

Enter the NGO

Development as Destiny in India's New Borderlands

JACK LOVERIDGE

Following partition, development experts associated with United States' philanthropic organisations and new international agencies took an active role in transforming the divided Punjab. Through the 1950s, the World Bank worked to adjudicate the Indus River Basin dispute between India and Pakistan. Issues of soil fertility and the productive capacity of lands on both sides of the new border proved critical within these discussions. At the same time, the United States-based Rockefeller Foundation and Ford Foundation coordinated with the Indian state to launch projects in the agricultural sciences, population control, and community development for partition's refugees. A dual agenda of restricting the fertility of rural populations and augmenting the fertility of agricultural lands, united these first international development initiatives following partition.

At the first all-India conference of the Family Planning Association of India in Bombay in November 1951, the Indian demographer and economist Sripati Chandrasekhar rose to deliver his inaugural address as president of the group. Having earned his PhD in sociology from New York University in 1944, Chandrasekhar would go on to work with Julian Huxley's United Nations Educational, Scientific, and Cultural Organization (UNESCO) and serve as a controversial cabinet minister under Prime Minister Indira Gandhi (Bashford 2014: 285).¹ Addressing post-partition India's food production capabilities, Chandrasekhar began:

Despite the great advancement of modern science and technological skill, our total food production, not to speak of other necessities, has not kept pace with the growth of population. On the contrary, our natural resources are not only not increasing with the growth of population, but what is worse, they are actually dwindling on a global scale, resulting in what Aldous Huxley calls "a double crisis."²

Indeed, Huxley's essay, "The Double Crisis," had appeared in the April 1949 issue of the *UNESCO Courier*. Huxley's essay served as a clarion call for the post-war population control movement, but its fatalism had caused editors at *Harper's*, *Life*, *Foreign Affairs*, and the *Atlantic* to reject its publication (McNeill and Unger 2010: 292). At least in a rhetorical sense, Huxley was ahead of his time: fears of a population "bomb" would sweep popular publications and scholarly journals through the 1950s and 1960s, articulated notably by Hugh Moore in 1954 and Paul Ehrlich in 1968 (Bashford 2014: 306).³ Either way, Chandrasekhar connected India's underdevelopment to overpopulation, heeding Huxley's warning of an impending crisis.

Post-war population growth rates were indeed increasing rapidly, though perhaps not at a rate that would bring the global total to 9.2 billion by the year 2000, as Chandrasekhar projected in his 1951 speech. Nevertheless, by invoking Huxley, brother of Julian and author of the dystopian novel, *A Brave New World*, Chandrasekhar linked India's challenges to the international discussion surrounding global population regulation and food shortage (see note 2). When coupled with perceived resource degradation and the apparent causal link between strict food shortage and famine, the post-war population boom presented independent India's policymakers and economic planners with a frightening vision of things to come. By Chandrasekhar's own estimate, only immediate, radical advances in developing India's agricultural sector, encouraging urbanisation, and promoting family planning could avert

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calamity. Following partition and into the early 1950s, American philanthropic organisations and new international institutions sought to become the heroes of this effort to address food shortages and overpopulation with social and scientific interventions. Motivated by the promises of financial and diplomatic support offered by the Truman administration's Cold War-inspired Point Four Program, the Rockefeller Foundation (RF) and Ford Foundation (FF) moved through the 1950s to investigate the prospect of launching projects in agricultural development, rural extension, and population control across independent South Asia (Staples 1992: 7).⁴

This article examines projects pursued by the RF, the FF and the World Bank in conjunction with the independent governments of India and Pakistan to increase foodgrain production capacity and control population growth in post-partition Punjab. In the context of the collaborations between these development agencies, it examines the World Bank's mediation in the Indus River Basin dispute of the 1950s that supported the framing of the Indus Waters Treaty (IWT) between India and Pakistan in 1960. As emissaries of international development schooled in the public works projects of the New Deal and resource-sharing agreements across the Americas, World Bank representatives framed proposals for South Asia firmly in the context of a post-war population crisis.⁵ This article does not offer a detailed, chronological account of the IWT negotiations as Aloys A Michel's (1967) early interview-based work accomplished. Further, rather than focusing upon the role of "community" or territorial sovereignty and diplomacy in the Indus River Basin dispute, as David Gilmartin (2015) and Daniel Haines (2017) admirably have, this article emphasises scientific and economic concerns over soil fertility and human fecundity that linked underdevelopment to overpopulation within the new borderlands of post-partition Punjab. World Bank economists and hydrologists intent on securing a final settlement of international water rights in the Indus River Basin paid particular attention to issues of soil fertility and the land's capacity for feeding a growing population. These considerations shaped post-partition negotiations between India and Pakistan, demonstrating the priority placed by development experts upon the "double crisis" of population growth and resource depletion. They also reveal the scope of broader thinking on the connection between soil health, population growth, and national sovereignty in the aftermath of partition in Punjab.

