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What Hirschman's Hiding Hand Hid in San Lorenzo and Chixoy

Barbara Deutsch Lynch

Sam Nunn School of International Affairs, Georgia Institute of Technology (retired), Atlanta, GA 30332, USA; bdl5@cornell.edu

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Abstract: Implementation of big water projects requires that their funders, contractors, and government officials will move projects forward ignorant of their potential social and environmental costs. Economist Albert O. Hirschman raised the issue of ignorance in a widely-read analysis of the factors driving the project process in Latin America, Africa, Asia, and southern Europe. This ignorance, which Hirschman referred to as ‘the hiding hand,’ led to creativity in the case of the San Lorenzo irrigation system in northern Peru, but had lethal consequences in the case of Guatemala’s Chixoy dam project. While Hirschman saw what he called ‘the hiding hand’ as accidental, examination of documents related to large hydraulic infrastructure projects in Peru and Guatemala suggests that in the late twentieth century it was systematically produced by resistance on the part of international financial institutions to addressing the broader political context for project development, or to adequately addressing potential social and environmental impacts early in the project process.

Keywords: hiding hand; A.O. Hirschman; irrigation; hydraulic projects; San Lorenzo irrigation project; Chixoy irrigation project; Peru; Guatemala

1. Introduction

Large hydraulic works and river basin development programs, artifacts, and expressions of high modernization as a social and political project require an institutional array of funders, contractors, and government officials who will move projects forward with scant knowledge about their potential social and environmental costs (see [1]). Heterodox development economist Albert O. Hirschman raised the issue of ignorance in a widely-read analysis of the factors driving the project process in Latin America, Africa, Asia, and southern Europe. This ignorance, which Hirschman saw as benevolent on the whole when he studied World Bank funded projects in the 1960s, would prove nastier than he anticipated. In the case of big water projects, it would be lethal. In addition, while Hirschman saw what he called ‘the hiding hand’ as accidental, examination of documents related to large hydraulic infrastructure projects in Peru and Guatemala suggests that it may be systematically produced.

Hirschman’s experience with the Marshall Plan drew him into the field of development economics in its infancy. Perhaps his major contributions to the study and practice of development were to critique the approach of World Bank economists to project planning and evaluation, and, more importantly, to insist on the importance of talking to people on the ground, whether local project staff or intended beneficiaries. He played a pioneering role in the field at a time when big water projects assumed a privileged position on the development agenda, due in part to the apparent success of the Tennessee Valley Authority in ‘jumpstarting’ development in the southern United States. Politicians, planners, and analysts who favored the hydraulic megaproject as an instrument for international development in the global south included President Harry S. Truman, former TVA administrator David Lilienthal, World Bank president Eugene Blank [2], Nehru, and Nasser, as well as Hirschman. Lilienthal spent the 1950s sharing his river basin development recipe with national governments in the Indus Valley,

Iran, Colombia, and the Dominican Republic [3,4]. It was in this context that Hirschman, who admired Lilienthal's work, moved to Colombia to work for the World Bank.

Support for big hydro in the postwar period was not just about identifying a new cold war weapon or opportunities to deploy 'mobile fixed capital' in new settings. It also had a moral dimension: global inequality was a concern, and hydropower development—even in authoritarian states—was seen as a motor for economic growth, and an instrument for poverty reduction and democratization. By the 1970s, hydropower development was also justified as a 'clean' energy alternative. Lilienthal captured this moral dimension when he said,

If a great dam or new system or roads inspires people in a country with a feeling that this is theirs, and that it provides an opportunity, a leverage by which they and their young people can look to the future with hopefulness in specific ways, then that great dam as an inspiration will produce more than electricity and irrigation, the road network more than transport. It will produce a change in spirit, a release of energies and self-confidence which are the indispensable factors in the future of that country [5] (p. 13)

Hirschman shared Lilienthal's optimism about the promise of infrastructure projects. His long-term involvement with Latin American development began with his move to Colombia in 1952. Reflecting on his early work for the World Bank consultant during La Violencia [6] (pp. 80–81), he noted,

At one time I was actively involved in the attempt to develop a regional authority on the model of the Tennessee Valley Authority. The idea to create a multifunctional entity was then quite widespread. This entity would provide irrigation, electric power, and even land reform. This kind of work gave me the desire to begin to know in depth the reality of this country, and it put me into contact with many people. Now it hardly ever happened that I would take a plane without meeting this or that minister or corporate executive whom I knew personally. I felt positive about all this because I had the feeling that the country was moving forward. However, I don't want to deny the tremendous problems the country was going through—we must not forget that a civil war was still going on—but in any event we had the perception that the country was progressing.

Hirschman did not view the project as a weapon of counterinsurgency or military control, nor did he display willful ignorance of Colombia's political realities. Still, his faith in human progress and the democratic potential of public works withstood whatever doubts he may have had about the efficacy of infrastructure projects in a climate of civil unrest and state repression.

Jeremy Adelman does a masterful job of contextualizing Hirschman's thinking. He writes that Hirschman's Colombian experience informed his decision to study the World Bank projects in 1964 in order to learn more about how massive development projects worked [7] (p. 385). His research, supported by the Brookings Institution and the Carnegie Foundation, took him to eleven countries where he interviewed World Bank staff and borrowers. Still optimistic about the democratizing potential of irrigation and river basin projects which, as he saw it, compelled water users to build new institutions for water allocation and for system maintenance, he became increasingly dubious about their representing triumphs of rational planning. His general optimism, coupled with his doubts about the rational nature of the project process, informed a 1967 *Public Interest* article [8] and a 1967 book, *Development Projects Observed* [9].

To challenge prevailing assumptions about the rational nature of project planning, Hirschman referred to the 'hiding hand,' a feature of the project process that fosters creativity by concealing the difficulties inherent in a project [9] (p. 13). In a 1995 reflective work, *The Propensity to Self-Subversion*, he described his principle of the hiding hand as speculation intended to "endow and surround the development story with a sense of wonder and mystery" [10] (p. 129). Hirschman argued that if planners knew all the obstacles to a project's successful implementation, they would not undertake it in the first place, but when facing difficulties in the field they would respond with creative solutions.

He stressed that “in developed countries less hiding of the uncertainties and likely difficulties is required than in underdeveloped countries where confidence in one’s creativity is lacking, and where new tasks harboring many unknowns must be presented as though they were all ‘cut and dried’ in order to be undertaken” [8] (p. 14). For Hirschman, creativity did not simply mean the invention of new solutions to technical problems. He explains that he saw *Development Projects Observed* as a critique of the overly technocratic approaches to development and to project evaluation promoted by Robert McNamara when he was president of the World Bank. Looking back at the earlier book, Hirschman notes that, in order to challenge the ‘scientific’ rationality prevalent in World Bank circles, he expanded the definition of obstacles to development to include social as well as technical factors, and, citing the San Lorenzo case, argued that the hiding hand fostered creative social policies as well as technical solutions [8] (p. 128).

