



## **Annotated Bibliography**

### **Commission for Environmental Cooperation Publications and Work on:**

## **Environmental Assessment of Trade in North America**

**Trade and Environment, August 2005**

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### **Introduction**

Following a brief introduction to the CEC's Trade and Environment program and its symposia, studies commissioned or produced by the CEC are described. Papers generated for the 2003 and 2000 CEC symposia on trade and environment in the Americas and for the 2002 meeting "Assessing the Environmental Effects of Trade Liberalization: Lessons Learned and Future Challenges" are then presented. A final section lists the six documents published in the Environment and Trade series, including the 1999 *Analytic Framework for Assessing the Environmental Effects of the North American Free Trade Agreement*.

### **Assessing the Environmental Effects of Trade**

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=40](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=40)

The Assessing the Environmental Effects of Trade Project document details the Agenda for Action (also available in French and Spanish) and presents an overview of its current goals and objectives. It relates to the extensive work undertaken over the first seven years of the CEC's existence to fulfil its mandate of furthering understanding of the environmental effects of free trade and related market integration.

The Project combines two formerly distinct areas: North American Free Trade Agreement (NAFTA) Effects—which involves a backward-looking (*ex post*) approach to identifying the impacts of trade on environmental quality and policy—and Emerging Trends, which comprises a forward-looking (or *ex ante*) tool intended to highlight key environmental challenges for the years 2010 to 2020.

## **Trade and Environment in the Americas Symposia**

<http://www.cec.org/symposium/index.cfm?varlan=english>

The CEC's Symposium on Assessing the Environmental Effects of Trade web page is a gateway to agendas to associated meetings, all related papers presented prior to the three symposia, as well as a series of other related documents. The first symposium was held on 11–12 October 2000, in Washington, DC, and hosted by the World Bank. The papers and discussions addressed the following questions: Does pollution grow or shrink as economies become interlinked through trade agreements? Do environmental regulations become weaker or stronger because of trade rules? What is the role of the public in examining these issues? The second symposium was held in Mexico City on 25–26 March 2003. It was a week of dialogue on trade and the environment in North America and Latin America presented both by the CEC and the United Nations Environment Programme (UNEP). The third symposium, held in Montreal on 30 November and 1 December 2005, focuses on the impact of investment and economic growth on the environment and on decoupling economic growth from environmental impacts. Financial assistance is provided by Foreign Affairs Canada. A CD-ROM was produced and widely distributed in early 2005. It presents the full proceedings from the first two symposia: executive summaries, research papers, presentations, speeches, agendas and participant lists.

## **Reports and Other CEC Publications**

**Initial Study on Mexican Hybrid Maize: Market Outlook for Hybrid Maize and Derivative Products.** Mindahi C. Bastida Muñoz and Héctor Vázquez. February 2005.  
Available upon request (Spanish only)

This report presents the results of a market analysis that highlights aspects of Mexican hybrid corn production, the consumption of regional maize products, and consumer willingness to pay a premium for such products. The study further described the importance of traditional maize farming practices in Mexico's agrodiversity and biodiversity.

The analysis focuses on commercial activities involving indigenous communities related to hybrid maize, to better understand the actual and potential markets for such maize. The analysis is based on data obtained in Mexico City and the portion of the Upper Basin of the Lerma River located in the state of Mexico.

**Trade and Environment in North America: Mapping the New North American Reality.** Institute for Research on Public Policy Working Paper Series. Chantal Line Carpentier. September 2004.  
[http://www.irpp.org/miscpubs/archive/NA\\_integ/wp2004-09f.pdf](http://www.irpp.org/miscpubs/archive/NA_integ/wp2004-09f.pdf)  
English only

This paper presents an outline of the evolving relationship between international trade and the environment since the inception of NAFTA. The negotiation of a free trade zone in North America catalyzed a major public debate in the early 1990s, prompting many to view “nature” and “NAFTA” as odd couples, incapable of working in unison. This was partly because negotiations of NAFTA started in the wake of the United States' embargo on imported yellowfin tuna—the first import restrictions based on an environmental process-based standard (directed at Mexico) because of the incidental taking of dolphins. A brief review of the CEC's role shows

how it went from an original focus on enforcement to being a catalyst for regional cooperation, a source of information and analysis, and a forum for public dialogue and participation on issues of environmental concern. The paper highlights the main conclusions put forward by the CEC's work on the environmental effects of NAFTA: it is clear that neither the dire environmental fears predicted nor the direct improvement in environmental performance stemming from higher income has generally materialized. It is also increasingly clear that trade itself is necessary but not sufficient to bring about environmental and social improvement following trade liberalization and that institutions can and do matter to environmental outcomes.