A Division of Fertile Lands

During the summer of 1947, the British barrister Cyril Radcliffe famously laboured in a guest cottage on the grounds of the Viceroy's House in New Delhi, hastily sketching the boundary between two nations. On his first and only visit to South Asia, the line his pen left across the map of the subcontinent delimited the national territories of India and Pakistan (Zamindar 2007: 11–12; Chatterji 2007: 19–20). Situated in the north-western quarter of the Indian subcontinent and spanning much of modern-day Pakistan, the Indus River system consists of two major rivers in the west: the Jhelum and Chenab, and three to the east: the Sutlej, Beas, and Ravi. The five rivers are

tributaries to the larger Indus River (Gilmartin 2015: 14–15). The Radcliffe Line bisected the Indus River system in 1947, leaving the rivers' headwaters largely in Indian-administered Himalayan regions. Both nations subsequently laid claim to the water flowing through the Indus River Basin. In the opinion of World Bank officials, the international dispute gravely threatened agricultural production on both sides of the new border.⁶

Radcliffe's handiwork hardly signalled a final political and economic settlement between India and Pakistan as Chatterji (2007) has shown. Similarly, Zamindar (2007: 189) has revealed that political milestones of 14–15 August 1947 left behind shattered lives, unresolved questions surrounding boundaries and citizenship, and a political "landscape still in flux." Further, post-partition rehabilitation projects launched by the Government of India played a significant role in reshaping rural East Punjab, and the Patiala and East Punjab States Union (PEPSU)—territory that today constitutes much of the states of Punjab and Haryana. Tai Yong Tan and Gyanesh Kudaisya (2000: 139) argue that this restructuring of rural society contributed in part to the substantial wheat production increases of the green revolution of the late 1960s and 1970s. Earlier work by Kudaisya (1995: 73–94) meticulously charts the economic reconfiguration of East Punjab's agricultural sector in the aftermath of partition. The political barrier cutting through the agricultural heartland of Punjab cut irrigation canals off from their headwaters, disrupted the flow of foodgrains to markets, and determined the movement of agrarian labourers. Along with their counterparts at the RF, the FF and the Food and Agriculture Organization (FAO) of the United Nations, World Bank officials contended that South Asia faced a population crisis, with the collective population of both nations projected to exceed one billion by 1990.⁷ In this way, partition left the future of Indian and Pakistani agriculture uncertain, opening the door for experimental development initiatives to address the problems of population growth and dwindling food resources.

The Indus River Basin dispute remained unresolved and unaddressed through the first four years following partition, demanding the attention of international development and diplomatic experts. As Pallavi Raghavan (2012: 170–71) has shown, India and Pakistan agreed to a provisional system of canal access rights in 1948, but a final agreement proved elusive. Reflecting on the agricultural implications of a lack of a permanent water-sharing agreement between the two nations, Norris E Dodd, the director of the FAO, lamented in February 1953: "The partition between Pakistan and India has created very serious problems in international water rights for the control and use of the Indus River and its affluents."⁸ The situation, Dodd continued, could threaten the food security of both nations if left unresolved. In 1951, David E Lilienthal, the American attorney who directed the Tennessee Valley Authority (TVA) in the 1930s and had more recently chaired the United States (US) Atomic Energy Commission, attempted to broker a water-sharing deal between India and Pakistan (Haines 2014: 132). In this way, Lilienthal sought to establish a large-scale

cooperative agricultural development arrangement between India and Pakistan.