Hirschman goes on to argue that river basin development projects are excellent examples of projects that appear deceptively easy, because they are cast as TVA clones. In other words, the hiding hand makes proposed projects look like simple replications of past successes. It also exaggerates benefits, making it possible to swallow high costs and to achieve positive intermediate outcomes.

One of the projects that Hirschman analyzed for his book was the San Lorenzo irrigation project in Peru’s Piura region. Although he found the project plagued by delays and opposition, he celebrated its contribution to land redistribution and agricultural experimentation. Drawing upon his understanding of this project and several others, Hirschman concluded that the hiding hand was largely benevolent. His findings in *Development Projects Observed* were generally favorable to the World Bank, although he did argue for better project monitoring and evaluation. However, the Bank’s response to his recommendations was chilly. Staff objected both to his call for systematic project evaluation and his recommendation that the distributional consequences of projects be assessed [7] (pp. 398–403). They also faulted the book’s lack of concrete recommendations.

Hirschman’s upbeat view of the hiding hand has continued to provoke criticism over the half century since the publication of *Development Projects Observed*. Referring to his support for a Biafra transport project when the region was on the cusp of civil war, Adelman, his sympathetic biographer, concludes,

Either Hirschman’s optimism blinded him to the simmering tensions, or the evidence of this tension was still muted. The latter is not plausible; Hirschman’s notes are filled with the grouchy testimonies of his witnesses. It is more likely that his wish for surprising, positive effects overwhelmed what he saw and heard. Either way, he failed to predict that this was one project that would have disastrous consequences and contribute to the devastating civil war in Nigeria not long after Hirschman toured the region [7] (p. 393)

Flyvbjerg and Sunstein [11] conclude that if Hirschman had expanded his sample, he would have found that, more often than not, the hiding hand results not in creativity, but in poor project design and cost overruns that could have been prevented. They argue that in such cases the hiding hand is malevolent rather than benign. Anheier [12] offers a typology of different types of possible hiding hands. Underestimation of task complexity in a context of ignorance, he argues, produces the hiding hand defined by Hirschman, one that makes for creative approaches to problem solving. In contrast, underestimation of task complexity in a state of awareness, argues Anheier, produces an ‘information asymmetry’ that leads to profiteering. This is Flyvbjerg and Sunstein’s malevolent hiding hand. Where task complexity is overestimated in a context of ignorance, Anheier sees a protecting hand that he equates with the precautionary principle. Lastly, overestimation of task complexity in a context of knowledge may lead to an excess of caution or risk avoidance that can stifle development, as Hirschman predicted.

Hirschman’s hiding hand metaphor interested me when in 2003, as a volunteer working with the International Rivers Network, I examined documents in the NGO’s extensive files related to the Guatemalan Chixoy project, seeking to learn whether or not the World Bank and the InterAmerican

Development Bank approved loans for a big dam project during Guatemala's 30 year long civil war, knowing that the Guatemalan government agency implementing the project was implicated in human rights abuses. Although state-sanctioned violence against Maya communities in the project area was well documented, I could not find in the project documentation produced by the banks or international contractors evidence that they knew that activity directly related to building the dam would contribute to what was later determined to be genocidal behavior. This may have been due simply to a lack of transparency, or it may have been the work of a hiding hand—far more destructive than Flyvbjerg and Sunstein's [11] malevolent hiding hand—that deliberately produced ignorance of both the violent acts committed by the Guatemalan state and the devastating social and cultural impacts of displacement caused by the project, and led to outcomes that Hirschman would certainly have deemed objectionable. If the lending agencies had a clear understanding of the political environment in which the project process was unfolding, it can be argued that they were knowingly complicit in a campaign of repression. If, on the other hand, they were ignorant of what was going on, it becomes imperative to ask how and why ignorance was produced.

Inquiring about the role of international development actors in concealing the horrific side effects of project development led to some basic questions about Hirschman's optimism: Was it delusional at best, or did the probability of positive outcomes associated with big dam development simply diminish over time? Or was the expectation that the TVA model could be adapted to vastly different natural, political, and cultural environments without provoking serious harm simply untenable? This led me in turn to an epistemological question about whether the hiding hand is an accidental phenomenon, as Hirschman implied, or whether ignorance is systematically produced. To address these questions, I refer to World Bank and InterAmerican Bank project documentation, to historical analyses of the San Lorenzo Project discussed in *Development Projects Observed*, and to the extensive body of analytical and testimonial literature on the Chixoy dam project.

2. Hirschman's Hiding Hand and the San Lorenzo Project

The San Lorenzo or Quiroz-Piura irrigation project was one of several designed to deliver water to Piura's export cotton producers and rice growers, and to open new areas on Peru's arid north coast to agriculture. Hirschman saw it as a positive example of how proceeding with project development despite an absence of information could lead to creativity and positive, if unanticipated, outcomes. This raises two questions: Did project implementation in the face of ignorance of potential obstacles to its success lead to positive outcomes, and did the hiding hand operating in the San Lorenzo project represent a simple absence of information, or was it a case of ignorance produced in a specific cultural and political context? Recent irrigation development in the area dates to the late nineteenth century, and in 1902 a privately funded irrigation canal was built on the right bank of the Río Chira, expanding the area under cotton cultivation by more than 4000 ha [13] (pp. 56–57). Water conflict in the early twentieth century was severe, pitting large cotton producers in different parts of in the Piura valley against one another. These powerful growers managed to contain their problems by buying lands in the upper watershed—allowing them to cultivate when water was abundant—and by setting up municipal water rationing systems [14]. However, demographic growth and the opening of new lands increased water demand, and, given the role of cotton in the generating foreign exchange, improving water delivery was deemed to be in the national interest in the mid-1940s.

Shortly after coming to power in 1948, Peru's president Manuel Odría authorized construction of the Quiroz project, which, when completed in 1953, irrigated 31,000 ha of cotton lands. At the time, it was the largest water management project in Peru; it diverted water from the Río Quiroz into the new San Lorenzo dam, and ultimately into the Río Piura. The diversion was intended to serve some 50,000 ha of newly colonized lands in San Lorenzo. In 1955, the Peruvian government obtained a \$18 million loan from the World Bank to finance construction of a dam on the Quiroz and 85 km of main canals and diversion structures. In principle, this would have permitted irrigation of 50,000 ha of uncultivated land, and provision of supplementary irrigation to another 31,000 ha in

the Rio Piura valley [15]. However, this estimate may be overoptimistic, given that the new system probably incorporated previously irrigated areas, but I have no data to confirm this. According to a 1955 World Bank report [16], 20,000 ha of the irrigated area would be planted in cotton, with the remainder in food crops and pasture. Newly irrigated lands would be sold to farmers in plots ranging from 15 to 100 ha.