**The Generation and Management of Hazardous Wastes and Transboundary Hazardous Waste Shipments between Mexico, Canada and the United States Since NAFTA: A 2004 Update.** Cyrus Reed (Texas Center for Policy Studies), Mark Winfield (Pembina Institute for Sustainable Development) and Marisa Jacott (Fronteras Comunes). July 2004.

<http://www.texascenter.org/publications/hazwaste04.pdf>

English only

The report reviews and updates information regarding the generation, management and transportation of industrial hazardous wastes throughout North America, and explores policy and regulatory developments in Mexico, Canada and the United States. The authors offer recommendations, which could assist governments in ensuring that hazardous wastes are tracked and safely managed.

**Mercury in the Great Lakes Basin: Background Paper.** Leah Hagreen, Leslie Kulperger, Mercury Recovery Fund. April 2004.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1502](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1502)

English only

Mercury is a toxic element whose unique properties make it one of the most useful and pervasive substances, and as such, concentrations in places around the world have risen to levels of concern. The Great Lakes is one such place. There have been intensive efforts by many government and international bodies to reduce the use of mercury and its emission to the environment. However, the lack of regulations in developing nations means that mercury releases continue unabated in many countries. Deliberate use of the toxic substance continues, perhaps driven by its low market price and a lack of knowledge about the environmental and human health consequences of its toxic properties, as countries struggle to address disposal and recycling issues. One of the largest industrial emitters in the world is coal-fired electricity generation, a sector that continues to grow and remains unrestricted in many countries.

**From the Farm to the Table: The Transformation of North American Food Processing and Implications for the Environment.** Guy Stanley, Pan-American Partnership for Business Education, L'École des HÉC. March 2004.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1718](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1718)

English only

What is the impact of the North American food processing system on the environment? This study examines that issue, employing the analytical framework developed at the CEC. By looking at the entire industry value chain, this framework enables the researcher to develop a broad understanding of the linkages among the economy, trade and the environment. Drawing on government statistics and industry information, the study develops a synthetic overview of the contemporary food manufacturing sector. The research covers the full value chain, from developments in farming and seeds to production and distribution, including management and

technology issues, insofar as these shed light on food manufacture. As the bibliography reveals, most of the information is derived from studies by the US Department of Agriculture, Economic Research Service, supplemented by data from Agriculture Canada, Statistics Canada, the Organisation for Economic Cooperation and Development, the World Bank and industry. In answering the basic question of the study, this report shows how the North American food processing system has changed over the last 10 years and identifies the broad issues related to the environmental sustainability of that system.

**CEC Bibliography on Trade and Environment Linkages in North America.** Bryanna Millis. February 2004.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1773](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1773)

English only

This comprehensive, annotated bibliography on trade and environment linkages in North America is divided into three parts: Part I: The Effects of Trade on Environmental Quality; Part II: The Effects of Trade on Environmental Policy; Part III: Institutional and Policy Responses to the Trade and Environment Problem.

**Agriculture, North American Free Trade, and the Environment: Sub-Sector Research. A Bibliography.** CEC. 2003.

Available upon request (English only)

This bibliography is designed to provide a resource for researchers interested in the environmental impact of agricultural trade in particular sub-sectors of crops, products and current farming techniques. While far from comprehensive, it is nevertheless indicative of current research. Comments are added to many entries, especially those whose titles are not entirely indicative of the contents. It is hoped this inventory will help guide future research.

**Displacement of Fertilizers and Pesticides in Wheat Culture in North America.** Ronald H. Loucks (RL Learning Systems Inc). March 2003.

Available upon request (English only)

The purpose of this study is to quantify fertilizers and pesticides which could be prevented from being released to consumers and the environment through an 'organic portfolio standard.

**Understanding and Anticipating Environmental Change in North America: Building Blocks for Better Public Policy.** CEC. 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1037](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1037)

Also available in French and Spanish

[http://www.cec.org/files/pdf/ECONOMY/trends-summ\\_EN.PDF](http://www.cec.org/files/pdf/ECONOMY/trends-summ_EN.PDF)

Abstract

This report, and the background papers and analyses on which it draws, presents a variety of methods for assessing the environmental effects of trade on North America and their policy implications. Two broad categories of approaches are examined:

- 1) data-intensive methods for gaining a more detailed and easier-to-communicate understanding of past and present environmental trends, and the factors underlying them;
- 2) techniques for diagnosing and anticipating future environmental problems.