For all the promise of Lilienthal's cooperative plan, negotiations collapsed within a year. Following this failure, World Bank President Eugene Black secured dedicated resources in 1952 for the International Bank for Reconstruction and Development (IBRD) to adjudicate a settlement treaty between India and Pakistan, and establish the new organisation as a major catalyst for international development (Haines 2017: 120). The World Bank's effort in resolving the dispute would involve engagement with former British colonial officials and bureaucrats, along with development experts, such as Lilienthal, drawn from large infrastructural projects in the US and Latin America. William A B Iliff, for one, represented the former category. Iliff left a long career with the British Treasury to join the World Bank Group in February 1948, where he served as vice president of the International Development Association (IDA) from 1956 to 1962 (see note 8).

In his experience with the British government, Iliff had worked as the financial counsellor to the British embassies in Teheran, Cairo, and Addis Ababa, and also as the financial advisor to the Governor of Burma at Simla during World War II (see note 6). Now in his new role with the IDA, Iliff's extensive British colonial and overseas experience made him the World Bank's choice to serve as its chief financial representative in South Asia during the mediation of the Indus River Basin dispute. For Iliff, the World Bank's decision to work on resolving the dispute stemmed from concerns regarding overpopulation as an obstacle to development. As he reflected in a 1960 interview: "We had been interested in the development of both India and Pakistan, who together, population-wise anyway, probably comprise about half the total population of the underdeveloped world" (see note 6). In this way, the World Bank's engagement in the post-partition dispute could deliver the greatest impact while generating a model for future development initiatives around the world.

At the same time, Iliff believed that the resource conflict between India and Pakistan, and the lack of a firm resolution regarding water-sharing in the subcontinent's most productive agricultural region, could permanently hinder economic growth for both nations: "If development was to go ahead, it was very necessary that we should find a situation where there were not matters such as serious disputes with economic consequences between the two countries" (see note 6). In short, the unresolved division of resources within the Indus River Basin threatened economic stability in one of the world's most heavily populated regions. World Bank officials justified their involvement in arbitrating the bilateral treaty on these grounds, firmly framing the dispute as an obstacle to agricultural development and, by extension, a contributor to broader food and population crises.

After entering discussions with both India and Pakistan in 1952, the IBRD's mediation of the Indus River Basin dispute unfolded over the course of eight years. It would involve submission and revision of numerous proposals from the Indian and Pakistani delegations, as well as revision of comprehensive

plans compiled by World Bank staff. In these successive negotiations, experts representing both nations and the World Bank emphasised the fertility of the soil, and not only the security of water resources, within the two national territories that shared the Indus River Basin.

'The Indian Cultivator Does Not Farm'

Meanwhile, the scientific planning staff of the Rockefeller Foundation (RF) in New York decided in December 1951 to dispatch a group of experts to explore avenues of research in Indian agriculture in view of the freer hand granted by independence to the foundation's existing public health programming in South Asia.⁹ The team, consisting of J George Harrar, Paul C Mangelsdorf, and the foundation's new Director of Agriculture, Warren Weaver, spent four weeks in India through February 1952, meeting with enthusiastic Indian officials and touring farm sites and rural extension centres across the country. The three had performed a similar survey of Mexico's agricultural needs for the RF in 1939, resulting in the inauguration of the foundation's successful agricultural programme in that country (Cullather 2010: 189).

Complementing Weaver's background in mathematics and research administration, the plant pathologist Harrar had directed Rockefeller's Mexican Agricultural Program (MAP) since 1943, overseeing rapid progress in the hybridisation of wheat and other foodgrains. Indeed, Rockefeller officials and the Mexican government viewed the programme as an unprecedented success and Harrar's protégé, Norman E Borlaug, would be awarded the Nobel Peace Prize in 1970 for his work in developing high-yielding, disease-resistant wheat varieties (McKelvey 1987: 33). Under Harrar's leadership, the MAP's research model of identifying and hybridising high-yielding grain varieties would prove central to the foundation's work in Indian agriculture.¹⁰ Trained at Harvard, the 52-year-old botanist Mangelsdorf boasted wide experience in maize research and had also conducted extensive fieldwork in Mexico as a member of the RFs Survey Commission in 1941 (Waterhouse 2013: 98).