In 1965, the government of president Fernando Belaunde Terry, seeking to sustain the power of agrarian elites while stemming the tide of growing peasant unrest, applied to the World Bank for additional project funding. With World Bank funding, ORDEN, a newly created planning agency, conducted a hydrological study of the Piura department in 1967. Feasibility studies followed, and in 1968 the newly installed military government of President Juan Velasco Alvarado requested an additional \$109 million in loans from the World Bank and other sources, but, despite positive assessments of the project's technical mission, the World Bank pulled the plug in 1970. Cleaves and Scurrah's [14] interviews indicate that the bank's withdrawal was due to its discomfort with Velasco's decision to nationalize Peru's oil industry.

Hirschman visited San Lorenzo in 1964, the year in which the Belaunde government passed a weak agrarian reform law [17]. Hirschman found his visit to the project exhilarating "because of the strong reform wind that was blowing about the place" [9] (p. 159). In introducing the San Lorenzo experience, Hirschman argued that development projects are accompanied by a series of unanticipated threats not just to their performance, but to their very survival, and by a counterbalancing set of "remedial actions that can be taken should a threat become real" [9] (p. 11). He noted that the San Lorenzo project experienced significant delays due to political changes and a fundamental reassessment of the kind of irrigated agriculture that the program ought to support. This rethinking may well have been occasioned by a drop in world cotton prices that affected Peru in the 1960s [13]. Hirschman found that farmers in newly irrigated areas saw the adoption of modern cotton production as risky, so they turned to familiar crops with a known market, thus reducing anticipated benefits. He also cited the problem of excess demand for newly diverted waters, but he noted that, faced with these obstacles, San Lorenzo was transformed into a pilot project for subdividing land into small family farms and for offering credit and technical assistance to once landless cultivators, thereby establishing a new pattern for Peruvian agriculture and providing a training ground for a new breed of agricultural administrators able to apply lessons learned in Piura in other places [9] (p. 12).

For Hirschman, San Lorenzo had become a victim of its own success when, following completion of the project's first phase, all of the water diverted from the Río Quiroz went to irrigate cotton plantations in the lower Piura valley. Because the powerful cotton producers in the lower Piura valley enjoyed an ample water supply in the years before development of new irrigated areas, they objected to programmed reductions in their water supply and sought to block planned expansion. The 1955 World Bank Report noted that droughts in 1950, 1951, and 1954 and frequent water shortages "prevented the effective use of land suited for the cultivation of Pima cotton, a major export product" [16] (p. 3). Expansion of the irrigated area by 50,000 ha would further reduce the amount of water for cotton. According to Hirschman, cotton growers also feared the loss of labor with land colonization and promotion of small holder agriculture.

In their effort to speed expansion of the San Lorenzo irrigated area, project administrators portrayed the presence of goat herders and landless cultivators living and working in the area to be colonized as a threat to project completion, and they referred to this 'threat' when lobbying for the project in Lima [9] (p. 109), [14]. These references to the threat of squatting by the landless, according to Hirschman, allowed administrators to respond creatively in the face of opposition from the cotton elite by changing the sequence of project development and providing water to a highly contested downstream area, thus clearly defining the outer edge of the project before it could shrink.

Hirschman also argued that opposition from the cotton *hacendados* would vanish if the water supply were increased, either through tubewell introduction or river diversion from the Chira as well

as the Quiroz. And he lauded the experimentation with alternate forms of water acquisition taking place in the project area:

The river that is being tapped is frequently found not to have enough water for all the agricultural, industrial, and urban uses which had been planned or which are staking claims, but the resulting shortage can then often be remedied by drawing on other sources which had not been within the horizon of the planners: ground water can be lifted by tubewells, the river flow can be better regulated through upstream dams, or the water of more distant rivers can be diverted. At present, such plans are underfoot for the San Lorenzo irrigation scheme in Peru [9] (p. 10)

It could be argued that in the San Lorenzo case the hiding hand produced malevolent as well as benevolent results. It is quite probable that the 'creative solutions' that Hirschman identified as responses to unforeseen obstacles came at the expense of similarly hidden, but longer-term environmental problems that would inevitably result from aquifer mining and interbasin water transfers, problems that have in this century reached a critical phase in Peru.

Hirschman did worry, however, that the establishment of a new authority responsible to the executive and independent of the bureaucracy's line agencies would create administrative headaches. He also worried that San Lorenzo would lose its soul when waters were initially diverted to the lands of wealthy cotton producers rather than to the family farms and landless cultivators who were the intended project beneficiaries. These unanticipated threats, argued Hirschman, led to unanticipated but positive responses. He saw the hiding hand operating through a process that he called 'coat-tail riding': governments and international lending institutions privilege problems like inflation and balance of payments and neglect social problems like land reform, and problems that involve public works get more attention than those that do not. For this reason, Hirschman concluded that "the San Lorenzo irrigation project would hardly have been started in the early 1950s in Peru if it had been anticipated that the project would one day become a training and testing ground for agrarian reform" [9] (p. 172). Here, Hirschman finds that social change was smuggled in along with the project, and that "happily for the smuggling-in act, the changes that are most subversive of the existing order are often hardest to detect for the simple reason that the more fundamental the change, the more ramified and hence innocuous-looking will be its beginnings" [9] (p. 173).

In the book's conclusion, however, Hirschman qualifies his argument about benefits of the hiding hand in San Lorenzo by stressing the importance of the larger political context in determining whether creative solutions are possible. He suggests that the decision by project staff to prioritize the project did require some foresight as to its probable outcomes for cultivators in the project area, and for Peruvian social and economic development. This caveat became increasingly important for him as he came to understand how the struggle over Biafra made it difficult, if not impossible, to carry out development programs [7] (Ch. 13, 15).

That said, both World Bank project documents and Hirschman's conclusions suggest that, in addition to fostering creativity, the hiding hand obscured the likelihood of problematic societal and environmental outcomes. Neither Hirschman nor the World Bank paid attention to the problems that landless cultivators and pastoralists in the projected irrigated area would face as the project moved forward. In contrast, Cleaves and Scurrah [14] find that as agricultural modernization took place and cotton, rice, and corn production expanded, Piura saw two migrant flows: One consisted of immigrants from Europe and from elsewhere in Peru, who became small and medium scale farmers. A second stream of immigrants from highland Peru worked as farm labor, rented land, or established *minifundia*. Simultaneously, with the development of irrigation infrastructure for market agriculture, "local peasants began to lose their land and, more important, their water rights" [14] (p. 137). Land concentration in the Piura and Chira valleys was extreme, although in the Piura Valley there were an unusually high number of owner-operated modern farms ranging in size from 100 to 500 ha. Cleaves and Scurrah conclude that "displacement of the traditional peasantry and concentration of landownership were not checked until the 1969 Agrarian Reform Law" (p. 138). Their findings are

particularly interesting in light of the fact that the 1955 World Bank report [16] called for spending \$500,000 US on land expropriation for the project, but left to the imagination the question of who would be expropriated. Cleaves and Scurrah report that in the 1960s an entire community was displaced by construction of the Poechos Dam, only to be resettled in an area with poor, sandy soils. The credit provisions of the project may have resulted in additional displacements in cases where small farmers were unable to repay their loans. Lastly, as was so often the case in the 1950s and 1960s, the environmental changes that inevitably accompany development of irrigation infrastructure and the introduction of crop varieties with higher water requirements received no mention either from Hirschman or World Bank project documents.

