

# ICWA LETTERS

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**The Institute of Current World Affairs**  
THE CRANE-ROGERS FOUNDATION  
4 West Wheelock Street  
Hanover, New Hampshire 03755

WF-19 1997  
THE AMERICAS

*William F. Foote is an Institute Fellow examining the economic substructure of Mexico.*

## It's Only Water

MEXICO CITY, Mexico

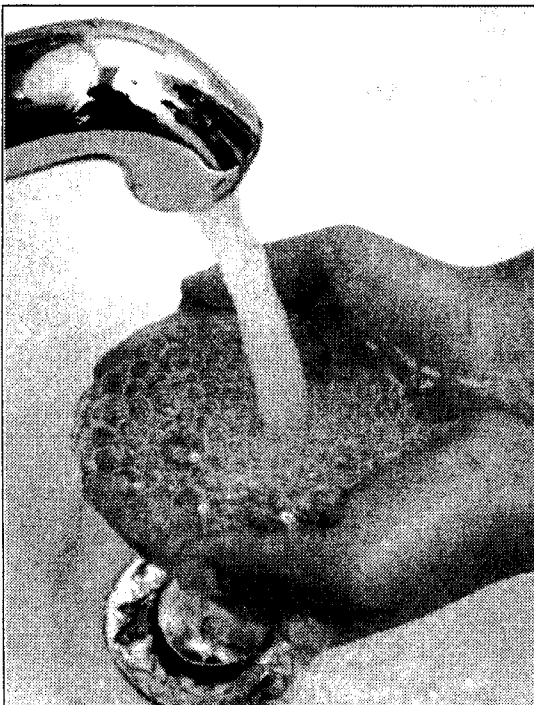
May 4, 1997

By William F. Foote

What kind of government handout would a Mexican refuse? None that I could think of until I learned about the water meters recently installed, free of charge, across this nation's capital.

"This is an outrage!" says Ernesto Rodriguez, brandishing his latest water bill. Last year, city employees installed a meter in his apartment building to measure H<sub>2</sub>O consumption with computer-chip precision. Within weeks, his water bill skyrocketed by over 1,000 percent. "How can they charge this much? It's only water!"

His comments are typical in this sprawling capital, where anger over rising water prices is coming to a boil. Last year, for the first time, local authorities began charging for H<sub>2</sub>O like electricity, telephone, or any other basic service — according to how much people consume. The reasons were clear. In one of the world's largest, most decrepit water systems, increased revenue would help pay for long-overdue modernization. Given this city's record-high levels of water waste, meters also offered a way to motivate people to conserve by relying on economic incentive, not ecological awareness.



In another unprecedented move, Mexico City officials formed an international, public-private partnership to help fix their broken water system. Ten-year service contracts, signed with local and European water companies, promised to improve efficiency and accountability while cutting subsidies and bureaucracy. Yet

bucking both the bureaucrats and the time-honored theory that Mexicans should not pay real water costs are no easy tasks. People here consider close-to-free water a birthright. As July's elections near and voters prepare to choose their first freely-elected mayor, some candidates are promising to scrap meters and reduce water rates.

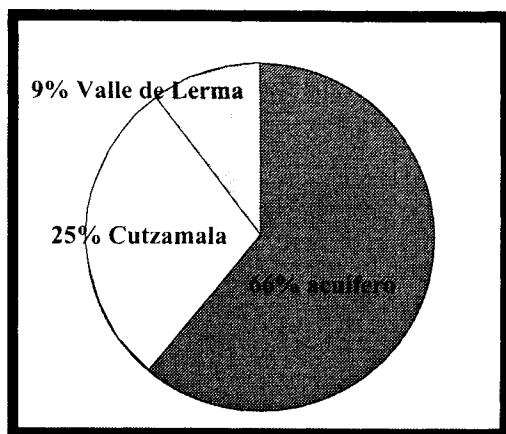
"This issue is above politics!" declares Michael Jones, the British director of *Industrias del Agua*, a Mexico City-based joint venture between U.K. water giant Severn Trent and a local environmental concern. "This isn't about the July 6th

elections. It's about guaranteeing the provision of vital water to millions of people."

