

Environmental Degradation and Migration The U.S.-Mexico Case Study

The Natural Heritage Institute

In ECSP Report Issue 3, we published the initial findings of the Natural Heritage Institute's (NHI) U.S.-Mexico Case Study on Desertification and Migration. Following is a detailed account of the conclusions and recommendations to policymakers from NHI's final report entitled Environmental Degradation and Migration: The U.S./Mexico Case Study. This report presents the findings of a four-year investigation led by Michelle Leighton of the NHI, a nonprofit, public interest environmental organization. NHI seeks to broaden understanding about the interrelationship between the

U.S. Action and Opportunities for Policy Reform. The latter is related to specific programs on environment, agriculture, and community development.

**A. POTENTIAL FOR U.S. ACTION:
POLICIES AND PROGRAMS**

I. Cooperative Programs

Our findings demonstrate a strong correlation between land resource degradation, poverty among rural households, the lack of capacity to farm, and migration both within Mexico and across the U.S. border. The pervasive deterioration of lands in Mexico in the rural drylands should be viewed as an important contributor to migration flows (whether seasonal or per-

provement of agriculture, population initiatives, and migration have traditionally not considered how best to address such integrated issues. President Zedillo's "Alliance for the Countryside," discussed below, may be a start. The following discusses potential reform of U.S. policies and programs as a beginning point for addressing the issues that touch upon U.S. foreign

largely on sectoral issues—e.g. research on agricultural productivity has not traditionally focused also on related environmental degradation, such as deforestation, or on contributors to migration, such as lack of education or family planning programs. This in turn has led to policies that do not approach these problems in an interrelated fashion. The inverse is also true—when programs to arrest deforestation are implemented, they do not readily integrate issues of community development. We have observed that this dynamic is beginning to change. Further research will help identify opportunities for integrated programs on the field level, and can suggest how best to harmonize policies and programs at the national or binational level.

The further development of methodologies for integrating environmental, population pressure and migration predictions is of particular importance in addressing the issues of poverty and migration among Mexican farmers and laborers. Data show that environmental stress variables are of significant importance because they can create incentives to migrate. Population pressure on the *ejido* population and the increasing rate of deforestation may also result in increased migration. Policies targeting the amelioration of environmental stress and population pressure on the land could play pivotal roles in reducing incentives to migrate to the North. If implemented properly, they would work by retaining migration.

B. OPPORTUNITIES FOR POLICY REFORM AND PROGRAM DEVELOPMENT

1. *Environment and Agriculture*

a. *Promoting Improved Land and Water Management Practices*

Our findings demonstrate a strong correlation be-

b. *Improved Forest Management and Land Tenure*

Most of the Mexican forests, many of which are threatened by over-harvesting, are located on *ejido* land, where much of the property is communal and cooperation with other communities in forestland management has been problematic. This lack of cooperation has led to overuse of land, including overharvesting and soil erosion. One solution may be to direct policy efforts at resolving property rights on these lands and effectively manage common property resources.¹⁴ Part of this solution must include continued regulation of forest management and improved enforcement of laws/policies.¹⁵ According to some experts, adequate forestland management requires trained, equipped personnel who can utilize integrated and multipurpose forestry products and which involves local communities or local nongovernmental organizations.¹⁶

2. *Population and Rural Development*

a. *Population and Other Demographic Initiatives*

Research indicates that population trends in growth and movement in Mexico's rural areas are correlated with poverty and land degradation, particularly in *ejido* communities. Population pressure on natural resources, measured by the rate of deforestation are important determinants of migration. Reducing this pressure should be part of efforts to reduce migration at the source.

Given the scarcity of good farmland in Mexico and the large size of the farm population, increasing the productivity of labor in farming offers a limited solution. It may be more important to focus on the development of decentralized non-farm activities. Specifically, activities which lead to greater decentralization away from the border and the main cities of the benefits created by NAFTA in labor intensive manufacturing are warranted. As with development strategy, balancing protection of the environment with project development initiatives will be critical to preserving Mexico's natural resources.