While the hiding hand in San Lorenzo was not entirely benign, it was not wholly malevolent. The second phase of system construction, which Hirschman studied, took place as land reform was finding its way onto the development agenda, along with agricultural modernization. This accounted in large measure for Hirschman's optimism. While Peru had experienced coups and peasant rebellions during the construction period, it would not be engaged in a full-scale civil war until the 1980s. Second, it is not possible to assess even the medium-term social impacts of the project, because in 1969 the Velasco government enacted a sweeping agrarian reform and expropriated the large cotton *haciendas*. The reform radically transformed agriculture and land tenure in the project area. Further profound environmental and social change accompanied 1983 floods. It may be, however, that the small and medium fruit and vegetable producers who rose up in 2001 to block proposed mine expansion in Tambogrande were inheritors of social as well as the land-tenure changes produced by the hiding hand [18,19]. It is not possible to determine with any confidence the secondary impacts of the hiding hand in Piura.

That said, ignorance was not purely accidental. It was, at least to some extent, produced by the failure of project personnel to ask about the project's impacts on *campesinos* in the project area, and the ways in which their local economies depended upon water that was slated to be diverted to other parts of the project area. Potentially displacing effects of the project were not addressed in World Bank project documents. This failure could be attributed to the institutional culture of the World Bank and Peruvian implementing agencies. Ore and Rap [20] trace this failure to Peru's 1917 water law which placed irrigation engineers in a dominant position. Over the years, engineering perspectives shaped thinking about projects, obscuring agronomic, social, and environmental concerns. However, Hirschman also helped to produce ignorance by limiting his interviews to World Bank and project personnel. His optimism might have been tempered had he interviewed the small cultivators, pastoralists, or landless workers whose livelihoods were likely to be affected by dam and irrigation system construction.

To conclude, it is clear that Hirschman saw the San Lorenzo experience as a positive example of creativity enabled by the hiding hand. He observed the project's progress at a time when enthusiasm for land reform was growing in Peru and in the international development community, so the political context was more supportive of the experiments undertaken in Piura than it would have been in the 1950s or in the 1970s, when opposition to the Velasco land reform began to consolidate. That said, the cultural biases and political norms that occluded the interests of smallholders and landless rural workers, particularly those who had migrated from the highlands, produced an ignorance that concealed problems related to their displacement and resettlement. The hiding hand in this instance had both positive and negative consequences.

3. The Chixoy Project: A Nasty Hiding Hand in Guatemala

The Chixoy project—officially known as the Pueblo Viejo-Quixal Hydroelectric Project—was a component of a coordinated effort by international donors to jump start development in Guatemala by using grants and loans to build a TVA clone. The dam was intended to supply some 60 percent of Guatemala's electricity and provide energy for copper, nickel, and possibly oil extraction. The project area straddled Baja and Alta Verapaz, provinces with a large number of Maya communities that

suffered since the nineteenth century from policies favoring land concentration, and from a state ideology that had associated them with backwardness [21]. By the 1970s, conflict between the military and civil patrols on one side and Maya communities on the other had become severe [22,23]: Guatemalan project personnel were complicit in the massacre of over 400 Achi Maya men, women, and children living in the dam catchment area, and the destruction of communities whose existence was predicated on an intimate relationship to place. Johnston [24,25] provides excellent summaries of how the project moved forward in a violent context and of the reparations campaign that revealed a history of genocidal violence. The history of the Chixoy project reveals a hiding hand that seems less a happy accident and the product of unforeseen events than the outcome of the deliberate production of ignorance by state and international development actors.

Details of the Chixoy project process and its impacts are well documented [24–26]. Suffice it to say here that the political context in which the two projects evolved differed fundamentally—in part as a function of timing. While the World Bank loan approval process for the second phase of San Lorenzo began during the Eisenhower administration, the Peruvian project as Hirschman knew it was implemented at a time when state and international actors were beginning to see land reform, land colonization by poor and landless cultivators, and the creation of a class of small and medium scale producers as drivers of economic growth as well as alternatives to revolution, but before the Velasco government nationalized the Talara oil fields and carried out its massive agrarian reform, which confiscated foreign-owned plantations.

The initial river basin development project that would include the Chixoy dam construction was first proposed in 1951 by Guatemalan president Jacobo Arbenz, who was also responsible for a major land reform enacted in 1952, one that included expropriation of United Fruit Company plantations. The 1951 proposal Arbenz submitted to the World Bank was basically a TVA clone that envisioned the movement of small farmers out of wheat agriculture and into manufacturing [24]. Nonetheless, the World Bank, responding to U.S. opposition to the Arbenz land reform, rejected the proposal. In 1954 Arbenz, who had been labeled as a communist sympathizer, was toppled by a U.S. Central Intelligence Agency-orchestrated coup, initiating a long period of counterrevolution and military control over the countryside, and more generally over the Guatemalan economy. In 1961, during the increasingly violent administration of the rightwing president Miguel Ydígoras Fuentes, World Bank interest in Guatemalan river basin development resurfaced. With World Bank, InterAmerican Development Bank (IADB), and support from bilateral assistance agencies, the project moved through its planning phase.

Thus, while Phase II of the San Lorenzo irrigation project evolved in a climate of openness to inclusive structural reform, Chixoy planning and execution took place in a context of increasingly violent repression framed in terms of the Cold War. The project's gestation coincided with the most violent period (1975–1985) of Guatemala's 30 year civil war, a period when individual assassination plots gave way to massacres, the principal victims of which were the Maya [27,28]. Construction on the Chixoy dam began in 1974, and the dam began to fill in 1983. In 1976, the IADB offered INDE a \$105 million loan for the project; the World Bank lent the government of Guatemala an additional \$72 million in 1978. The loans were replenished in 1978, 1981, and 1985 [26].