**Booming Economies, Silencing Environments and the Paths to Our Future.** Background note by the CEC on critical and emerging environmental trends. Jane Barr and Scott Vaughan (CEC). 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=66](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=66)

Also available in French and Spanish

This background paper was produced to provoke reflection on the parallels between the growing economy in North America and the state of the environment. The authors express concern over the fact that, while economic indicators show that globalization generates more wealth than ever before, the few available environmental indicators point to a downward trend. While imperfect, figures suggest three things: first, there are biophysical limits to the earth's ecosystems. Second, the *per capita* supply of productive land worldwide is shrinking, in part because of population growth. And third, in countries prospering from economic globalization, the ecological demands of average citizens exceed the average *per capita* supply by a factor of three.

**North American Trade and Transportation Corridors: Environmental Impacts and Mitigation Strategies.** ICF Consulting. February 2001.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?ID=74&varlan=english](http://www.cec.org/pubs_docs/documents/index.cfm?ID=74&varlan=english)

Also available in French and Spanish

This study examines the environmental impacts of that trade on five bi-national segments of three primary NAFTA trade corridors, with a particular focus on air pollution emissions. The corridor segments selected for the analysis are Vancouver–Seattle, Winnipeg–Fargo, Toronto–Detroit, San Antonio–Monterrey and Tucson–Hermosillo. The study determines current and future commodity flows, freight vehicle traffic volumes and emissions in each of these corridors. Impacts of several mitigation strategies are explored.

**Future Environmental Priorities in North America: A Summary of Responses to a Questionnaire.** CEC. November 2000.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=65](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=65)

Also available in French and Spanish

The CEC, through its Emerging Environmental Trends project, has been taking a closer look at possible “environmental futures.” The purpose of the questionnaire pertaining to future environmental priorities was to seek public input on the issues that warrant attention today, as well as the public's vision of what the North American environment will look like 20 years later.

**Case Study: Trade Liberalization and the North American Motor Market.** International Institute for Energy Conservation, Marbek Resource Consultants & Odon De Buen. March 1996.

Available upon request (English only)

This case study of the North American electric motors market focuses on the opportunities for pursuing NAFTA-wide cooperation on energy efficiency. Two specific opportunities for cooperation in relation to energy performance standards were identified: enhancement of Mexican energy performance standards, and collaboration on cross-border issues. The case study outlines some of the major changes that have occurred within the electric motor industry throughout North America, discusses key influencing factors such as the Free Trade Agreement and NAFTA, and identifies some of the implications related to pursuing the enhancement of Mexican energy performance standards and collaboration between Canada, the US and Mexico on cross-border issues.

## **Papers and Documents Generated for the 2003 Symposium**

Additional information, including proceedings and the agenda concerning this event can be viewed at: <http://www.cec.org/symposium/2003/index.cfm?varlan=english>

### **Free Trade and the Environment: Lessons from North America.** CEC. 2004

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=997](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=997)

Also available in French and Spanish

This brochure summarizes some findings from the 24–28 March 2003 CEC Symposium on Trade and Environment in the Americas and suggests some reflections on trade liberalization's environmental impacts.

### **Aquifers and Agrochemicals in a Border Region: NAFTA Challenges and Opportunities for Mexican Agriculture.** José María Martínez Rodríguez. March 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1042](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1042)

Spanish only (Abstract available in English, French, Spanish)

This paper attempts to develop an analysis of the principal business strategies developed by the different types of farming enterprises present in La Costa. These strategies have led to differentiation in the use of natural resources, particularly in relation to the exploitation of groundwater reserves and the use of agrochemical products. This paper seeks to help define policies that consider models of sustainable use of aquifers—as well as the regulated use of pesticides and fertilizers—from a perspective based on environmentally sound regional development that is also economically sound and socially equitable.

### **Some Domestic Environmental Effects of US Agricultural Adjustments under Liberalized Trade; a Preliminary Analysis.** Joseph Cooper, Robert Johansson (Resource Economics Division, Economic Research Service USDA), and Mark Peters (Agricultural Marketing Service, USDA). March 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1045](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1045)

English only (Abstract available in English, French, Spanish)

This paper evaluates some of the environmental impacts on the US of a trade liberalization scenario, which involved the elimination of all the agricultural policy distortions in place in the year 2000, in all trading countries. It analyzes the environmental impacts of agricultural trade liberalization on various indicators of environmental quality—including manure production, soil erosion, nitrogen and phosphorous loss to water—at the national and regional levels. This empirical simulation of a total trade liberalization scenario provides an upper limit on the possible market effects of more probable scenarios of partial trade liberalization. The results of this analysis suggest that, for the US as a whole, environmental impacts stemming from the hypothesized trade shocks will also most likely fall well within average seasonal variation.