In addition, more in-depth research of the correlations between population trends and migration is warranted to quantify this contribution and identify more concretely the extent to which population growth leads to further subdivision of and pressure on lands. Deforestation may well be a symptom of population pressure,¹⁷ though some argue that it is the inverse. The Mexican government has succeeded in reducing population growth rates, though the rates still remain quite high in rural areas and in indigenous communities may often reach a figure double the national average. Education programs need to be expanded to the more remote rural areas. These programs can require long

maturation periods in order to achieve long-term results and require a longer-term commitment of resources. In Mexico, these programs may be subject to greater volatility related to the Presidential cycle. Budgets for such programs are not as robust as they will need to be to effectively address this problem. Moreover, USAID efforts to address population problems are being canceled. U.S.-Mexico cooperative programs in the population area should be revisited to determine how integration of these programs with other environmental and economic development programs can serve to address the root causes of migration identified in this report.

b. *Community Development Initiatives*

Poverty, which in rural areas is exacerbated by the inability to productively farm, or by the farming of marginal lands, is an important factor in the decision to migrate. Municipalities with high levels of marginality also have high rates of migration, indicating that the lack of local opportunities and poverty are important determinants of migration. Community development programs established in rural areas should focus on the reduction of crop cultivation where the soil and/or climate are unsuitable for cultivation and the institution of controlled grazing practices. Moreover, it is recognized that there is a need for employment creating new investments to expand from the border area into the interior regions of Mexico. Many of the benefits created by NAFTA in labor-intensive manufacturing have been focused on the border and some have called for more aggressive efforts to attract development further south.

Small producers face the threat of displacement by more competitive farmers due to land titling reforms that may create a market where only the most competitive landholders will succeed.¹⁸ While this may not be undesirable in terms of pure economic theory, it is likely to have a tremendous impact on migration—there is likely to be a surge in migration out of the rural agricultural areas as this economic transition takes place. Improved farming productivity from soils conservation and related programs may not only result in better environmental resource management, but allow, where appropriate, for a slower and more equitable transition toward an ultimately more urbanized Mexican society. Moreover, soils conservation and agricultural training can be directed at the marginal and subsistence producers to increase sustainability of their livelihood and reduce involuntary migration.

In the longer-term, both financial institutions and producers' associations should be created for smallholders in order to enhance smallholder competitiveness and fill the void that remittances are currently filling in providing access to financial liquidity and sources of insurance.¹⁹ To achieve this, there should

be an increase in the profitability of investment in labor intensive agricultural activities. One avenue is through the cultivation of fruits and vegetables that acquire competitive advantage in the context of NAFTA. Most of rural central/southern areas of Mexico remain highly dependent on extensive corn/ maize production, and transition would take some considerable effort, financially and otherwise. This high "front end" investment may provide more-lasting long-term benefits. Too, this would require public investment in infrastructure (irrigation and roads), and organizational and institutional development of these areas so that farmers can invest profitably in agriculture. In addition, developing financial institutions on both sides of the border that will channel remittances to the emitting areas and make migrants' savings available for borrowing by other community members with investment plans, would also help create employment.²⁰

The Mexican government has recognized the need for implementation of substantial efforts to address rural development. In 1995, Mexico created "Alliance for the Countryside" to address socio-economic problems affecting the agricultural sector. It comprises the following Secretariats: SAGAR, Hacienda y Credito Publico, Comercio y Fomento Industrial, Reforma Agraria, Desarrollo Social, SEMARNAP and Trabajo y prevision Social. The Alliance's general goals are to increase the income of agricultural producers and agricultural production to a level above population growth, produce sufficient basic foods for the population, promote the export of products from countryside, preserve natural resources and increase rural housing. These policies are to be implemented by facilitating access to new technologies, promoting the inflow of capital into the countryside, and improving human resources through training. There are 64 initiatives proposed by many different agencies in the Alliance but it is uncertain which are being undertaken. Our investigation revealed agency funding cuts have led to little improvement, especially for natural resources and agricultural management programs.²¹