Project supervision was militarized over the course of the planning process. The Instituto Nacional de Electrificación (INDE), a parastatal agency created in 1963, acted as a pass-through for international loans and grants, and as an intermediary between engineering firms and the Guatemalan government. In 1982, during the bloody dictatorship of General Efraín Ríos Montt, the agency was placed under military control, and in the mid-1990s it was privatized. It should be noted that the principal victims of state violence during the project planning phase were Maya communities. Project finance came largely in the form of loans from the IADB and the World Bank. Responsibility for project design and implementation lay with private contractors. Fifteen firms from nine countries participated in the project. The governments of West Germany, Italy, and Canada made large grants for the project, and firms from these countries were well represented. Most of the work was done by these firms or contracted out to private consultants by the firms or directly by INDE.

The hiding hand helped the project to move forward not only in the face of technical obstacles, but in an increasingly problematic political environment. While the larger electrification effort was probably part of a broader effort to assert state control in the highlands, continued international interest in implementation may have been due at the outset to the shrinking number of sites available for hydropower development at a global level, which encouraged the construction sector and its financial backers to focus their efforts more intensely on the few sites remaining that appeared attractive from an engineering standpoint. In addition, the 1973 oil crisis generated new pressures for hydropower development as an alternative energy source. These pressures may have discouraged the IFIs from carrying out environmental or social impact assessments, although, as Partridge [29] remarks, this was still seen as a marginal activity within the banks.

In 1972, the West German government made a grant to the Guatemalan government to draft a hydropower development plan [30], and a consortium headed by the engineering firm Lahmeyer International (LAMI) conducted a hydrological study of the Chixoy watershed, financed in part by a 1967 World Bank Loan. The study did not address potential social impacts, nor did community consultation take place. However, according to a LAMI document, helicopter inspection of the Chixoy valley above the dam site showed that a large amount of the area on the valley walls had been cultivated [30,31].

INDE's 1974 development plan called for feasibility studies for four possible dam sites, one of which was Chixoy. That year, a tropical ecologist and a medical doctor conducted a two-week environmental reconnaissance for LAMI. Their report contained a two-page social impact assessment human ecology and public health. It concluded,

The region is remote from population centers and comparatively few people will have to be relocated; only 210 dwellings will be affected. Public health in the area is reasonable at present and should improve with completion of the project. No major adverse effects on the plants and animals are predicted [32] (p. 7)

A section on archaeology and history listed ancient Maya sites threatened by dam construction, but did not treat recent Maya history in the area or Maya relations with the Guatemalan state. Colajacomo [33] (p. 2) reported that consultation with people living in the affected area did not occur until 1976, after construction began, and that talks took place in an environment of intimidation. There is no evidence that either funders or the implementing agencies sought input from social scientists who had worked with the Maya and could speak local Mayan languages. The next year, INDE approved the Chixoy project. The German and Guatemalan governments signed an agreement to draft a master plan for the project with the aid of foreign consultants. When, in 1975, INDE applied for a project loan from the Inter-American Development Bank, LAMI prepared bidding documents for construction and equipment, evaluated tenders, carried out financial and engineering studies, and developed the project design and specifications, but contracts were apparently put out to bid before the engineering study was complete [30] (p. 8). According to a 1991 INDE report, "this was done in order to create pressure for rapid completion by using time during the construction phase for studies, research, trials, and direct observation of hydrological conditions [34] (p. 76). A 1991 World Bank report concluded that "the project preparation process appears to have been hurried in 1975 and 1976 due to a growing sense of urgency reflecting the fear of further 'oil' shocks and of growing needs for future generating capacity" [35] (p. 48). The Guatemalan Institute of Anthropology and History conducted an archaeological survey and a salvage program [29], but there is no record of a social impact assessment or a resettlement plan. In January 1976, the IDB and the government of Guatemala signed a loan contract for \$105 million, or about a third of the project's estimated costs.

Construction began in 1978, and INDE told communities in the watershed that they would have to move. A month later, a severe earthquake struck Guatemala; international development agencies poured aid into the country, much of which came in the form of additional funding for projects seen as contributing to economic revitalization. Chixoy was one such project, and the World Bank added \$72 million to the IADB loan, but as a loan condition it required a resettlement plan. INDE submitted a

resettlement plan in 1979, estimating that 450 residents would be displaced by the reservoir. In 1985, the World Bank approved a second loan of \$44.6 million to cover cost overruns. By 1988, Chixoy loans represented 40 percent of Guatemala's debt [36] (p. 271). INDE failed to meet its resettlement obligations, a failure amply discussed in the reparations campaign literature. Equally worrisome were decisions by local firms to buy security from the military, INDE's close ties to the military, and the willingness of the IFIs to continue project funding as systematic state-sponsored violence against Guatemala's rural indigenous population was escalating in the project area.

The hiding hand, as Hirschman predicted, hid cost overruns, delays, engineering errors, and routine bureaucratic incompetence [37]. It also hid the almost inevitable consequences of displacement for the Maya families living in the project area. In 1983, when the dam was already scheduled to fill, the IADB for the first time engaged a social scientist familiar with Maya culture and languages to assess the project process [38]. However, the full extent of the project's social impacts was revealed only when investigation into atrocities associated with the project was made possible by the 1994 Oslo Accord. Massive and carefully documented studies by the Commission on Historical Clarification, established by the treaty and by the Archdiocese of Guatemala, concluded that Guatemalan government forces (including the army and civil patrols) were responsible for 93 percent of human rights violations and acts of violence [22]. In a period roughly coinciding with the planning and implementation phases of the Chixoy project, violence escalated in Guatemala's Maya Highlands, a region that included Alta Verapaz and Baja Verapaz. Estimates of death vary widely, but human rights groups estimate about 50,000 were killed and up to a million were displaced. Over 83 percent of the victims of violence between 1962 and 1996 were Maya [27].

Those directly harmed by the Chixoy project were largely Achi Maya, and communities that opposed their displacement suffered disproportionately. The hardest hit was Río Negro. From 1980 to 1982, INDE and the Guatemalan government responded to Río Negro's reluctance to move with revocation of their title to their lands, theft of documents proving their title, and the massacre of some 440 Río Negro community members—men, women, and children [33,37,39]. Those who survived were reduced to abject poverty. Lands received in compensation for those flooded were generally unsuited for agricultural production, and hunger became endemic. Housing was insufficient and poorly built, commitments to provide public facilities were generally honored in the breach, as were agreements to provide free electricity [24,37]. Moreover, Río Negro survivors who refused to move to INDE's resettlement site were subjected to intimidation by paramilitaries and military police [24,37].

Drawing on evidence from the 1999 report of the Commission for Historical Clarification, environmental and human rights groups attributed the killing of Río Negro community members to INDE. Their position is supported by the oral histories of Río Negro survivors [25,37] and by a ten-volume report on the violence, based heavily on forensic anthropology and oral history, prepared by the archdiocese [40]. Evidence from exhumations corroborated local testimonies about the Río Negro massacres. Drawing on these findings, a coalition of local and international NGOs and Achi Maya, including Río Negro survivors who were still very much in danger, began the reparations campaign outlined by Johnston: In 2010 a reparations plan was finalized, and in 2014 the Guatemalan government apologized to dam-affected communities and began to make reparations payments.