## WORRIED ABOUT WATER

According to World Bank figures, the federal subsidy for water and sewage services to Mexico City currently amounts to more than \$1 billion dollars a year, or 0.6 percent of gross domestic product.<sup>1</sup> With the world's largest urban population, this capital consumes water at staggering rates: in any given year, Mexico City accounts for approximately five percent of all the potable water consumed in Latin America.<sup>2</sup>

Problem is, the Valley of Mexico, geographic seat of the federal district, has no rivers or lakes. Whence does all the water come? About 60 percent is drawn from deep wells at a ravenous rate of 42,000 liters per second, or twice the capacity of rainfall to replenish aquifers naturally. Sucking the land dry has had a worrisome consequence: as aquifers deplete themselves, downtown Mexico City has sunk by 10.7 meters over the past 70 years!



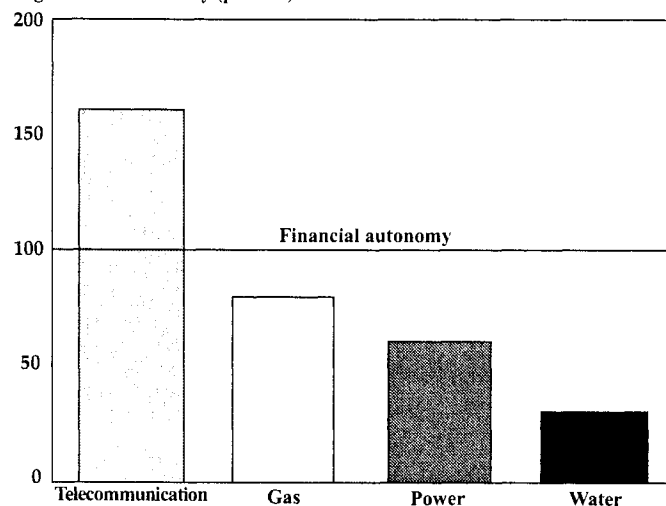
The sources of water in Mexico City

With falling water tables, Mexico City increasingly depends on water pumped from intermontane valleys scores of miles away. In the 1950s the federal district began importing water from the Lerma River, 60 kilometers away. Then came the Cutzamala River water-supply system, which pumps over an elevation of 1,000 meters from its source 127 kilometers away. No wonder water here is 10 times more costly than in a city like Tampico, Veracruz.

To put it simply, the traditional solution to Mexico City's water problems has been to increase supply. Just last year, the Inter-American Development Bank approved a \$500 million loan for the Federal District and Mexico State to finance the fourth phase of expansion of

## DEGREE OF COST RECOVERY IN INFRASTRUCTURE SECTORS IN DEVELOPING COUNTRIES

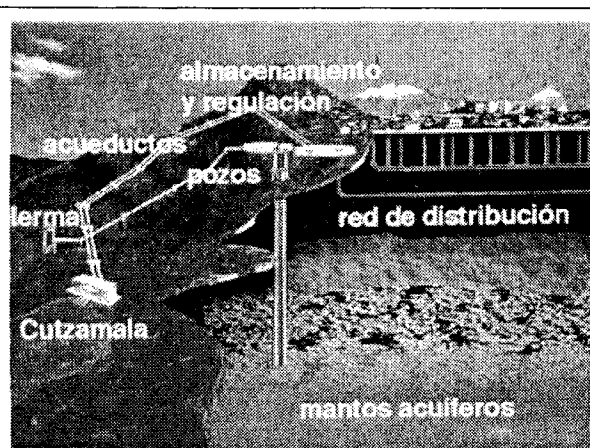
Degree of cost recovery (percent)



Source: World Bank 1994

the Cutzamala River water-supply system, which currently provides 25 percent of this city's water. But there is a problem: boosting supply yet again does nothing to reduce the surprising — no, the *astounding* — water waste at the receiving end.

Believe it or not, anywhere from 30 to 60 percent of Mexico City's water supply is lost to a leaky distribution system.<sup>3</sup> Over the years, billions of dollars have been



[diagram of water system]

Almacenamiento = storage

regulación = regulation

acueductos = aqueducts

pozos = wells

red de distribución = dist. network

manto acuífero = water tables

<sup>1</sup> Ismail Serageldin, *Water Supply, Sanitation, and Environmental Sustainability: The Financing Challenge*, The World Bank, 1994, p. 12.