### **Local Environmental Protection and Trade: The Cases of Hog Production in Canada and Mexico.** L. Martin Cloutier, Paul J. Thomassin, Florence Dagicour, José-Carlos Rodríguez. March 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1081](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1081)

English only (Abstract in English, French, Spanish)

The output from this research contributes to the debate on the role of voluntary business initiatives and mandatory regulations for the agriculture sector as a means of protecting the



environment in the North American free trade context. It identifies the advantages and disadvantages of each approach, from both theoretical and practical perspectives, and illustrates how an integrated approach can be used to provide flexible mechanisms for producers that will fulfill environmental objectives, and encourage trade and competitiveness in the agriculture sector in the long term.

**Open Trade with the US without Compromising Canada's Ability to Comply with its Kyoto Target.** Zhong Xiang Zhang (Research Program, East-West Center). May 2003.  
[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1051](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1051)  
English only (Abstract in English, French, Spanish)

Canada, like many industrialized countries, has ratified the Kyoto Protocol. Domestic policy measures aimed at meeting its legally binding Kyoto emissions target are beginning to be implemented. In the meantime, the US has made clear that it will pursue a separate climate strategy, thus excluding itself from the international regime. Given that no other two countries in the world trade as much between themselves as do Canada and the US, this situation affects Canada, *vis à vis* competitiveness, because of the mandatory emission constraints placed on Canadian industries. In comparison with Japan and the European Union, Canada is in a very difficult position for meeting its Kyoto target.

**The Conflicting Economic and Environmental Logics of North American Governance: NAFTA, Energy Subsidies and Climate Change.** Robin Jane Roff, Anita Krajnc and Stephen Clarkson. May 2003.  
[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1044](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1044)  
English only (Abstract in English, French, Spanish)

Authors of this paper believe that, despite good environmental intentions, the NAFTA side-agreement on environmental cooperation inhibits the achievement of cleaner energy trade by allowing and encouraging the subsidization of fossil fuel development, by preventing governments from regulating the rate of resource depletion and by entrenching neo-conservative, deregulatory values favoring the priorities of trans-national corporations over those of conservation and environmental protection. The paper recommends a combination of environmentally sensitive policy changes, including the elimination of perverse subsidies, the subsidization of environmentally friendly energy sources, and the imposition of carbon taxes and demand-side management initiatives.

**NAFTA and Conservation of Maize Diversity in Mexico.** George Dyer-Leal (Department of Agricultural and Resource Economics, University of California at Davis) and Antonio Yúnez-Naude (Centro de Estudios Económicos and PRECESAM, El Colegio de México). May 2003.  
[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1050](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1050)  
English only (Abstract in English, French, Spanish)

NAFTA's effects on the Mexican maize sector and on the conservation of maize diversity are debatable. This paper exposes this debate and compares facts and forecasts. A review is made on the commitment to liberalize the North American maize market, the actual policies undertaken to this effect and the evolution of maize output, imports and consumption in Mexico. It addresses two associated threats to *in situ* conservation of maize in Mexico: the extinction of subsistence maize agriculture and the spread of maize transgenes in maize's centers of diversity.

**The Socio-economic and Environmental Impacts of Trade Liberalization on Basic Grains in the Context of NAFTA: The Case of Sinaloa** [*Los impactos socioeconómicos y ambientales de*

*la liberalización comercial de los granos básicos en el contexto del TLCAN: El caso de Sinaloa*. Ana de Ita Rubio (Centro de Estudios para el Cambio en el Campo Mexicano, Centro Mexicano de Derecho Ambiental). February 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1048](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1048)

Spanish only (Abstract in English, French, Spanish)

The first section of this paper analyzes the impacts of reforms in the agricultural policies related to basic grains, which were implemented as a precursor to NAFTA, specifically, their effects on production, prices and imports, both nationally and in the state of Sinaloa. The second section analyzes the principal transformations of the NAFTA period (1994–2001), both nationally and statewide. This section describes the stratification among producers of basic grains in Sinaloa, changes in the patterns of crops sown, the effects of agricultural liberalization on domestic prices, the application of protection measures for the basic grains sector agreed to under NAFTA, marketing patterns and the new agents in grain trading and distribution subsequent to the abolition of Conasupo in 1998, state strategies on subsidies for marketing and pledge contracts, as well as the creation of state public sector companies entrusted with the marketing of basic products and their experiences in their initial years of operation.