In addition, Mexico's National Development Plan (1995-2000) includes a three-point plan established by the Mexican National Science and Technology Council, in association with SEMARNAP, to improve soil management as follows:

- 1) conduct a national soils inventory (currently underway);
- 2) develop new soil legislation to revise legislation as appropriate, including connecting property and usufruct rights with the responsibility of conserving and restoring the soil, and develop soil management and restoration standards with the aim of producing clear standards that protect investments while maintaining a low level of bureaucratic red tape; and

- 3) persuade agricultural producers to modify their management practices to better assure sufficient income and sustainability of soil resources.

The government has yet to make substantial funds available for these reforms. However, there is much that can be done in terms of training campesinos, civil servants and governmental and non-governmental promoters.

As a final note, many of the needed initiatives discussed could be further catalyzed by U.S.-Mexico cooperation and assistance. These opportunities are described above in the section on Conclusions and Recommendations. Importantly, NHI's findings suggest that targeting program development and assistance in rural environmental and agricultural settings, in association with public or private localized programs, can serve as a potentially potent investment in reducing migration. This will not be a daunting task as both private and official institutions in the United States possess environmental resource and agricultural expertise that can be utilized in approaching cooperative program development with counterpart institutions in Mexico. Nongovernmental organizations on both sides of the border have already begun to work together on these issues. Official leadership is needed to move beyond these initial efforts. We strongly urge exploration of these issues and opportunities by Congress and the Administration.

ENDNOTES

¹ Areas where migration is well-established have already lowered their transaction costs of migration making the opportunity costs of migration much greater (A. de January report, Appendix, p. 16). The newer areas have not yet reduced the transaction costs of migration (Id., p. 16). Consequently, rural development efforts in the newer areas may have a greater impact in reducing migration: improved development opportunities could effectively compete with the opportunity costs of migration (Ibid., p. 16).

² See Appendix 1, p. 16.

³ Internal Communiqué from U.S. Ambassador Jones to the White House, U.S. Department of State and other federal agencies, January 1997 (on file with the Author).

⁴ Ibid., p. 6.

⁵ Information was provided by several commentators on this, including in written comments of Professors Philip Martin and David Myhre, Fall 1997. Professor Martin has identified that for a US \$300 transfer, Western Union charges 10 % and on the Mexican side, Electra exchanges the money into pesos at a very high rate.

⁶ Appendix 1, p. 16

⁷ See discussion in earlier sections of this report.

⁸ Marginality is measured by CONAPO at the municipal level through an index that eight low levels of education, poor housing conditions, high percentage of the population in communities of less than 5000 inhabitants, and a high incidence of households in poverty.

⁹ Appendix, p. 17

10 Ibid.

11 Ibid.

12 Ibid.

13 Ibid.

14 Ibid., p. 16.

15 Ibid.

16 Written comments of Hector Arias, Cideson, Sonora, Mexico, to NHI September 8, 1997. One problem he notes is that large consortia of timber companies exploit the resource. Yet, the lands are owned by local individuals or ejidos and the local people bear the responsibility for reclamation at a practical level. As reclamation is generally expensive and requires training; it is often not undertaken effectively.

17 Ibid.

18 See Appendix 1 pp. 16-17.

19 Ibid.

20 Ibid.

21 Some have criticized these programs. Paredes Rangel, General Secretary of the National Campesina Federation, indicated that the most important aspects of the program were

technology transfer and training (1995); Mazon-Rubio, President, National Agriculture Council, is concerned that the subject of stable income was not addressed and proposed that a follow-up schedule to deal with pending issues be created (1995); for Bonilla-Robles & Gonzalez Quiroga (1995), land ownership issues were of paramount importance; to Bonilla-Robles & Gonzalez Quiroga (1995), land ownership issues were of paramount importance; to Bonilla-Robles (President, National Federation of Small-plot Owners: rural credit and commercialization issues are important; Gonzalez Quiroga has indicated that rural training programs sponsored by institutions have yet to reach rural areas. Programs are needed that will generate rural jobs and maintain sale prices of agricultural products above production prices. Rural credit programs are not working and the rural sector needs the government to guarantee loans so that producers with un-paid debts will be eligible for new loans. Un-paid debt is far from being resolved. New monies should not be used by just a few individuals or by the banks themselves, but instead should be managed fairly.