<sup>2</sup> *Crónica*, 12/08/96

<sup>3</sup> The international standard for losses from leakage of urban water distribution is 20 percent.

spent on boosting water volume only to see half of it pour through the cracks of a tumble-down distribution network — ravaged by earthquakes, sinking neighborhoods and administrative abandon. In some places, especially downtown, underground water pipes date to colonial and even Aztec times.

Add to that the significant squandering of H<sub>2</sub>O that reaches customers, and prospects really deteriorate. Despite apocalyptic predictions of impending water drought, Mexico City residents reportedly consume a daily average of 360 liters of water — that is, over 100 liters per capita more than in Monterrey, Paris, or Barcelona.

“If we don’t do something to detain the waste,” says Alfonso Martinez Vaca, former water chief of the federal district, “in 20 years, maximum, we will have no water.”

### PUBLIC-PRIVATE PARTNERSHIP

In February 1993, Mexico City appealed to the world’s water experts for assistance. In an international bidding process, private water companies were hired to help rescue the city’s distribution system. Dividing the capital into four service zones, city officials tendered 10-year service contracts valued at approximately \$300 million each. Allied with Mexican partners, four European water concerns presented winning bids: Compagnie Générale des Eaux (France), Lonnaise des Eaux Dumez (France), Northwest Water International (U.K.) and Severn Trent (U.K.).

“Who wouldn’t be interested?” says Mr. Jones of the Severn Trent consortium. “This is the biggest city in the world. It’s also a great base from which to expand operations into Latin America.”

The stage had been set months before. Passing new water legislation, the city legislature created an administrative body to supplant the network’s splintered and inefficient management. The so-called Water Commission would help centralize the duties of all three public agencies traditionally involved in H<sub>2</sub>O distribution. These are: one, the Department of Water Works and Operation (known by its Spanish acronym, DGCOH). A notoriously-corrupt bureaucracy, the DGCOH handles primary water infrastructure (e.g., aqueducts, deep water mains and drainage pipes, pump houses). Two, Mexico City’s 16 political districts, known as *delegaciones*, manage the operation and maintenance of the secondary distribution network (e.g., valve boxes, smaller water pipes, end-user connections). Three, the city Treasury Department deals with billing and collection.

“It was a bureaucratic nightmare,” says Jaime Gonzalez, technical director of the newly-formed Water Commission. “With no centralized authority to track these activities, we had managerial mayhem.”

Under the new institutional framework, the DGCOH,

with its 13,000 unionized workers, remains in charge of primary water infrastructure yet relinquishes to the Water Commission any functions related to secondary distribution. Over time, the Treasury Department and the 16 *delegaciones* will transfer all similar duties to the Commission. The latter, in turn, pays the private contractors to perform the aforementioned tasks along with others specified in the service contracts.

Within the range of private-sector options for this purpose, service contracts represent the simplest form because the public authority retains overall responsibility for operation and maintenance, except for specific, limited-scope services that are contracted out. The responsibility of the private contractor is restricted to managing its own personnel and services efficiently. As such, private companies bear no commercial risk since the money paid by water consumers goes directly to the government. No matter what happens, in other words, the city must pay the contractors for their services.

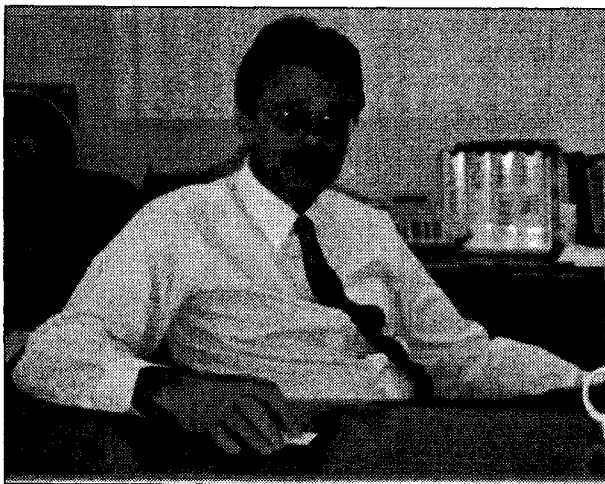
Interestingly, this scheme is markedly different from private-sector experiments tried by water authorities in other Latin American cities. Take Buenos Aires. Unlike Mexico City, public authorities there chose a full concession, not service contracts, to modernize the city’s equally-backward water system. In a concession, private contractors assume overall responsibility for the services, usually for 20 to 30 years. Instead of being paid by the government, the contractor is paid directly by the user, based on contractually set tariffs. This takes the onus off the public authority. So why didn’t Mexico City choose the concession model?