The perception of South Asia as overpopulated and on the verge of demographic catastrophe coloured the RFs early assessment of agriculture in the subcontinent. As Nick Cullather (2010: 188) writes of the assumptions of Rockefeller officials as they approached the question of intervention in India: "Agriculture was the key to the entire development equation, the regulator of fertility, catalyst for breaking down social and familial customs, and stimulant for a general expansion of national wealth." With that assumption firmly in mind, Harrar, Mangelsdorf, and Weaver's report laid out the prospects for the RFs agricultural programming in the new nation. While emphasising the scientific and technical dimensions of an effort to improve food production capacity, the report began with an acknowledgement of the social and economic issues addressed by the work of community development and rural extension advocates then active across North India like Albert Mayer, S K Dey, and Arthur T Mosher.¹¹

Acknowledging the challenges facing post-partition India, Harrar, Mangelsdorf, and Weaver assessed and critiqued existing efforts at jump-starting Indian food production and laid out a case for the RF to invest conservatively and selectively in strengthening the new nation's scientific capacity.

Critiques of Previous Initiatives

Harrar, Mangelsdorf, and Weaver proved wary of the rural extension and community development initiatives supported by the FF and supported by the Truman administration's Point Four Program through the US Technical Cooperation Administration (TCA) after its inception in 1949. They noted that Albert Mayer's Etawah pilot project, involving 97 villages and costing roughly \$48,000 a year, could simply not be replicated to address cost-effectively the joint problems of overpopulation and food shortage.¹²

The RF team also considered Mayer's initiative too expensive and unwieldy to provide a realistic blueprint for a potential intervention in agriculture. That said, Harrar, Mangelsdorf, and Weaver acknowledged that the community development work at Etawah had correctly emphasised improved farming methods, the enhancement of soil fertility, and the cultivation of high-yielding wheat varieties. Etawah operated from the assumption that agricultural improvement needed "to occur on a broad social front and at a simple level, and that there has to be a departure from old ways and customs."¹³ By their own estimates, food production in the Etawah district increased some 15% to 30% over the course of Mayer's initiatives to farm hybrid wheat varieties in conjunction with the Indian Agricultural Research Institute (IARI) and the FF. The RF would now attempt to achieve similar results in the new borderlands of the partitioned Punjab.

The "inspiring show" at Etawah, however, with its technical limitations in the pursuit of improved crop yields and its holistic focus on the social development of its participants, could not be replicated on a national, much less a global scale.¹⁴ Regarding the FFs "frightening" proposals to replicate Etawah across India, Weaver simply advised, "The RF should stay away from this particular plan, and pray."¹⁵ Moreover, Harrar, Mangelsdorf, and Weaver speculated that the Etawah model of community development would not fare well in the face of inadequate staffing, restricted water resources, and the less fertile soils tilled by farmers across the subcontinent.¹⁶ Following Weaver's advice, the foundation would not finance any such nationwide programmes in village-level intervention. The RF team subsequently turned to address the evolving relationship between the TCA and the Government of India's nascent community development initiative evolving from the model of S K Dey's refugee rehabilitation project at Nilokheri in East Punjab with the staunch support of Prime Minister Jawaharlal Nehru and the FFs new director in India, Douglas Ensminger.

Harrar, Mangelsdorf, and Weaver observed that the TCA's investments sought to address two major areas of concern in rural India. First, the programme would support the launch of development centres to coordinate projects in villages across India based on the model developed by Dey in his work with

some 5,000 Sikh and Hindu refugees at Nilokheri.¹⁷ Second, with an initial investment of \$18 million, the TCA would irrigate large swaths of north Indian farmland through the installation of tube wells, Persian wheels, and electric pumps (see note 17). Here again, the RF's fact-finding mission declined to endorse an approach that involved vast infrastructural investments and that relied upon the recruitment of thousands of village-level workers to serve as foot soldiers in the FF-sponsored community development crusade championed by Dey and Ensminger. With TCA officials confidentially projecting that their joint Indo-American venture would extend to 320 project areas by 1955, the RF team estimated the community development initiative's needs at roughly 9,000 college-trained supervisors and specialists—1,500 of whom would need to be recruited from the US and the rest drawn from India's own universities (see note 17).

For Harrar, Mangelsdorf, and Weaver, the numbers seemed staggering, rendering the TCA's approach to rural development woefully impractical. The RFs team was especially sceptical of the officials at the helm of this expanding community development movement, still in its heyday. As they observed: "Some of them [India's community development administrators] are essentially small persons who have been lifted up into positions of tremendous responsibility for which they are unequipped, intellectually or in any other way."¹⁸ Indeed, as Dey had boasted on numerous occasions, enthusiastic amateurs and not development experts led his movement to reshape rural India (Dey 1961: 88).