**Energy Use in the Cement Industry in North America: Emissions, Waste Generation and Pollution Control, 1990–2001.** Marisa Jacott, (Fronteras Comunes), Cyrus Reed (Texas Center for Policy Studies), Amy Taylor and Mark Winfield (Pembina Institute for Appropriate Development). February 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1047](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1047)

English only (Abstract in English, French, Spanish)

This paper examines issues related to the use of energy inputs in the manufacture of cement clinker and cement in Canada, Mexico and the U.S since implementation of NAFTA in 1994. Cement manufacturing is a key—and growing—industry in all three countries, and a major user of energy.

**Invasive Species, Agriculture and Trade: Case Studies from the NAFTA Context.** Anne Perrault, Morgan Bennett (Centre for International Environmental Law), Stas Burgiel, Aimee Delach, Carroll Muffett (Defenders of Wildlife). May 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1049](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1049)

English only (Abstract in English, French, Spanish)

Invasions by plants, animals and pathogens into non-native environments pose one of the most significant, but least addressed international threats to biodiversity, both within natural ecosystems and agricultural settings. The impacts from invasive species—and their related costs—can be divided broadly into six categories: crop losses, rangeland value decline, water resource depletion, livestock disease, genetic contamination, and management and eradication costs. The paper addresses those issues.

**Comparative Standards for Intensive Livestock Operations in North America.** CEC. March 2003

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1115](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1115)

English only

This presentation compares and contrasts the ways intensive livestock operations (ILOs) are run in each of the three NAFTA countries. The authors examine current environmental requirements for ILOs, and make recommendations for the management of environmental issues associated



with them. The most notable issue is the amount of waste generated by large concentrations of animals—and by what means this waste is disposed of. ILOs are not subject to uniform regulations or standards. Instead, Canada, Mexico and the US rely on a mix of local, state and federal regulations. There are sizeable variations within and between nations. In the future, technical innovations, driven in part by litigation, may help standardize environmental ILO requirements to a certain extent.

**The Economic and Environmental Impacts of Agricultural Subsidies: An Assessment of the 2002 US Farm Bill & Doha Round.** Karel Mayrand, Stéphanie Dionne, Marc Paquin, Isaak Pageot-LeBel (Unisfera International Centre). May 2003.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1046](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1046)

English only (Abstract in English, French, Spanish)

The purpose of this study is to assess the environmental impacts of agricultural subsidies, using wheat as an illustrative example. This is done through an analysis of the economic impacts generated by the quantitative and qualitative shifts in domestic support policies induced by the 2002 US Farm Bill and the Doha Round. This is completed by an analysis of the environmental impacts associated with various forms of agricultural subsidies. By contrasting the potential economic and environmental impacts of the Farm Bill and Doha Round, this study highlights some of the most important impacts of agricultural subsidies, and suggests some policy implications.

**Agricultural Trade Liberalization and the Environment in North America: Analyzing the “Production Effect.”** Gareth Porter. November 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1043](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1043)

English only (Abstract in English, French, Spanish)

The objective of this paper is to estimate the impacts of NAFTA and the Uruguay Round Agricultural Agreement (URAA) on environment stresses in three key North American agricultural sub-sectors: beef, corn and vegetables. The paper shows how the production effects of the trade liberalization in NAFTA have been overwhelmed by these mediating factors in the country gaining trade in the cattle, maize and vegetable sub-sectors of North American agriculture, although they have been very much in evidence in the country losing trade in the maize and vegetable sub-sectors.

**Second North American Symposium on Assessing the Environmental Effects of Trade: Questionnaire for Participants – Questionnaire responses.** CEC. 2003

Available upon request (English only)

The answers to questions addressed to participants at the 2003 Symposium are examined. The questionnaire asked, "In your opinion, what will be the most important trade and environment issues for the next 10 years in North America?" and, "Which of these issues do you think the CEC is best positioned to address?"

### **Papers and Documents Generated for the 2002 Meeting on Assessing the Environmental Effects of Trade Liberalization**

Additional information, including proceedings and the agenda concerning this event can be viewed at: <http://www.cec.org/calendar/details/index.cfm?varlan=english&ID=1701>

**Environmental Impacts of the Changes in US–Mexico Corn Trade Under NAFTA.** Frank Ackerman, Luke Ney, Kevin Gallagher and Regina Flores (Global Development and Environment Institute, Tufts University). August 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=637](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=637)

English only

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=638](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=638)

Abstract (in English, French and Spanish)