***Dialogue, The Wilson Center's Radio Program
Discussing Environment, Population and Security***

Dialogue, the Wilson Center's award-winning radio program, explores the world of ideas and issues in national and international affairs, history, and politics. Broadcasts are hosted by George Liston Seay, public and international affairs specialist, and feature weekly conversations with renowned scholars, authors, and public figures. Several shows have been devoted to discussing environmental issues, and the following broadcasts can be purchased through Public Radio International:

Broadcast 137: **"The Politics of Conservation"**

Douglas Weiner, Assistant Professor of History at the University of Arizona in Tuscon
Saving the world's resources is undoubtedly a good thing. Yet in the past some groups have used environmentalism's positive goals to advance less honorable political notions. Douglas Weiner, scholar and environmentalist, discusses environmental decisions and their unavoidable political consequences.

Broadcast 283: **"Environment and Security"**

P.J. Simmons, Director, Environmental Change and Security Project, Woodrow Wilson Center
The world's environmental crisis continues apace. In emerging nations of Eastern Europe and in the developing regions of Asia and Africa armed conflict abounds. New strategic thinking suggests a linkage between these phenomena, and a new discipline joining environmental and security concerns is being developed. P.J. Simmons describes the actors and factors in what may be a 21st century strategic theme.

Broadcast 235: **"The Population Challenge"**

George Moffett, Diplomatic Correspondent, *Christian Science Monitor*
During the 1970s the world's crisis of population growth was widely noted and debated. Then, as public attention shifted to the worldwide economic crisis of the late 1980s and the political upheaval of the early 1990s, population issues seemed almost to disappear. George Moffett, Diplomatic Correspondent for the *Christian Science Monitor*, argues that the crisis is more threatening than ever. He describes its dimensions and suggests solutions.

Solving China's Environmental Problems: Policy Options from the Working Group on Environment in U.S.-China Relations

by Aaron Frank

THE PEOPLE'S REPUBLIC OF CHINA (PRC) IS BECOMING

numerous engagement strategies for U.S. policymakers, and highlighted the context in which these strategies could be implemented.

I. THE WORKING GROUP ON ENVIRONMENT IN U.S.-CHINA RELATIONS

The Woodrow Wilson Center's Working Group on Environment in U.S.-China Relations, coordinated by the Environmental Change and Security Project in partnership with the Center's Asia Program, is an ongoing multidisciplinary forum for discussion of environmental and foreign policy concerns. The aims of the Working Group are to: (1) identify the most important environmental and sustainable development issues in China and discern how those issues relate to U.S. and Chinese interests; (2) develop creative ideas and opportunities for government and nongovernment cooperation on environmental projects between the United States and China; and (3) discuss how environmental issues can continue to be a building block in improving U.S.-China relations.

The Working Group has had particular success in drawing upon the expertise of its over forty members, which include government, NGO, academic, and private business representatives. Working Group speakers have represented a broad mix of backgrounds, ranging from China scholars to government officials and World Bank representatives. Working Group meetings are co-chaired by Elizabeth Economy of the Council on Foreign Relations and P.J. Simmons of the Carnegie Endowment for International Peace, and are held on a not-for-attribution basis.

Small group sessions of the Working Group concentrate on more specific topics of interest and have included visits by Qu Geping, Chairman, Committee on Environmental Protection and Natural Resources Conservation, National People's Congress; and the Citizen Involvement in Environmental Protection Delegation from the People's Republic of China.