However, even as Chixoy human rights violations gained international attention and evidence of atrocities in the project area mounted, the hiding hand continued to hide. In response to a 1996 Witness for Peace Report that documented dam impacts, and a strong letter from an NGO coalition seeking reparations, the World Bank sent an inspection team to investigate causes of violence and implementation of resettlement plans. In a letter to the NGOs summarizing the results of the investigation, Bank President James Wolfensohn [41] summarized its findings as follows:

Although team members had read about the events in Guatemala, and in some cases had worked there, they were deeply affected by their experience and the account of the events which they heard. The widespread destruction of indigenous organizations in Guatemala, the murders and repression were vividly recounted and have made a lasting impact. What

happened is not questioned. In 1982, women and children from Rio Negro were brutally murdered by civil patrols from a neighboring village. Why they were murdered is less certain. Some people attributed the deaths to counterinsurgency efforts, others to the fact that the people of Rio Negro were politically organized, and some to the fact that they were opposed to resettlement. Others saw a confluence between these forces. It is evident, however, that the civil disorders which wracked Guatemala in the late 1970's and 1980's were not focused on or confined to the population displaced by the Chixoy Hydroelectric Project. Most resettled communities were not subject to violence and many communities in the vicinity, with no connection to Chixoy, experienced murder and repression. In 1982, the year of the massacre, neither the Bank, nor other observers, knew the extent of the violence and terror that were occurring in Rabinal, nor did Bank staff associate the violence, of which it had only general and limited knowledge, with resettlement activities. The Bank at the time attributed these actions to the ongoing insurgency/counterinsurgency struggle. To this day there are still varying and conflicting interpretations of the causes of the violence which occurred. (pp. 1–2)

Wolfensohn acknowledged the massacre, but, aided by a hiding hand that was produced by an unwillingness on the part of lenders and international project staff to question INDE's role in the project area, he attributed it to generalized violence unrelated to dam construction. He admitted to ignorance of the extent of the violence in areas where the Achi Maya were resettled, but did not account for the absence of staff on the ground to monitor INDE's behavior. In any case, it would prove difficult to hold INDE accountable for its actions, because the agency was privatized in the late 1990s. With privatization, INDE's Resettlement Agency closed its doors, and INDE distanced itself from its past performance.

In addition, nothing in the project documentation demonstrates that IFI staff and international contractors knew that INDE was complicit in violence against residents of the dam area, despite mounting evidence to the contrary [39] (pp. 37–44). INDE's complicity may have been informally noted and dismissed as irrelevant, but it may well be that the epistemological and social preferences of IFI and contractor staff, as well as their institutional practices, prevented the construction of a knowledge base that would have led international project actors to question INDE's behavior and, more broadly, the wisdom of implementing a hydraulic project in a conflict zone.

When, in 1983, anthropologist William Partridge presented the results of a study for the Inter-American Development Bank comparing the Arenal Hydroelectric project in Costa Rica with Chixoy to World Bank staff responsible for Guatemala, he discovered that

The World Bank team responsible had not once visited the resettlement operation, and the unfolding disaster was never mentioned in the team's supervision reports to management over the previous four years. The bank project team was incensed; they angrily defended themselves and attacked me [29] (p. 153)

At one point in the meeting the vice president for the Latin American and Caribbean region strongly advocated that staff fix the problem, but, as Partridge noted, fixing the resettlement problem faced resistance because it would mean holding up a new project loan.

4. How Ignorance Is Produced

Hirschman argued that, while it could on occasion conceal social problems too profound to be addressed through creativity on the part of project staff, he saw the hiding hand as largely benevolent. I would argue that his optimism was in part due to the fact that he saw the hiding hand largely as an absence of knowledge—that which cannot be foreseen. In contrast, ignorance is often socially produced, either quite deliberately or as an inevitable outcome of political and social preferences, values, and assumptions. This was true in the San Lorenzo case, to the extent that staff ignored the potential impacts of water diversion on peasant cultivators and herders. The ignorance that allowed the Chixoy project to advance in a far more toxic political environment can be attributed in part to

the interests of the IFIs, INDE, and project contractors. Firms hired to do pre-feasibility and feasibility studies, and who seek contracts to implement the same projects, were disinclined to draw attention to factors that might slow or stop funding. In the 1980s, the World Bank project cycle did not call for social and environmental impact assessment until the appraisal phase. These tasks were considered peripheral to the Bank's mission until the 1990s, when massive protest against the Indian Narmada Dam and Brazilian Polonoreste projects, coupled with the "Fifty Years is Enough" NGO campaign to abolish the bank, drew attention to these issues. As Wade [42] concluded, based on his thorough analysis of World Bank performance in the environmental arena, staff during the 1970s paid only minimal attention to environmental issues, and were hesitant to raise these with borrowers. In the 1980s, the relationship between the World Bank's Office of Environmental Affairs, which held responsibility for addressing displacement and impacts on indigenous peoples as well as environmental issues, and the rest of the bank was highly contentious. Other lenders, subcontractors, and bilateral assistance agencies shared the World Bank's interest in marginalizing social and environmental concerns.

Ignorance was also produced when lenders expressed reluctance to intervene in the domestic affairs of member nations, or to render judgment on particular governments or their leaders, although this was not the case when the World Bank withheld support for the Guatemalan River Basin project in 1951, and for Peru's Chira-Piura project in 1970. Equally important, however, were optimistic assumptions about modernization and the value of hydraulic megaprojects in 'jumpstarting' development.

Several studies have addressed the types of knowledge gaps that probably enabled the World Bank and the IDB to continue supporting the Chixoy project. Scott, for example, argues that standardization of the subjects of development associated with high modernist development entails a refusal to consider what he calls "situated and contextual attributes" [43] (p. 346). Mitchell [44] described the politics of development in Egypt as framed in an economic rationality that emphasized calculability and rules, but obscured the extent to which force and violence were deployed to advance a development agenda as conceived by international financial institutions and bilateral assistance agencies. In his analysis of World Bank practice in Laos, Goldman [45] identifies elements in the project process that constrain and direct knowledge production. These include the 'terms of reference' which specify the kinds of information to be collected, the time allowed for field work, and reporting deadlines. Other elements in project culture that foster the production of ignorance include pressures to move money out of the door, reliance on short-term consultants, and the close ties between IFI staff and international contractors.