This study explores the environmental impacts of the changes in the US–Mexico corn trade under NAFTA. Since 1994, US corn exports to Mexico have increased by about 2 million tons per year—roughly one percent of US production, or 10 percent of Mexico’s consumption. This study focuses on a statistical investigation of market forces and their implications for genetic diversity, using data on technology and production by state. Findings show that genetic diversity is preserved in practice by traditional styles of cultivation in the less modern, generally southern states. Market forces did not reduce genetic diversity by reducing output in the traditional states after 1994; in fact, output in key southern states continued to rise despite sharp cutbacks in more modern, northern states. However, yields continued to rise throughout the country, in both traditional and modern states. If these yield gains resulted from an increased use of improved seed varieties, there is a danger that genetic diversity is steadily being lost to modernization of production. The authors conclude that more detailed research is needed on the evolving maize cultivation practices in the traditional areas of Mexico.

**Corn in NAFTA: Eight Years After.** Alejandro Nadal (Science, Technology and Development Program, El Colegio de México). May 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1447](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1447)

English only

In the paper’s first section, an overview is provided of recent trends for Mexico’s agricultural sector. This is the frame of reference for a detailed analysis of the corn sector. The second section analyzes the implementation of NAFTA’s corn regime. This analysis covers data on price dynamics, imports, the implementation of NAFTA’s tariff rate quota (TRQ) regime and public expenditures. The third section focuses on the corn sector, examining trends in output, cultivated and harvested surface, and yields and prices, both at the national and state levels. The fourth section examines poverty and social marginalization in Mexico’s rural sector. This includes a general overview of the relationship between poverty and migration. The fifth section addresses the impact of NAFTA’s corn regime on genetic resources. An analysis of the impact of transgenic corn on Mexico’s genetic resources is included in the paper. Policy recommendations are given in the final section.

**Environmental Impacts in the Agricultural Sector: Using Indicators as a Tool for Policy Purposes.** Kevin Parris (OECD). January 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=643](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=643)

English only

This paper sets out to answer five questions:

1. Why is OECD developing a set of agri-environmental indicators?
2. What are the strengths and limitations of agri-environmental indicators?
3. What are the recent trends in the environmental performance of agriculture in NAFTA countries?
4. How are agri-environmental indicators being used as a tool to inform policy makers?

5. What are the future challenges for improving the environmental assessment of agriculture for policy purposes?

In responding to the fourth question the paper examines three case studies to illustrate the use of indicators in policy analysis, including:

- agriculture’s impact on soil resources in NAFTA countries;
- the domestic consequences for NAFTA and other OECD countries of agricultural trade liberalization’s impact on nitrogen pollution from livestock; and the,
- the projection to 2020 of greenhouse gas emissions from agriculture in NAFTA and other OECD countries.

**Backgrounder on the Status of Agriculture Negotiations at the WTO Focussing on NAFTA Parties and the Key Trade Liberalization Provisions of the WTO Uruguay Round Agreement on Agriculture.** CEC. January 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=639](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=639)

English only

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=640](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=640)

Abstract (in English, French, Spanish)

This note has been prepared for the CEC’s “Assessing the Environmental Effects of Trade Liberalization: Lessons Learned and Future Challenges” meeting held in Montreal, 17–18 January 2002. The note is composed of two sections. The first section was intended to update participants of the meeting on the latest status of the WTO negotiations on agriculture. It includes information on what the Ministerial declaration of the fourth Ministerial Conference may mean for negotiations on agriculture, as well as on the proposals made for these negotiations by Canada, Mexico and the United States. For the most part, it condenses the proposals of the respective governments. The second section is designed to provide context for the first section and contains a description of the key trade liberalization provisions contained in the WTO Agreement on Agriculture, as well as references to studies that have examined the implementation of the WTO Agreement thus far.

**Trade Liberalization Impacts on Agriculture: Predicted vs. Realized.** Chantal Line Carpentier, CEC. December 2001.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=635](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=635)

Also available in French and Spanish

This report reviews the economic and environmental predictions that have been made so far regarding the environmental impacts of agricultural trade liberalization in North America. The report reviews and compares *ex ante* analyses and *ex post* analyses of NAFTA, with the aim of improving future modeling for the free trade agreement of the Americas (FTAA). General trends of agricultural trade in the NAFTA countries are also presented. A literature review of models is then used to predict possible economic and environmental impacts of trade liberalization. The report concludes with a review of potential model development strategies to improve predictions of environmental impact following trade liberalization.