II. MAIN THEMES OF WORKING GROUP DISCUSSION

During the first six months of Working Group discussion, the following three strategies were identified as key to engaging the Chinese on environmental issues.

A Clearly Defined and Articulated China Policy

The relationship between the United States and China is complex; while progress has been achieved on many issues in recent years, others still raise considerable tension. Changes in both U.S. and Chinese policy (such as the linking and then delinking of human rights to trade on the United States side, and the differing levels of aggression towards Taiwan on the

Chinese side) have created corresponding fluctuations in the warmth of U.S.-PRC relations. It is not unreasonable for the Chinese to view U.S. policy as a seesaw which balances itself according to pressures from Congress, the public, or the media. To combat this Chinese perception and to enhance domestic credibility on relations with the Chinese, many Working Group members argued that the most important action the U.S. government could take would be the formulation of a clearly articulated, coherent China policy with explicit objectives and guidelines by which progress on a variety of issues could be measured. Such a policy was considered to be a means to avoid the public perception that policy changes are the result of economic incentives or "pandering" to Chinese interests.

Financing Mechanisms for Environmental Projects

The Chinese are frequently critical of U.S. government offers of environmental assistance because the United States rarely backs up its promises with strong funding mechanisms. Both the U.S.

**Compendium of Working Group on
Environment in
U.S.-China Relations Meetings**

5 February 1997

Chinese Energy Production

WILLIAM CHANDLER

Special Reports

1 October 1997

Chinese Fisheries and

International Cooperation on Oceanic Issues

STETSON TINKHAM, Department of State;

ZHI

China on environmental issues will facilitate the transfer of American environmental technologies to China and will further support the work of environmental NGOs establishing partnerships and programs in the PRC.

The meetings of the Working Group on Environment in U.S.-China Relations have identified key engagement options while also exploring China's energy sector choices and water-related problems. Working Group members believed that support for U.S. businesses marketing environmental technologies in China should be a priority for the U.S. government. Since the U.S. government is currently unwilling to increase significantly its financial commitments to support environmental protection measures or technology transfers to China, it should attempt to open doors for those who can—namely private firms. In doing so, the United States could help bring environmental remediation technologies and alternative fuel sources to the Chinese while opening markets for U.S. firms and products.

At the same time, the U.S. government and NGOs should support and assist China in developing policy changes in the energy and water sectors, especially through multilateral fora on the environment. Working in tandem with private businesses, NGOs and foundations offer the best external hope for encouraging Chinese sustainable development.

Cooperation on a variety of levels is necessary for water quality and quantity in China to improve. China's water problems are not dissimilar from those experienced in the United States; academic and governmental exchanges could greatly reduce water shortage difficulties by introducing new irrigation techniques and comprehensive watershed management plans. In many ways, China's water problems will be solved more through policy changes than technological fixes.

Through continued engagement and explicit support for environmental projects, the United States can provide a framework within which businesses, NGOs, and foundations can successfully promote Chinese environmental improvements. Such cooperation is vital if the United States aims to effectively assist the Chinese in their economic and environmental development. Only under such a scenario can the United States hope to have a positive influence on future Chinese energy choices and on a Chinese development pattern that is environmentally sensitive for both China and the world.

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¹ In June, 1997 China began phasing out the use of leaded gasoline in Beijing and Tianjin to help reduce automobile emissions. While this policy is unquestionably a move in the right direction, Chinese emissions will continue to increase in the future; automobile ownership in China, for example, expanded from 710,000 in 1991 to 1,500,000 in 1995 (*China Environment Series*, 1997).

² The World Bank estimates that 178,000 people in major Chinese cities suffer premature deaths each year from pollution, and mortality rates from chronic obstructive pulmonary disease are five times those in the United States (World Bank, 1997; Mufson, 1997). The World Bank also estimates that air and water pollution damages equaled roughly 8 percent (\$54 billion) of the Chinese GDP in 1995 (World Bank, 1997).

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