Three elements in the Chixoy project process enabled the hiding hand to hide: timing, reliance on contractors and IFI staff as producers of knowledge, and a framing of the public good in terms of high modernist development practice. The long gestation of the project, coupled with a sense of urgency stemming from the oil crisis and earthquake, meant that the forces favoring rapid implementation were powerful incentives for funders. Both the sense that the path to the project was inevitable and the perceived need to 'just do something' created an environment where the careful research needed to reveal potential social and environmental impacts was unlikely to happen. In both Peru and Guatemala, the technical biases of the institutions conducting the project identification and feasibility studies reflected a project culture in which engineering and macroeconomic concerns were routinely accorded priority over social and environmental issues. For example, Oré and Rap [20] show how irrigation engineers trained at the National Agrarian University at La Molina, lacking training in either agronomy or the social sciences, came to Peruvian irrigation bureaucracy. As noted above, social impact analysis for the Chixoy project was relegated to a biologist and a physician, and no consideration was given to social and environmental impacts until significant project investments had already been made. Language skills were not seen as particularly relevant to the data gathering process, which in any case favored quantitative over qualitative data.

In both San Lorenzo and Chixoy, the kind of economic calculation that Hirschman criticized in *Development Projects Observed* obscured the impacts of construction on people whose economies were not fully monetized or integrated into the national economy, systematically undervaluing the contribution of crops and livestock produced for subsistence or local markets. Nor did these

studies take into account the importance of resource complementarity in rural livelihood strategies. For example, a study recommending what should be covered in an impact assessment for INDE concluded that negative impacts “can essentially be summarized as the loss of agricultural production in flood zones. This loss will be of little importance owing to the small extent of the cultivated area and the scant value of the products of the zone” [34] (p. 9). The technical bias resulted in the assignment of multiple mandates to the wrong project actors. For example, the 1973 environmental impact reconnaissance for LAMI, which purported to identify social impacts, was performed by consultants who did not speak Maya languages [32]. Furthermore, the IFIs put INDE in charge of resettlement even though, by its own admission, INDE lacked the capacity to perform this function [34].

Another element in the institutional culture of development actors that helped to produce ignorance was the equation of modernization with the public good. The ethos that underlay support for TVA-like projects in the global south was grounded in an idea of progress viewed as the progression from pastoralism and subsistence agriculture to urbanization and industrial development. A corollary is the idea that projects in the public interest can be planned and executed by technical experts acting independently of political context. This idea of progress, which underlay Hirschman’s assessment of his Colombian experience, informed the development of Peru’s irrigation bureaucracy, as well as the World Bank’s decision to finance San Lorenzo and to undertake its massive hydroelectric effort in Guatemala. However, the two projects took place in vastly different political contexts. In Piura, the hand that hid the project’s political context played a somewhat positive role: it allowed project staff to invent creative ways in which to promote small and medium scale agriculture in the face of opposition from an entrenched *hacendado* elite. In Guatemala, it appears to have blinded both IFI staff and contractors to the severity of the human rights abuses that were already occurring when project planning took place. In making its case for reparations, a 2004 mission report prepared by the Centre on Housing Rights and Evictions [39] suggests that the IADB and the World Bank probably did know about INDE’s aggression against Maya communities, but that if the banks were indeed ignorant, this represented gross negligence given the evidence at their disposal.)

As Hirschman predicted, the hiding hand hid technical problems that resulted in huge cost overruns for the Chixoy project. Incorrect assessments of the Middle Chixoy Basin’s geology and seismicity were partly to blame, but poor management also contributed to cost overruns. However, writing in the 1960s, Hirschman did not recognize that the hiding hand could also obscure the existence of peoples whose culture depended upon a strong relationship to place. With the exception of Partridge’s 1983 study for the IADB [38], project documents for both San Lorenzo and Chixoy portrayed residents of the project area as scattered, backward, and resistant to change. San Lorenzo project documents identified goat herders and landless cultivators mainly as potential threats to colonization efforts, rather than as people facing displacement. Of the raft of IADB and World Bank documents, only the Partridge report considered what the loss of place would mean for Maya family livelihoods and community survival.

In large part, official Chixoy project documents ignored, belittled, and misconstrued the concerns of those affected by the dam. For example, a 1981 ex-post evaluation of the dam’s social and economic impacts [34] made no mention of ethnicity, the cultural value of landscapes, or even Maya archaeological sites. By 1991, the IDB was somewhat more aware of dam affected people, yet a 1991 loan proposal for management and conservation of renewable natural resources in the Upper Chixoy Valley reflected a somewhat more benign, yet still essentialist, view of area residents. It stated,

In the world view of the native peoples, traditional lifestyles and agricultural practices are expected to remain changeless for evermore, which explains why native campesinos fitting the traditional mold have proven resistant to change and novelty and prefer to stick to subsistence agriculture [35] (Annex II-2, p. 1)

In contrast, a proposal for indemnification made by the Community of Pacux to the World Bank in the mid-1990s makes this poignant assessment of the effects of deracination on the elderly:

A majority of elderly lost their family even when young since the massacres of Pacoxom, Xococ, El Naranjo and also Río Negro. Now they are already growing old and cannot go to gather firewood. Some have been abandoned by their families, today they have no money for health care. Youth don't respect them, the committee has not been able to do anything to protect them. Authorities don't take an interest. There are no programs to support them either on the part of the municipality or the department (my translation) [46] (p. 5)

The hiding hand operating during the Chixoy Project process enabled the erasure of the connection of people to place, first conceptually and then literally. Components of place that were obliterated in the transformation of the project area included connection to ancestors, sacred elements in the landscape, the knowledge that resides in landscape and its features, relations and networks of economic interaction, and knowledge about safety and danger. Río Negro inhabitants were not only reluctant to lose these connections, but their testimonies also indicate their fear that they would be moving to a site of danger under surveillance of Guatemalan military and civil patrols. Additionally, as the above quote indicates, displacement contributed to cultural loss. Even as they reflected critically on the performance of INDE with regard to resettlement, World Bank staff barely acknowledged the place-based nature of Maya Achi concerns when it cited the need to allocate resettlement lands “along kinship lines” [47] (p. 50). For the most part, however, Bank criticism addressed INDE's failures to comply with its own standards, but allowed the hiding hand to conceal the extreme risks faced by those displaced by the Chixoy dam.

Lastly, Hirschman's thoughts on Colombia notwithstanding, war zones are poor environments for infrastructure projects, however well intentioned. Transfer of INDE to the Guatemalan military should have raised serious concerns for the lending agencies, given the escalation of human rights abuses in the countryside. Thorough investigation of conditions in the project area was called for, but by the early 1980s, as the World Bank planned its second loan, it was no longer sending teams into the countryside even for brief periods, citing generalized violence as the reason. This vastly increased the likelihood that INDE's activities would go undetected by the bank, although the Witness for Peace report argues that it would be reasonable to assume that bank staff were aware of the violence against Río Negro as early as 1982 [37]. The first mention of the civil war that I found in the official project documentation came from INDE's 1991 ex-post evaluation [34] (p. 81) carried out by an economist, a civil engineer, a geologist, and a public accountant. It stated that

Especially in El Quiché and part of Alta Verapaz, where the presence of security forces (army, Guardia de Hacienda, and paramilitary groups) as well as subversive cells provokes an instability in the communities who see the need to keep moving (perigrinar) and at times leave the region seeking refuge on the Mexican border (my translation).