**Environmental Reviews of Trade Agreements: Assessing the North American Experience.** Kevin Gallagher, Frank Ackerman and Luke Ney (Global Development and Environment Institute, Fletcher School of Law and Diplomacy, Tufts University). December 2001.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=633](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=633)

English only (Abstract in English, French, Spanish)

In the late 1990s, Canada and the United States began requiring environmental reviews (ERs) of all trade agreements to be negotiated by each government. The purpose of these reviews is to help identify potential environmental effects of trade agreements, both positive and negative, in order to facilitate responses to such effects throughout the negotiation and implementation processes. This paper outlines how ERs have evolved in North America, and evaluates the different methodological approaches that have been employed in ERs thus far.

**Changing Biodiversity, Changing Markets Links Between Agricultural Trade, Markets and Biodiversity.** CEC. December 2001.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=631](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=631)  
English only (Abstract in English, French, Spanish)

The purpose of this Note by the Secretariat is to examine some general aspects of the relationship between agricultural trade liberalization, and biodiversity and agro-biodiversity, as well as the state of research focusing on this relationship.

### **Papers and Documents Generated for the 2000 Symposium**

Additional information, including proceedings and the agenda concerning this event can be viewed at: [http://www.cec.org/symposium/2000/index\\_2000.cfm?varlan=english](http://www.cec.org/symposium/2000/index_2000.cfm?varlan=english)

**Free Trade and the Environment. The Picture Becomes Clearer.** Scott Vaughan and Greg Block (CEC). 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=977](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=977)  
Also available in French and Spanish

This publication accompanies and makes reference to information contained in “The Environmental Effects of Free Trade: Papers Presented at the North American Symposium on Assessing the Linkages between Trade and Environment”, CEC, 2002.

**The Environmental Effects of Free Trade, Papers Presented at the North American Symposium on Assessing the Linkages between Trade and Environment.** CEC. October 2002.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=758](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=758)  
Also available in French and Spanish

This report contains the final versions of 13 papers. It also highlights some of the discussions that took place during the two-day symposium. As a practical follow-up to the Analytical Framework, this report represents the next steps in the Commission’s work on assessing the environmental effects of Free Trade. The wealth of analysis contained in this report helps point the way to the work that needs to be done, both in assessing trade effects and in crafting policy responses to ensure that emerging environmental and economic agendas work in cooperative and sustainable ways.

### **Environment and Trade Series Publications**

The CEC’s “Environment and Trade Series” is designed to deepen understanding on environment and trade linkages in the context of North American trade liberalization. All documents are also available in French and Spanish.

**Analytic Framework for Assessing the Environmental Effects of the North American Free Trade Agreement.** CEC. 1999.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=79](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=79)

The NAFTA Effects Project Team was assembled to assist the CEC in designing a methodology to fulfill its mandate of considering, on an ongoing basis, NAFTA's environmental effects. This Analytic Framework has been developed in three distinct phases. In Phase I (1995–1996), an interdisciplinary group of experts undertook research to explore the trade and investment regime that NAFTA put in place, and the ways that NAFTA-associated economic change might relate to the environment. The methodology was subsequently designed to develop an understanding of the connections between trade and the environment, to assist in anticipating important environmental impacts in the context of trade liberalization, and to develop policy tools better to mitigate negative impacts and maximize positive ones. During Phase II (1996–1997), the Framework was further elaborated using the analysis of four component studies:

- an examination of the operation of NAFTA's environmentally related institutions;
- an issue study on maize in Mexico;
- an issue study on cattle feedlots in the United States and Canada; and
- an issue study on electricity in Canada, the United States and Mexico.

Phase III (1998–1999) consisted, in the first instance, of an extensive peer review of the work undertaken in Phase II and the subsequent incorporation into the methodology of comments provided. The central purpose of the NAFTA Effects Project has been to develop a methodology that can be applied on an ongoing basis to particular issues and sectors of concern in the NAFTA community.

**Environment and Trade Series # 1. Potential NAFTA Environmental Effects Claims and Arguments, 1991–1994.** CEC. 1996.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=292](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=292)

The objective of this study is to identify the major claims and arguments made by governments, academics, non-governmental organizations (NGOs) and others in Canada, the US and Mexico suggesting that there are potential direct and indirect environmental effects of the NAFTA. It also outlines some of the potential indirect environmental impacts of both economic and social change predicted to result from NAFTA.

**Environment and Trade Series # 2. NAFTA Effects A Survey of Recent Attempts to Model the Environmental Effects of Trade: An Overview and Selected Sources.** CEC. 1996.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=293](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=293)

This paper reviews current theoretical understandings about the impact of trade, trade liberalization and trade agreements on the environment, and the state of knowledge about modelling the environmental effects of trade.

