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WATER, POWER AND SOCIAL TRANSFORMATION: Neoliberal Reforms in Mexico

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Power flows through water via control of water resources, access to water supply and distributive decisions about who has the right to water. In recent vears, global water conferences and national governments have increasingly asked whether water is a human right and a social good or an earned right and Water scarcity—whether an economic good. "constructed" or "real"— enhances the potential for serious conflicts over water, especially in arid regions such as northern Mexico, where annual rainfall is less than 450 mm. In Rivers of Empire, Donald Worster argued that control of water in arid regions is tantamount to social and political control by a monolithic and hierarchical power elite (Worster 1985). Thomas Sheridan counters this view, arguing that water in arid regions is a kind of highly-charged political football in a western water war being fought among warlords comprised of corporate industries. farmers and ranchers, urban residents in burgeoning growth belts, indigenous groups with water rights, and a bevy of infighting government water management agencies (Sheridan 1998). Whether one accepts Worster's or Sheridan's construction of how battles over water play out in arid regions, the flow of water is undoubtedly a conduit reflecting flows of power in a community. Discovery of how the relations of power are conveyed through water can uncover critical aspects of social transformation as well: the classic question of 'who benefits? Who loses?' in newer water management regimes.

Water is also a critical component in our ability to understand the consequences of neoliberal economic reform in Mexico. A dozen years into its reform program, Mexico is a microcosm of the experience of other countries in Latin America and the developing world where neoliberal water reforms are being introduced and superimposed upon uneven economic

landscapes marked by high poverty, stratified incomes and unequal access to land and water resources. The World Bank consistently prescribes a similar package of market-oriented reforms for water resource management around the world, including Brazil, Argentina, Perú and Colombia in Latin America, but the *effects* of decentralization and restructuring remain largely unknown, particularly at subnational scales. This paper analyzes how institutional changes such as decentralization of water management and market-oriented reforms such as market pricing and free trade have intensified water demand at the same time as prolonged drought conditions have forced dramatic changes in access to water.

In this paper I argue that decentralization of water management, full-cost water pricing, and market pressures created by a complex weave of free trade agreements, have resulted in a mixed bag for small producers in northern Mexico's agricultural areas. Water management under the decentralization strategy has resulted in more participatory and democratic processes, but water pricing, elimination of subsidies and free trade reforms have created a cost squeeze for small producers, who are increasingly responding by abandoning production to find other sources of income on private farms, in large cities or via migration to the United States and Canada. In formal terms, the power and control over water resources has become more democratized via the urban and rural decentralization processes, but this is something of a chimera. With the state's retrenchment of both its managerial role and financial resources, irrigation districts have taken on an onerous financial burden without having the federal government's to address resources gaping infrastructural needs and technology improvements requiring vast degrees of investment.

This paper is presented in three sections. The first section provides a brief background on Mexico's water and agricultural reforms; the second and primary section addresses the transformation of water policy in the irrigation sector in the northern Mexican state of Sonora. The final section of the paper draws conclusions and implications from this research.

Mexico's water reform and agricultural modernization strategy

Global economic integration and neoliberal restructuring reconfigured the social and political landscape of Mexico in the 1990s. Mexico chose to pursue a liberal economic model, embrace free trade and open markets, and become a full competitor on the international stage. As in much of Latin America, the move toward free market capitalism was accompanied by political democratization, represented by major electoral successes by opposition parties during the 1990s, and culminating in the July 2000 upset presidential victory by the conservative National Action Party (PAN) candidate Vicente Fox, supplanting the PRI (Institutionalized Revolution Party) party that had controlled Mexico for 71 years.

In 1992, Mexico adopted a new National Water Law (Ley de Aguas Nacionales) that introduced sweeping changes to federal water management and policy. For decades prior to the reforms, Mexican water management, agricultural planning, rural credit and urban water services had been centrally controlled by the federal government. The new law instituted the following specific modifications to national water policy:

- decentralization of management of irrigation districts from the federal government to water users themselves, via the process of "transference";
- decentralization of urban water services from federal to state or municipal control;
- removal of irrigation system subsidies equivalent to 60 to 80 % of total costs prior to the reforms;
- full-cost recovery pricing of water;
- establishment of formal markets to trade water rights;
- and introduced mechanisms to allow privatization of service provision in municipal areas and infrastructure projects in rural areas.