The Chixoy project is not simply an isolated a cautionary tale about the unanticipated side effects of well-intended international intervention. Exclusion of the voices of those affected by the project was a manifestation of fundamental flaws in the way knowledge was defined within the IFIs. It is by no means clear that prior consultation would have prevented displacement, but willful ignorance of local concerns and values enabled violation of human rights. The hiding hand made it difficult for the lending agencies to define the point where human rights should have taken precedence over hydropower development; this would have required accurate information about the state and its presence in the project area.

Even if the IFIs and contractors had known about the genocide in the Maya highlands and about INDE's complicity, it does not necessarily follow that they would have withdrawn support for the project. Fox and Brown [48] call our attention to World Bank emphasis on ‘the counterfactual’—if we didn't participate in the process, it would be worse. There is some truth to this in the case of Chixoy. As noted above, when in 1975, the Guatemalan government applied to the IADB for funds, it did so without offering a plan for resettlement. When the World Bank negotiated its loans in the period following the earthquake, INDE was forced to make a plan for resettlement, although this plan

was inadequate and largely honored in the breach. (On the other hand, even in the absence of other information, Río Negro's resistance to resettlement should have raised concern. Of the four reasons to resist resettlement offered by Oliver-Smith [49], three are highly germane. First is the relationship of the target population to its environment, a relationship having to do with factors that include soil fertility, resource availability, territoriality, inter-group relations, cosmology, world view, and individual and cultural identity. A second is relations between the target population relationship to the resettlement agent. Oliver Smith finds that resistance to resettlement occurs where there are ethnic differences between those who control the state and those subject to eviction, and where the state's resettlement history is bad. A third factor, he argues, is the quality of the resettlement plan. All three were at issue in the Chixoy case.)

In the San Lorenzo case, the hiding hand both fostered creativity and obscured some potentially displacing effects. In contrast, the hand that propelled the Chixoy project forward did not just obscure engineering obstacles and allow for unreasonably optimistic cost-benefit calculations; more importantly, it concealed a political reality that should have prevented the project from moving forward. The hiding hand appeared to guide not only the pre-feasibility and feasibility studies, but the entire course of the project process well into its evaluation phase. We still see evidence of its operation in 1996, after the restoration of democracy, although by this time local and international organizations had begun a lengthy, risky effort to uncover what the hiding hand hid and to seek reparations for the damages caused as a result.

5. Conclusions: The Hiding Hand and Its Potential for Mischief

With the benefit of hindsight, we see that the hiding hand's potential for mischief has been far greater than Hirschman realized when he wrote *Development Projects Observed*, although even when he wrote the book he harbored a certain skepticism about the potential of the development project writ large. The optimism that underlay Hirschman's understanding of the hiding hand metaphor may have been warranted when he assessed the progress of Peru's San Lorenzo project in the mid-1960s, an unusually optimistic moment in that nation's history. Interest in land reform on the part of state and international institutions led to what, for Hirschman, was a highly positive unintended outcome: the project became a site for experimentation with agrarian reform and food crop production. On the other hand, the hiding hand hid what were probably serious social problems related to displacement and resettlement both from Hirschman and from the project's promoters. However, the magnitude of these problems is hard to assess, as the agrarian reform program enacted in 1969 brought with it massive changes in Piura's agrarian sector.

Hirschman had moved on to other pursuits in the 1970s, so we don't know how he would have judged the impact of the hiding hand in the Chixoy case. That said, optimism about its role fostering creativity would have been delusional even at the project's outset: militarization of the Guatemalan countryside was well underway in the 1960s when project planning took place, and rural Maya communities had already become victims of policies designed to undo the Arbenz agrarian reform. Had serious social and environmental impact assessment been undertaken early in the project process, IFI staff would have known that the project would be likely to have seriously negative outcomes for Maya communities in the area. By continuing to support the project without monitoring social impacts on site and questioning the role of the implementing agency, the IFIs were in effect condoning some of the most severe human rights abuses of the Guatemalan civil war.

Regardless of political context, the likelihood that the positive outcomes of big hydroelectric projects would outweigh their negative societal and environmental impacts had diminished sharply by the 1970s and 1980s. Enthusiasm for the TVA model meant that it was exported to natural, political, and cultural environments where it was entirely inappropriate. In the global context, the number of sites where dams could be built without displacing substantial numbers of people or wreaking serious environmental damage had by this time become vanishingly small. Combined with population growth

in dam catchment areas, the number of people negatively affected by resource development projects would increase.

This meant that, regardless of whether it fostered creativity, the hiding hand encouraged the funding of ill-conceived water projects with highly displacing effects and seriously detrimental environmental impacts. In the Chixoy case, ignorance of a political context that should have prompted the IFIs and contractors to withdraw support for the project was produced by the failure to include more than perfunctory social and environmental assessment in the planning process, and disinterest in monitoring the political activities of implementing agencies. These failures ensured that the export, a U.S.-based model, would allow a malevolent hiding hand to operate.

In contrast, Hirschman's later work shows increased attention to the role of the state and the broader political environment in governing the shape of development projects. By the early 1980s, Hirschman, ever the heterodox economist, had shifted his research agenda in ways that would yield far more information about the impacts of development on Latin American peoples. Rather than learning about the development process from World Bank and government officials, in research that would inform his 1971 book *A Bias for Hope*, he chose poor urban dwellers, fishers, teachers, and cultivators as teachers. He still saw a creative hiding hand at work in the projects he examined. However, as a result of his interviews, he concluded that overreliance on quantitative methods and economic analyses to guide projects would produce ignorance of critical factors in project success or failure [7].

The learning curve for the international institutions, as we see from the Chixoy case, was far slower. Ignorance was produced both by the timing and attention paid to social and environmental assessment. Well into this century, World Bank outlines of the project process relegated social and environmental impact assessment to a fourth appraisal phase of project development, well after the commitment of substantial amounts of money to feasibility studies and cost-benefit analyses. Regional development banks like the IDB were even more reluctant to address these concerns. In the Chixoy case, ignorance was also produced by the unwillingness of the World Bank as an institution to address human rights concerns in the borrowing country, or to put people on the ground where they could monitor the actions of the INDE, the implementing agency. It is unfortunate that Hirschman's awakening to the importance of non-economic elements in determining the impacts of development projects was not matched by a similar interest in the lives of project-affected people on the part of the IFIs and the contractors working on Chixoy and other big hydraulic projects.

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