**Environment and Trade Series # 3. Dispute Avoidance Weighing the Values of Trade and the Environment under the NAFTA and the NAAEC.** CEC. 1996.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=294](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=294)

This present report attempts to identify those issue areas where environmentally related trade disputes have arisen in the past and might likely arise in the future. It outlines the general areas of expertise that could help the existing institutional mechanisms designed to avoid and resolve these disputes. It identifies old and new avenues for consultation and advice provided in both

NAFTA and the NAAEC. And it details the makeup of existing bodies, while suggesting further means of contributing to those processes.

**Environment and Trade Series # 4. Building a Framework for Assessing NAFTA Environmental Effects Report of a Workshop held in La Jolla, California, on April 29 and 30, 1996.** CEC. 1996.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=296](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=296)

This report is an attempt to reproduce the content of the La Jolla workshop and ensure that it is available to a broader audience than was able to attend the event. The substance of the discussion and the conclusions will help the CEC define priority areas for future work on this project.

**Environment and Trade Series, # 5. NAFTA's Institutions. The Environmental Potential and Performance of the NAFTA Free Trade Commission and Related Bodies.** CEC. 1997.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=298](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=298)

This study takes a closer look at the way NAFTA's economic institutions have moved to fulfill their responsibilities and potential for environmental enhancement specified in the NAFTA text, and how they have acted synergistically with NAFTA's environmental institutions. Specifically, it identifies and assesses their achievements during their first three years, and evaluates how they might be built upon in the future.

**Environment and Trade Series, #6. Assessing Environmental Effects of the North American Free Trade Agreement (NAFTA). An Analytic Framework (Phase II) and Issue Studies.** CEC. 1999.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=299](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=299)

This issue provides a methodology for examining the environmental effects of NAFTA. This framework is being developed by the CEC to analyze major environmental changes under NAFTA taking place within North America. It identifies and traces four major processes through which activity generated by NAFTA's rules and institutions and associated trade and investment can affect the natural environment. It also highlights areas where further analytical development, monitoring of key indicators, as well as policy, technical and institutional changes may be appropriate. In addition to the methodology, this report contains three issue studies, taken from the agriculture and energy sectors that were chosen to test and enrich the framework (see below).

**Environment and Trade Series, #6. Issue Study 1. Maize in Mexico: Some Environmental Implications of the North American Free Trade Agreement.** CEC. 1999.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1398](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1398)

The purpose of this issue study is to consider some specific environmental implications of expanded North American trade and investment under NAFTA. The analysis was carried out by implementing the general framework developed by the CEC's NAFTA Effects Project. Issue Study 1 focuses on the maize sector in Mexico.

**Environment and Trade Series, #6. Issue Study 2. Feedlot Production of Cattle in the United States and Canada: Some Environmental Implications of the North American Free Trade Agreement.** CEC. 1999.

[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=1399](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1399)



This study focuses on the beef and cattle production sectors of North America, particularly the US and Canadian fed-cattle industry. North American cattle feeding is an activity that joins agriculture to the industrial processing of beef products. The broad conclusion of this study is that NAFTA will tend to reinforce existing patterns of trade in which the United States and Canada feed and slaughter cattle for export to Mexico, and the way Mexico supplies feeder cattle to the United States. One conclusion of this study is that this pattern of trade reinforces existing North American transportation networks and will allow the United States and Canada to exercise regulatory oversight better while exploiting new environmental technologies able to reduce the negative environmental impacts of beef-feeding activities. In this respect, the expression of a comparative advantage in trade terms is also consistent with the capacity to internalize the negative environmental impacts of the fed-cattle sector. Thus, trade expansion and environmental improvement can be mutually reinforcing in this case if sufficient technological, policy and institutional innovations are forthcoming to meet the environmental challenges.

**Environment and Trade Series, #6. Issue Study 3. Electricity in North America: Some Environmental Implications of the North American Free Trade Agreement.** CEC. 1999.  
[http://www.cec.org/pubs\\_docs/documents/index.cfm?varlan=english&ID=305](http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=305)

Issue Study 3 focuses on the generation of electricity by private and publicly owned entities in Canada, Mexico and the United States. It includes the upstream industries that provide the major fuel sources from which electricity is generated in North America, notably coal, natural gas and hydroelectricity. It also considers downstream processes of consumption for industrial, commercial and residential purposes, and some relevant industries.

A complete list of CEC publications is available online at: [www.cec.org/bibliographies](http://www.cec.org/bibliographies)

Should you require any other information on work done by the CEC on the environmental assessment of trade in North America, please contact: <[info@cec.org](mailto:info@cec.org)>.