The National Water Law also created a host of water management institutions, ranging from a federal

agency, the National Water Commission (C.N.A.), to water user associations to local river basin commissions. A centerpiece of the new legislation was the "transference" of management responsibility from the federal agency to water user associations in Mexico's 81 large irrigation districts. The World Bank's irrigation modernization project infused more than \$342 million dollars into decentralization and establishment of water rights market since 1992. Privatization of water resources is explicitly encouraged in the new legislation, and major new waterworks will only be undertaken with financial participation from the private sector. Mexico's water law was revised to strengthen its emphasis on local participation in river basin management.

Two related changes that transformed Mexican agriculture in the 1990s are significant to understanding the impact of the water reforms: the adoption of land tenure reforms directed at ejidos (communal farms); and the adoption of NAFTA. In the aftermath of the Mexican Revolution (1910-1920), Mexico undertook one of the largest land reform programs in all of Latin America. From 1930 to 1990, approximately 28 000 ejidos were created serving as both employment and residence for 3 million rural Mexicans (Cornelius 1992). Traditionally ejidos (pronounced ay-HEE-thoz) were communal farms on which each ejido member (ejidatario) had his or her own parcel, and shared resources such as pasture and forest in common. While most ejidos are dedicated to cultivation of crops, others rely on logging, cattle ranching, or fishing as their primary sources of income. The profile of ejidatarios shows them to be one of the most marginalized sectors in Mexican society. For example, the average ejido agricultural parcel is only 12 hectares, compared with 55 ha for privately owned parcels (OECD 1997:36); most do not have irrigation and are of marginal quality. Eiidatarios had usufruct rights only, and were prohibited from renting or selling their parcels. The principal change of the 1992 land tenure reforms was to give ejidatarios individual land title and allow them to rent, sell or obtain credit, using their land as collateral. The "ejido reforms" paved the way for greater private sector control of traditional campesino resources by means of legal sales and rentals of parcels.

Mexico's entry into the North American Free Trade Agreement (NAFTA) with Canada and the United States on January 1, 1994 was a second major event that transformed irrigated agriculture. The significance of NAFTA reverberated throughout Mexico due not only to the trade changes it

engendered but also to the Zapatista uprising in southern Mexico the same day NAFTA became effective. Southern indigenous campesinos rose up in protest of their perceived exclusion from the gains of economic modernization and global economic integration represented by NAFTA, and for several years commanded direct attention from the president and chambers of congress.

Neoliberal water reforms and small producers

It is critical to interrogate the impacts of global influences as represented in Mexico's water modernization strategy at multiple scales in order to assess them within a grounded context. The northwest Mexican state of Sonora, which shares a border with the state of Arizona in the United States, is a significant area in which to examine the outcomes of neoliberal water reforms due 1) to its status as the biggest irrigator in Mexico, with seven irrigation districts comprising 15% of total land in the state; and 2) to its status as one of Mexico's breadbasket states, the former site of the "green revolution" program, currently producing about one-third of all Mexico's wheat. Mexico's water and agricultural reforms were intended to allow the strongest, most efficient producers to become more competitive. Sonoran producers in irrigation districts are among the nation's most advantaged, given their proximity to U.S. markets, access to irrigation, access to appropriate technology packages; and experience with commercial production for export. In recent years, Sonora is one of a dozen Mexican states that have been beset by prolonged drought conditions leading to stringent irrigation restrictions.

Beginning in 1992, Mexico initiated a massive decentralization process referred to as "transference" or "la transferencia" in its 81 irrigation districts, during which it transferred management authority from the federal government to a network of district organizations. The World Bank pronounced Mexico's transference program a success and offers it as a model for other developing countries in terms of the rapidity of the transference process itself (79 districts in less than 10 years) and due to the gains in efficiency of water use that have resulted (Easter, 1998). Based on Mexico's experience, the Bank decided to reverse its former strategy of "rehabilitate first, then transfer" to a new strategy of "transfer first, then rehabilitate," founded upon the belief that after transference, Mexican water users have been more capable of deciding democratically how to utilize scarce financial resources to modernize the water system in the most beneficial ways (Easter, 1998). My Sonoran research

generally confirms the Bank's positive views of transference. The transference reversed the previous history of tightly-controlled, federal government management of water resources with little input from water users and producers. The result was the creation of new democratized spaces for participatory water management that has given irrigation users in Sonora and other states a potent sense of their ability to influence and direct the course of water management within their own irrigation districts. Although there is evidence that local elites such as large, private producers continue to wield disproportionately greater influence within the transferred irrigation districts than do ejidatarios, water users from both private and ejidal sectors attest to an enhanced sense of their ability to influence water policy close to home (Wilder 2002; Murillo 2000). Nevertheless, one overwhelming result of the transference strategy and the retrenchment of the state from its managerial role has been a huge increase in water costs borne by the irrigators themselves. When local water users inherited it, Mexico's irrigation infrastructure was in a deleterious state, termed a "staggering" problem by a World Resources Institute study (Cummings et al. 1989). Half the irrigation supply never reached the intended cultivated lands (Cummings 1989; Buras 1996). While a little over a decade ago, the federal government subsidized 60 to 80 % of irrigation system costs, the World Bank reported that water users in 84 % of