The RF team interpreted this type of engagement as a profound liability that might derail independent India's quest to increase food production. Beyond its core staffing requirements, Harrar, Mangelsdorf, and Weaver further estimated that India's community development push would need to recruit between 18,000 and 40,000 village-level workers to fan out across an estimated 600 project sites to serve a rural population of about 120 million. They remained most troubled by approach of community development administrators, like Dey, who had begun their work in the Ministry of Rehabilitation, mustering displaced persons into the ranks of experimental rural programmes. As they wrote:

[T]he situation is characterised by a frightening mixture of almost fanatic devotion, optimism based on the supposed accuracy of technical information which has in many instances passed through incompetent hands, and an administrative confusion which would be found congenial only by the Mad Hatter. (see note 18)

Indeed, India's community development initiative would buckle under the weight of its internal bureaucracy and its failure, in the eyes of government investigators, to meet the needs of the rural populations it served (Staples 1992: 13). Casting aside the prospect of reshaping India at the village level, Harrar, Mangelsdorf, and Weaver instead viewed the new nation's agricultural problems as a strict function of inadequate resources for a burgeoning population. As they wrote: "Not only is there too little land, but the land has too little water, too little fertility, and is divided into far too many small holdings. The Indian cultivator does not farm—he gardens—

and he does so under innumerable handicaps” (see note 17). Harrar himself would later indicate that the foundation’s explicit emphasis on food production increases over population control frustrated him through the 1950s. As he noted of Rockefeller’s eventual turn towards a direct engagement of population issues in the late 1960s: “After what I thought was a too long delay, the foundation decided to participate more actively in the problems of population stabilisation.”¹⁹

In the meantime, however, the Rockefeller fact-finding mission to India concluded that human fertility simply outpaced the productivity of local seeds, the natural fertility of the soil, and the efficiency of the new nation’s farmers. Beyond advocating for improvements in graduate-level education in agriculture and centralised training in rural extension, the team advised against costly and tedious social interventions in India. Instead, they recommended that the RF move ahead with a programme focused on financing promising scientific research into raising grain yields and improving soil fertility across independent India (see note 17). Beginning with the inauguration of its Indian Agricultural Program (IAP) in 1956, Rockefeller would pursue precisely those goals.

Towards a Model of Rural Fertility Restriction

With the approval of the Nehru government, the RF also took steps to examine population growth rates and initiate a programme of human fertility restriction in rural Punjab beginning with support for a pioneering longitudinal study in 1953. Designed by a team of demographers and epidemiologists at the Harvard School of Public Health, the Khanna Population Study took shape around the eponymous village near Ludhiana under the direction of John E Gordon and Theodore H Ingalls of Harvard and Carl E Taylor of the Christian Medical College (Wyon and Gordon 1971: 1–2). The RF initially funded the study through a grant awarded to Harvard in 1953, providing resources for two years and subsequently extending support for an additional five years. The Population Council (1963: 7) would also provide funds for the project in later years. India’s Ministry of Health approved the study site of 16 villages in the Ludhiana district in rural Punjab and enthusiastically endorsed the project.

Gordon, Ingalls, and Taylor lived in the study area themselves for extended periods during their fieldwork, attempting to immerse themselves in the social context of their study subjects. The study sought to determine which of five birth control methods proved most effective for villagers and, as Population Council (1963: 6) officials later reflected, “The over-all programme was designed along the lines of a laboratory experiment.” Indeed, the entire study area became an oversized laboratory for the Harvard team, with scientists collecting vast amounts of detailed data regarding their test subjects and culminating in a 400-page publication written by Gordon with John B Wyon, and published by Harvard University Press in 1971. Its work would be paralleled from 1957 to 1969 by a similar longitudinal study of fertility control methods supported by the Population Council and designed by the All-India Institute of Hygiene and Public Health in Singur, West Bengal

(Rao and Mathen 1970). In both contexts, the post-partition influx of refugees compounded broader concerns regarding overpopulation in India.