“One word,” Gonzalez replies at the Water Commission. “Politics.”

With a full concession, many of the well-organized DGCOH workers would have lost their jobs. That political cost, says the official, was too high to pay. A concession would also have driven up water prices faster and higher than service contracts would have, since rates must reflect the concessionaire’s real costs of service provision. Otherwise, free-market forces demand that the water companies go under. “In a city like this one,” Gonzalez concludes, “water rates must increase gradually to avoid social conflict.”

Lending order to this process, all modernization activities are to be carried out over the 10-year life of the service contracts through three stages: Phase One — meter installation, network mapping, consumer-register updating; Phase Two — meter reading, billing, payment collection; Phase Three — system repairs, upgrading of facilities, operation and maintenance of the secondary network.

“By late 1994 we were really flying,” says Mr. Jones, who relocated to Mexico City from London the previous year. With nearly 1,000 employees, subcontractors included, Industrias del Agua was installing 24,000 meters per month. Thanks to a robust economy and record



*Michael Jones of Industrias del Agua*

water-payment collections in 1994, Jones's spirits were high; hence his shock when Mexico devalued the peso in December and the project screeched to a halt. Water meters, imported and priced in dollars, skyrocketed in price. Citibank, which was about to finance the purchase of more meters, suspended its loan. The Water Commission's budget shrank.

Although activities slowly resumed by mid 1995, unexpected problems had emerged. As contractors stepped up operations, water bureaucrats dragged their feet. According to Jones, this reflected "a less than 100 percent commitment to the project within the Mexico City government." In hindsight, such lack of enthusiasm grew as the public-private partnership matured. "Water bureaucrats felt threatened by the contractors," explained Water



*Reading a meter for the Water Commission of the Federal District*

Commission engineer Luis Diaz, "so they tried to stall the process."

Consider the case of meter reading. Installation of these devices began in the summer of 1994, yet water companies did not start billing or collecting payments until early 1996. What explains the delay? Some blame the devaluation. Others point to computer problems. Diaz, however, suggests Treasury Department officials simply refused to transfer responsibilities to the Water Commission.

Authorities from the 16 *delegaciones* resisted cooperation in other ways, although it remains unclear whether their behavior reflected malice or mere managerial ineptitude. For example, last year Industrias del Agua — Severn Trent's joint venture — successfully restored 400 manholes in the northeastern district of Venustiano Carranza. Metal detectors were used to locate these valve-box accesses long buried beneath asphalt. Far from expressing gratitude, in recent months *delegación* employees have re-paved more than 150 of the restored manholes.



*Fixing a pipe in Mexico City's leaky distribution*

As for the DGCOH, Oscar Hernandez, its head engineer, assured me that his department has no conflict of interest with the water companies. Because the DGCOH has never had responsibility for the secondary distribution network, he explained, it has no reason not to applaud the efforts of private enterprise to modernize the water system. That said, Hernandez acknowledged that while the 16 political *delegaciones* have been theoretically in charge of secondary water infrastructure, they are sorely ill-equipped for this responsibility. Consequently, the DGCOH provides them with technical support, trained personnel, construction materials, machinery, etc. "We have 60 pipe-cleaning trucks and many of the delegations have none," boasted Hernandez, further supporting the contention that his department has *de facto* control over Mexico City's secondary distribution network.

For this reason, the DGCOH is believed to be staunchly opposed to the launching of Phase Three of the service contracts. If obliged to unofficially transfer responsibilities for the repair, upgrading, operation and maintenance of secondary water infrastructure to private

companies, many of the department's 13,000 workers would lose their jobs. Be that as it may, Phase Three should have begun already, according to the timetable of the service contracts. Private contractors are understandably eager to begin, having sustained sizable losses due to devaluation and delays. "We want to move forward," says Jones, "especially considering the costs we have already incurred that we may never recuperate."

For an unbiased opinion, I talked to a water specialist at McKinsey, the U.S. consulting firm, who requested anonymity. Summarizing the situation, the Mexico City-based professional spoke of head-to-head combat between the DGCOH and the newly-formed, relatively-weak Water Commission. Concluded the consultant: "Big infrastructure, big bureaucracy, lots of money, lots of friends — do you think for a second that the DGCOH is going to step down quietly?"