This work is based on my dissertation research, conducted in two irrigation districts in Sonora: the Rio Yaqui, a surface water, wheatproducing district in southern Sonora, and the Altar-Pitiquito-Caborca (hereafter Caborca) district on northwestern coast of Sonora. The Rio Yaqui is a surface water district that has 20 000 producers (3/4 ejidatarios; ¼ private producers) on 220 000 ha and is primarily a wheat-producing district. By contrast, Caborca is a much smaller district with 67 000 ha reliant upon groundwater, with 831 wells supplying about 3 600 producers (2/3 ejidatarios; 1/3 private producers). In Caborca, 60 000 ha are open to cultivation, but only about half is currently under cultivation due to water restrictions. Caborca's crop production is quite diverse, with asparagus, raisins, fresh grapes, industrial grapes, olives and wheat as the district's principal crops. Rio Yaqui producers are organized into 42 separate water modules, under the auspices of the broader irrigation district (led by an incorporated "Society of Limited Responsibility" that conducts business and operations of the district); Caborcan producers are organized into only two water modules, led by the Irrigation District Water Users' Association.

transferred districts were paying 100 % of operations and maintenance costs (Easter 1998). In one of Sonora's largest irrigation districts, the Rio Yaqui, water fees increased by 257 % between 1992 and 2000 (Wilder 2002:572). In a large grape-producing district, Altar-Pitiquito-Caborca, water costs increased by 118 % for fresh grapes and by 186 % for asparagus between 1994 and 2000 (Wilder 2002:572). Elimination of pumping subsidies increased electrical costs so much that half of Caborca's producers had their groundwater wells cut off during 2000 (Wilder 2002). Irrigators are highly vulnerable to increased water and agricultural input costs (also seeing a steady rise after a loss of subsidies under free trade pressures) due to accelerated market competition, loss of price protections under free trade, and volatile international market prices for crops.

While NAFTA is by far the most noted (or notorious) of Mexico's free trade liaisons, Mexico has assiduously pursued free trade agreements with multiple other trade partners. Within the last ten years, Mexico signed free trade agreements with Chile, Israel, Japan, Central America, and the European Union, for a total of ten agreements (Mexico's Secretary of the Economy website). The Sonoran experience evinces two principal findings vis-a-vis trade: 1) that different free trade agreements assume importance within particular depending on the crops produced there and competition within that crop sector from the trading partner country; and 2) different free trade agreements have multiple meanings and impacts even within one regional area, by differentially advantaging or disadvantaging particular crop sectors/producers. To give one example, Mexico's free trade agreement with Chile, a major grape-growing competitor, has caused more consternation among grape producers in coastal Caborca, while NAFTA (with its heavily subsidized Canadian and U.S. wheat regions) has worried and disadvantaged wheat farmers across the state of Sonora (Wilder and Whiteford forthcoming). Water restrictions imposed due to the extended drought experienced across the arid north of Mexico have required producers to pull fields out of production (Wilder, 2002).

Implications and conclusion

Over the last dozen years, Mexico has taken dramatic and courageous steps toward creating a new culture of water through the adoption of wide-ranging neoliberal reforms, including decentralized management of water resources, privatization initiatives, financial selfsufficiency and full cost recovery pricing policies,

establishment of water markets, and the associated changes of ejido reforms and free trade. While the transference of rural water management to water user associations has opened new democratic spaces for participation in water decision-making, other aspects of the water and agricultural reforms have created a cyclical cost-squeeze for small farmers in the ejido sector. As the control over water resources has shifted, changes in the social relations of power have ensued, as some sectors have benefited from the host of reforms, while others are excluded from the benefits. This transformation is perhaps most evident in the ejido sector which is being slowly disenfranchised from its land and water rights. The trade and market reforms that were encouraged by the United States, Canada and other industrialized nations are intrinsically linked to illegal immigration problems in those same countries. Small farmers are increasingly driven to abandon production and migrate to nearby cities or to emigrate out of country. As water becomes commoditized and valued as an economic good, the social implications for impoverished urban residents and small farmers are daunting.

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