Yet these initiatives by us philanthropic organisations did not represent the first steps towards state-sponsored population control in India. John Megaw, who founded the Calcutta-based All India Institute of Hygiene and Public Health in the 1920s, defined India’s “population problem” as a major crisis within public health following his rise to the directorship of the Indian Medical Service in 1930. Rahul Nair (2011: 223) has identified Megaw’s championing of fertility regulation as an early step in framing overpopulation as an obstacle to economic growth in the subcontinent. India also had a long history of state-sponsored family planning projects, particularly during the late colonial era, as David Arnold and Anshu Malhotra have shown (Hodges 2006). Still, the RFs and the Population Council’s support for the studies at Khanna and Singur, respectively, represented the first attempts on the part of international philanthropic organisations to connect the imperatives of rural development and economic growth to a programme of fertility restriction.

Seeking to inform future population control initiatives, the RF-funded Khanna Study employed the villages of the Ludhiana district as a test site for family planning methods. In 1963, Gordon and his colleagues reported that 38% of the couples in the experimental area had accepted contraceptive foam tablets distributed by investigators or had indicated that they used either withdrawal or rhythm methods. That figure fell to 19% following the end of the study, with few women reporting that they used the foam tablets thereafter (Population Council 1963: 6). More importantly, the distribution of foam tablets and the instruction in various methods of contraception did not significantly affect the birth rate in the study area. As Gordon and Wyon reflected, “The probable explanation is that a goodly proportion of persons supposedly practicing contraception actually were not” (Population Council 1963: 6). Subsequently, the Harvard scientists speculated that individuals with experience living or working outside the villages were more likely to engage in contraceptive practices, thus attributing the reluctance of their test subjects to accept their programme of birth control to their identity as villagers and farmers.

Indeed, Gordon and Wyon commented that villagers in the Ludhiana district relied upon a farming metaphor in their notion of conception, visualising the woman as the soil and the man as the sower of the seed. As they described villagers’ understanding in the published results of the Khanna Study:

During sexual intercourse the man puts his seed near the mouth of the womb. The woman is the soil; if the mouth of the womb is open and circumstances are right, the seed starts to grow and the woman is pregnant. (Wyon and Gordon 1971: 85)

In this way, the Rockefeller-funded Khanna Study’s epidemiological experiment in reproductive health education amassed a great deal of population data on post-partition Punjab, but it generated more anecdotes and ethnographical observations than it did replicable models for village-level intervention.

Nevertheless, as a pioneering attempt at instituting a coherent programme of rural population control, the Khanna Study reveals the extent of the RFS efforts to address both sides of the “double crisis” of food shortage and overpopulation.

Fertile Soil for Healthy Nations

As negotiations over the water resources of the Indus River Basin proceeded through the 1950s, divisions ran among representatives of the World Bank and the US foundations and Indian and Pakistani government officials over how to most equitably divide water, and by extension, soil resources. Conflicts emerged, however, not between imperialist and nationalist or even between Indian and Pakistani interests, but rather between those who understood famine as resulting from population growth outpacing food supply and others who saw it as a failure of distribution. For many of the development experts of the FRs, as well as the economists of the World Bank, the outbreak of famine represented the inevitable outcome of runaway population growth. It came as the total breakdown of a nation’s food economy—the logical result of inefficient agricultural production stretched to its limits. Yet, in estimating the agricultural needs of India and Pakistan while negotiating the IWT, clear tensions emerged among officials over how best to prevent future food crises.

For instance, the IBRD coordinated with the FF to offer both India and Pakistan loans for investments in US-made chemical fertilisers and pesticides, with the promise that they would improve soil and crop quality, delivering vastly increased foodgrain yields. Further, Harry Curran, the World Bank’s resident representative in New Delhi, regularly coordinated with FF officials in determining the approach both organisations would take to the Government of India’s proposed development investments. In February 1960, Curran reported back to his superiors in Washington, relaying the findings of a recent FF report titled, “India’s Food Crisis.”²⁰ Curran wrote that Ford’s agricultural experts had determined that, given recent rates of population growth and food production, “there would be a deficiency of 28 million tonnes of foodgrains by 1966 which could not be covered by any conceivable programme of imports or rationing” (see note 20). Ford’s experts, he noted, urged an “all-out emergency food production program” that would gear the Government of India’s upcoming Third Five Year Plan towards meeting that predicted shortfall (see note 20).