### RAISING TARIFFS AND TEMPERS

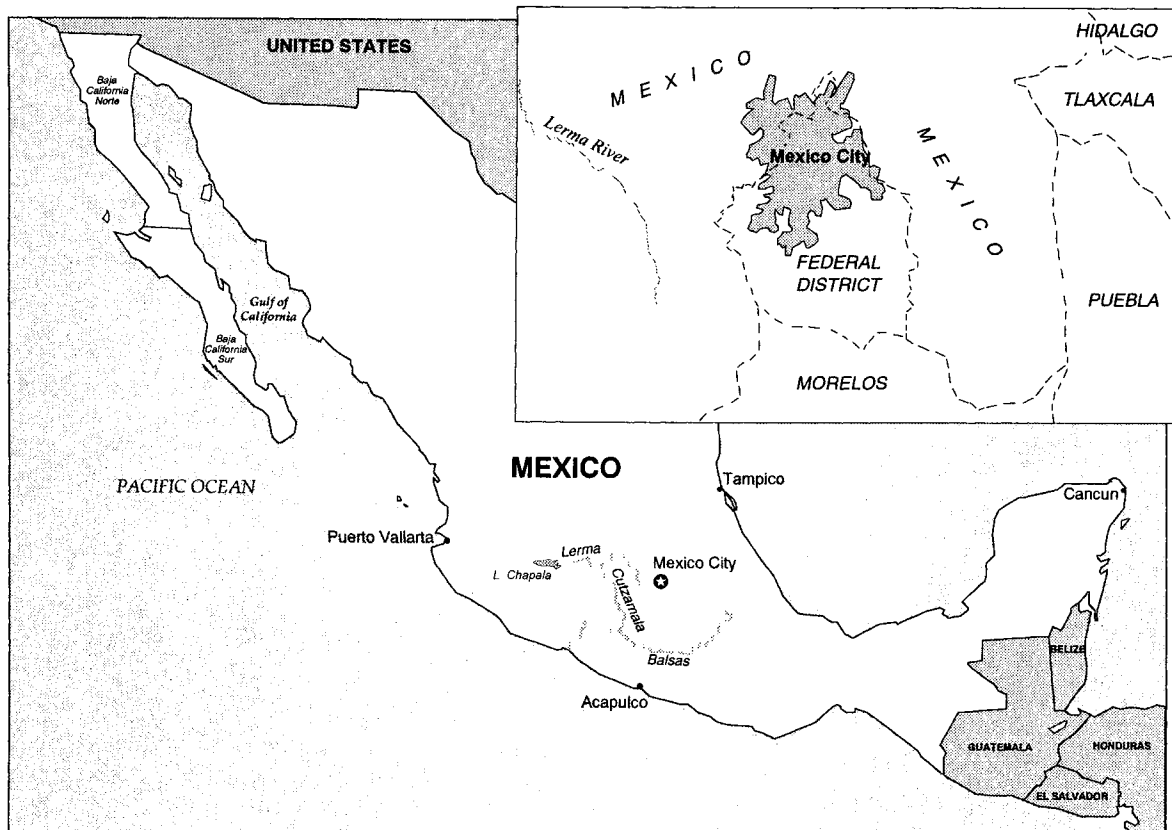
Would that bureaucrats were the only noise makers. Since early last year, customer outcry has increased with rising water prices. By the time Treasury officials finally transferred billing functions to contractors, the latter had installed approximately one million meters. To minimize complaints, the water companies decided to phase in the new billing mechanism incrementally, starting with middle-class neighborhoods primarily. But tempers



*Angered by rising water prices, Ernesto Rodriguez complains to two city-employed plumbers in northeastern Mexico City.*

flared anyway. When well-off consumers saw their water bills jump by 1,000 percent, many hit the streets in protest.

Gustavo Fuentes, a specialist in meter installation and preventative maintenance at Industrias del Agua, witnessed their wrath. On several occasions, customers





surrounded his company car, thumping fists on the roof, demanding immediate solutions to their billing problems. "I've never been beaten up," says Fuentes, looking on the bright side, "just insulted a lot."

