....

10.2 Number of court cases about air/ water pollution by CEA, Local people, NGO, etc against factory

Year	CEA	Local people	NGO	Other (specify)
2005				
2004				
2003				
2002				
2001				

10.3 Legal expenses of the firm to deal with court case for air/ water pollution

Year	Expansion	Compensation	total
2005			
2004			
2003			
2002			
2001			

10.4 Number of visits to factory by CEA for monitoring pollution

Year	No of visits
2005	
2004	
2003	
2002	
2001	

10.5 Fine / penalty imposed / compensation paid for non-complying with the standards of air water pollution.

10.6 Subsidy, depreciation, allowances, and tax concessions received from the government for controlling pollution.

Year	Subsidies	Dep. Allowances	Tax concessions	Loan scheme