Soil experts had long noted that nutrient-rich soils could generate higher quality foodgrains in greater yields, thus sustaining healthier populations. In the Indian context, the former colonial agronomist G A Haig observed that the use of chemical fertilisers by farmers in pre-partition India had been virtually non-existent. This apparent lack of concern for soil health on the part of Indian cultivators, he reasoned, stemmed from superstition. As he wrote after retiring from his post in Punjab following independence:

My impression is that when I left India in 1947 most of the administrative and district officers (who really run the agriculture of the country) belonged to the “Muck and Mysticism” School and were frightened of

artificial fertilizers. [...] Modern informed ones seem to be strongly in favour of artificial fertilisers and I think it can be taken that it is now most desirable that these should be “pushed” in India and Pakistan.²¹

Inheriting Haig’s concern for soil health and advocacy for the expanded use of “artificial” fertilisers, the Rockefeller-financed Punjab Agricultural University in Ludhiana took up the cause of soil health advocacy in the region. Proposed by the IARI in 1959 and opened with the support of the RF in 1962, the new university emphasised both undergraduate education and graduate-level research, devoting extensive resources towards work in soil science and supporting the expanded use of chemical fertilisers. New projects to be carried out by the university under the Third Five Year Plan included the establishment of five regional soil testing laboratories, the launch of a land-use soil survey, and the construction of 10 soil conservation demonstration farms to focus upon arid farming methods. Further, a dedicated soil conservation wing would be added to the university to support the expansion fertiliser trial being carried out on the fields of local cultivators.

However, RFS emerging plans for preventing a potential food crisis through the promotion of high-yielding seeds and chemical fertilisers did not go unchallenged. In July 1960, Curran wrote once again to IBRD Loan Officer Stewart Mason in Washington, expressing his frustration with the Indian Planning Commission’s approach to the nation’s food problem. Curran speculated that Penderel Moon, the former British colonial civil servant who had remained in India as economic adviser to the Planning Commission, exerted disproportionate influence in turning commissioners against investments in increased production. As Curran wrote of Douglas Ensminger of the FF:

Doug (Ensminger) is depressed in general about the Planning Commission. Like many others, he feels it has become a tired body, badly in need of an injection of fresh red blood. In particular he is naturally depressed by the Planning Commission’s hostility to his ideas on food production and he blames especially (Penderel) Moon whose influence on V T (Krishnamachari) and Tarlock [sic] Singh has been, he believes, considerable and disastrous.²²

Further, Curran continued: “Whenever I have discussed food production with Moon, he has argued that all this expenditure on fertilisers is unreasonable and a North American racket. His own solution is simply that better use should first be made of existing resources” (see note 22). While Curran and Ensminger argued for growing exponentially more grain with the aid of fertilisers purchased by the Government of India through the FF, Moon recommended waste reduction and the full employment of existing resources.

Moon’s long career with the Indian Civil Service (ICS) spanned partition, establishing him in some sense as a fixture of continuity with the old colonial regime. Curran noted that Moon’s views on population management held sway with certain members of the Indian Planning Commission, including the economist from Punjab, Tarlok Singh. At the same time, Curran observed that the aging British civil servant served only as an advisor to the Planning Commission and would finally retire from his service to the Government of India the

following summer, some 14 years after partition. After all, as Curran wrote, Nehru himself had indicated his personal support for the rapid grain production increases promised by the FF and its fertilisers and pesticides. He only needed wider support on the Planning Commission to bankroll the expensive enterprise within the Third Five Year Plan (see note 22). In this way, by 1960, the argument for a distributive solution to India's food situation had been eclipsed by a drive to increase productivity. Instead, the goal of dramatically increased production had shaped the final IWT of 1960 and would come to dominate policy discussions in both India and Pakistan through the 1960s.

On 19 September 1960, Nehru and Pakistani President Mohammad Ayub Khan signed the IWT in Karachi (Gilmartin 2015: 220). IDA vice president Iliff signed on behalf of the World Bank, finalising the three-party compact and completing the international agreement that to this day governs hydrological and agricultural resources along the Indo-Pakistani border. The connection between water, soil fertility, and the potential of new high-yielding seed varieties to increase Indian food production proved clear within the negotiations surrounding the treaty. Greater foodgrain production could simply not be attained if even one element of this equation proved faulty.