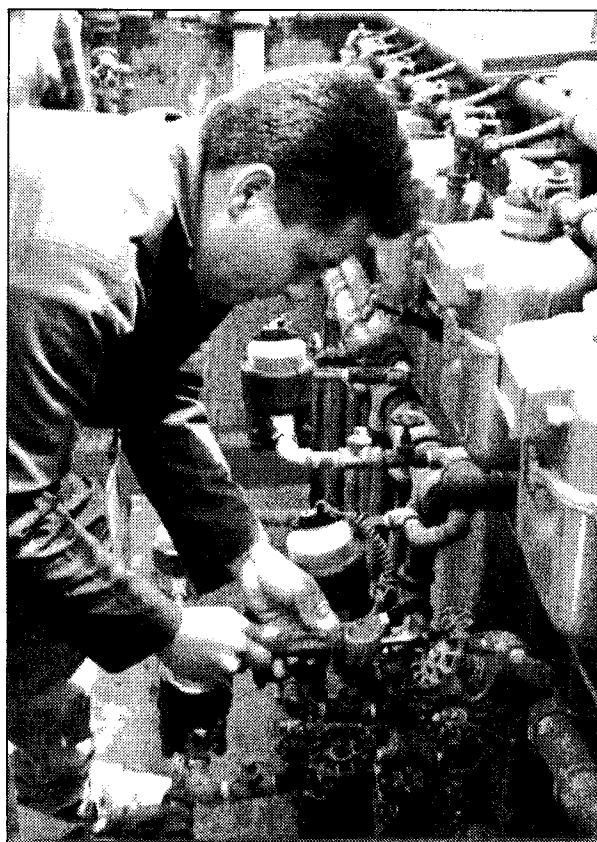
Some irate customers turn to vandalism. While conducting random tests of water-meter precision in *delegación* Benito Juárez, Fuentes explained two popular forms of meter sabotage. Some take blow torches to the metal casings, warping the spinning mechanisms inside, causing meters to register lower water consumption. Others simply smash with hammers the so-called "touch pads," the exposed nozzles into which meter readers insert their electronic monitors.

Of course, not everyone rejects rising water rates, at least not in principle. Alberto Garcia, a 37-year-old restaurant owner, appreciates the need to pay more for water. A lifetime resident of Benito Juárez, Garcia acknowledged that his water bills had been, as he put it, "ridiculously low." However he quickly complained that his building of eight apartments has only one water meter. Since the landlord splits costs evenly, Garcia and his wife pay the same amount as their neighbors, who have eight family members and presumably consume much more water. "Until we have our own meter," says Garcia, "I cannot support this project."

While price increases have been largely confined to middle-class enclaves, news of metered consumption and rising rates has hit Mexico City's newspapers. In the runup to July's pivotal elections, politicians have seized upon this public outcry for electoral gain. A case in point, center-left candidate Cuauhtémoc Cárdenas — the current front-runner — proposes to restrict increases in public tariffs and prices, including water, to half the increase registered by the consumer price index.

"Politicization is seriously jeopardizing the project," states Mr. Diaz at the Water Commission. "If a populist comes to power, subsidies could rise again and destroy our ability to charge according to how much water people consume."

Making matters worse, Alfonzo Martinez Vaca, until recently the Water Commission director, resigned in February to join the campaign of PRI mayoral candidate Alfredo del Mazo. Absent his leadership, the political will necessary to preserve the Water Commission's public-private



*Working for Industrias del Agua, Gustavo Fuentes services a newly-installed water meter in delegación Benito Juárez.*

vate partnership may wither. Keenly aware of this, Jones regretted the electoral shuffle: "It creates a problem of continuity. To a degree, we've lost the person with ownership of our project."

Maybe, maybe not. Pooh-poohing the pessimists, Mr. Diaz remains confident that politicians will come to their senses once apprised of the project and of what is at stake. As for the contractors, they are still earning money from the city, albeit less than anticipated, thanks to the service contracts. And don't forget the fringe benefits. Lkening Mexico City to a university, and its four water-service zones to classrooms, Diaz called the private contractors "students on scholarship." Added the engineer: "All things considered, they should be happy: if they succeed here, they can do it anywhere in the world." □

Institute of Current World Affairs

## Fellows and their Activities

**Adam Smith Albion.** A former research associate at the Institute for EastWest Studies at Prague in the Czech Republic, Adam is studying and writing about the republics of Central Asia, and their importance as actors within and without the former Soviet bloc. A Harvard graduate (1988; History), Adam has completed the first year of a two-year M. Litt. Degree in Russian/East European history and languages at Oxford University. [EUROPE/RUSSIA]

