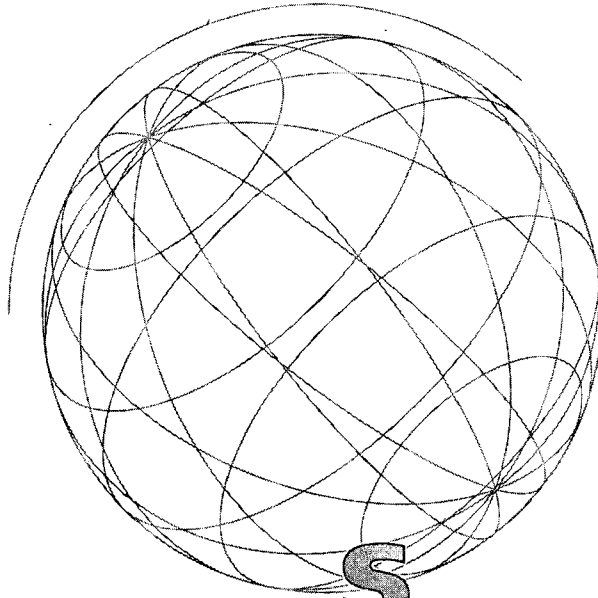




WORLD TRADE
ORGANIZATION



**S
P
E
C
I
A
L

S
T
U
D
I
E
S

4**

**TRADE AND
ENVIRONMENT**

Håkan Nordström
and Scott Vaughan

This study was initiated by Håkan Nordström of the Economic Research and Analysis Division of the WTO and Scott Vaughan while he was at the Trade and Finance Division of the UN Environment Programme (UNEP). Mr. Vaughan has since left UNEP to join the NAFTA Commission for Environmental Cooperation. The annexes have been prepared by the Trade and Environment Division of the WTO. The authors would like to thank Samir Abhyankar, Ali Dehlavi, Daniel Esty, Karl-Michael Finger, Christina Hartler, Henrik Horn, Alexander Köck, Patrick Low, Doaa Abdel Mottaal, Lydia Rumphorst, Sabrina Shaw, Jan-Eirik Sørensen and an anonymous commentator for valuable inputs and comments, as well as Lidia Carlos Silvetti and Janet Spettel for secretarial services. The opinions expressed in this report should be attributed to the authors and not to the institutions they represent.

Table of contents

Executive Summary	1
I. Introduction	9
II. Causes of Environmental Degradation and the Interaction with Trade	13
A. Chemical-intensive agriculture	14
B. Deforestation	16
C. Global warming	18
D. Acid rain	20
E. Overfishing	21
F. Concluding remarks	26
III. General Equilibrium Linkages Between Trade and the Environment	29
A. Theoretical overview	29
B. Empirical overview	31
C. Applied models	33
D. Concluding remarks	34
IV. Does Economic Integration Undermine Environmental Policies?	35
A. The competitive consequences of environmental regulations	36
B. Do environmental regulations induce the relocation of firms?	38
C. International evidence	39
D. Restraining factors that prevent the migration of polluting industries	40
E. A race-to-the-bottom, a race-to-the top, or no race?	41
F. Empirical evidence of regulatory races and chills	44
G. Concluding remarks	46
V. The Relationship Between Trade, Economic Growth, and the Environment	47
A. Theoretical overview	49
B. Is economic growth sufficient to induce environmental improvements?	51
C. Empirical evidence	52
D. International trade and the EKC	54
E. Concluding remarks	57
VI. Concluding Remarks	59
Bibliography	61
Annex I: Trade and environment in the GATT/WTO	67
Annex II: Report by Ambassador H. Ukawa (Japan), Chairman of the Group Environmental Measures and International Trade, to the 49th Session of the Contracting Parties, L/7402 (without annexes)	88
Annex III: Report (1996) of the Committee on Trade and Environment, WT/CTE/1, (Section III, Conclusions and Recommendations)	98
Annex IV: Committee on Trade and Environment, 1995 to mid 1999	104
Annex V: Marrakesh Decision on Trade and Environment	109