**Christopher P. Ball.** An economist, Chris Ball holds a B.A. from the University of Alabama in Huntsville and attended the 1992 International Summer School at the London School of Economics. He studied Hungarian for two years in Budapest while serving as Project Director for the Hungarian Atlantic Council. As an Institute Fellow, he is studying and writing about Hungarian minorities in the former Soviet-bloc nations of East and Central Europe. [EUROPE/RUSSIA]

**William F. Foote.** Formerly a financial analyst with Lehman Brothers' Emerging Markets Group, Willy Foote is examining the economic substructure of Mexico and the impact of free-market reforms on Mexico's people, society and politics. Willy holds a Bachelor's degree from Yale University (history), a Master's from the London School of Economics (Development Economics; Latin America) and studied Basque history in San Sebastian, Spain. He carried out intensive Spanish-language studies in Guatemala in 1990 and then worked as a copy editor and Reporter for the *Buenos Aires Herald* from 1990 to 1992. [THE AMERICAS]

**John Harris.** A would-be lawyer with an undergraduate degree in History from the University of Chicago, John reverted to international studies after a year of internship in the product-liability department of a Chicago law firm and took two years of postgraduate Russian at the University of Washington in Seattle. Based in Moscow during his fellowship, John is studying and writing about Russia's nascent political parties as they begin the difficult transition from identities based on the personalities of their leaders to positions based on national and international issues. [EUROPE/RUSSIA]

**Marc Michaelson.** A program manager for Save the Children in The Gambia, Marc has moved across Africa to the Horn, there to assess nation-building in Eritrea and Ethiopia, and (conditions permitting) availing and unavailing humanitarian efforts in northern Somalia and southern Sudan. With a B.A. in political science from Tufts, a year of non-degree study at the London School of Economics and a Master's in International Peace Studies from Notre Dame, he describes his postgraduate years as "seven years' experience in international development programming and peace research." [sub-SAHARA]

**Randi Movich.** The current John Miller Musser Memorial Forest & Society Fellow, Randi is spending two years in Guinea, West Africa, studying and writing about the ways in which indigenous women use forest resources for reproductive health. With a B.A. in biology from the University of California at Santa Cruz and a Master of Science degree in Forest Resources from the University of Idaho, Randi is building on two years' experience as a Peace Corps agroforestry extension agent in the same region of Guinea where she will be living as a Fellow with her husband, Jeff Fields — also the holder of an Idaho Master's in Forest Resources. [sub-SAHARA]

**John B. Robinson.** A 1991 Harvard graduate with a certificate of proficiency from the Institute of Kiswahili in Zanzibar, John spent two years as an English teacher in Tanzania. He received a Master's degree in Creative Writing from Brown University in 1995. He and his wife Delphine, a French oceanographer, are spending two years in Madagascar with their two young sons, Nicolas and Rowland, where he will be writing about varied aspects of the island-nation's struggle to survive industrial and natural-resource exploitation and the effects of a rapidly swelling population. [sub-SAHARA]

**Teresa C. Yates.** A former member of the American Civil Liberties Union's national task force on the workplace, Teresa is spending two years in South Africa observing and reporting on the efforts of the Mandela government to reform the national land-tenure system. A Vassar graduate with a juris doctor from the University of Cincinnati College of Law, Teresa had an internship at the Centre for Applied Legal Studies in Johannesburg in 1991 and 1992, studying the feasibility of including social and economic rights in the new South African constitution. [sub-SAHARA]

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HANOVER, NEW HAMPSHIRE 03755

## ADDRESS CORRECTION REQUESTED

Author: Foote, William F.  
Title: ICWA Letters - The Americas  
ISSN: 1083-4303  
Imprint: Institute of Current World Affairs,  
Hanover, NH

Material Type: Serial  
Language: English  
Frequency: Monthly  
Other Regions: East Asia; Mideast/North Africa;  
Europe/Russia; South Asia;  
SubSaharan Africa

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## ICWA LETTERS

ISSN 1083-4303

ICWA Letters are published by the Institute of Current World Affairs Inc., a 501(c)(3) exempt operating foundation incorporated in New York State with offices located at 4 West Wheelock Street, Hanover, NH 03755.

The letters are provided free of charge to members of ICWA and are available to libraries and professional researchers by subscription.

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