Conclusions

In April 1964, the agricultural scientist Borlaug of the International Maize and Wheat Improvement Center (CIMMYT) in El Batán, Mexico reported to the RFs field office in New Delhi on his recent inspection of the IARI's work in wheat research in Punjab. Borlaug wrote that he had observed significant progress by Indian scientists at research stations in Ludhiana and

Karnal. At both sites, IARI scientists had made significant progress in cultivating high-yielding Indian wheat at levels of fertilisation and in successfully growing Mexican hybrid wheat varieties developed at CIMMYT. In particular, the Sonora 63 and 64 and Lerma Rojo 64A wheat varieties, which demanded heavily fertilised, well-irrigated soil, had been "beautifully adapted" to conditions in Punjab. As he wrote:

During the past year the advances in varietal improvement have catalysed advances in soil fertility and agronomic research. [...] The overall stimulating effect of these discoveries should propel the research program forward with vigor during the next several years. If this is done and if research results are extended aggressively to the cultivator's plots, a revolution in irrigated wheat production will result within the next five to seven years.²³

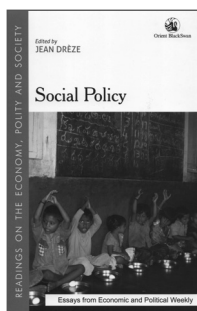
In this way, the water supply increases promised by the IWT of 1960 and the emphasis placed upon improving soil health within it would enable the extensive cultivation of these high-yielding wheat varieties across post-partition Punjab. Further, the RF and the IARI's advocacy for the wider use of fertilisers would enable Punjabi farmers to cultivate these varieties extensively. In turn, the extensive cultivation of these and other varieties demanding fertile, well-irrigated soil would enable the rapid wheat production increases associated with South Asia's green revolution.

Over the course of the first 12 years following partition, representatives of the World Bank forwarded notions of agricultural fertility and population limitation in the context of national integrity. They also employed an evolving canon of international development expertise that determined how international resource disputes could be adjudicated and how national frontiers could be legally defined and administered.

Social Policy

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The reach of social policy in India has expanded significantly in recent years. Facilities such as schools and *anganwadis*, health centres, nutrition programmes, public works and social security pensions are reaching larger numbers of people than before. Some of these benefits now take the form of enforceable legal entitlements.

Yet the performance of these social programmes is far from ideal. Most Indian states still have a long way to go in putting in place effective social policies that directly address the interests, demands and rights of the unprivileged.

This collection of essays, previously published in the *Economic and Political Weekly*, has been clustered around six major themes: health, education, food security, employment guarantee, pensions and cash transfers, and inequality and social exclusion. With wide-ranging analyses by distinguished scholars brought together in a single volume, and an introduction by Jean Drèze, *Social Policy* will be an indispensable read for students and scholars of sociology, economics, political science and development studies.

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The IWT of 1960—negotiated by the World Bank Group in conversation with the experts from the FAO and officials from the RFFs—generated the conditions in which the experts of these development organisations believed South Asian grain production could thrive. The partitioning of South Asia’s soil and water resources over the course of the 1950s proved to be an important turning point in the work of the RF and the FF as well. With the flow of irrigation waters across

the Indus River Basin ensured and, by extension, the production of nutrient-rich soil guaranteed, the experts of both philanthropic organisations moved to expand their investments in wheat hybridisation across the region. Taken together, these early development initiatives in post-partition South Asia reflect a dual fertility agenda for rural communities, seeking to increase agricultural yields while restricting population growth.

NOTES

- 1 Julian Huxley, the British evolutionary biologist, served as the first director of UNESCO from 1946 to 1948. An influential member of the British Eugenics Society, Huxley published extensively on a variety of topics, including the modern synthesis (of Darwinian and Mendelian ideas on heredity), racial theory, and family planning.
- 2 “Demographic Disarmament for India: A Plea for Family Planning, Presidential Address by Dr S Chandrasekhar,” 1951, Folder 862, Box 90, Series 464, RG 1.2, Program and Policy, Rockefeller Foundation Records (RFR), Rockefeller Archive Center (RAC).
- 3 As founder and president of the Dixie Cup Company, American businessman Hugh Moore proved an unlikely, but vocal, advocate for population control through his work with the International Planned Parenthood Federation. Through his own non-profit organisation, Moore published the pamphlet, “The Population Bomb,” in 1954. Fourteen years later, Stanford University biologist Paul Ehrlich borrowed Moore’s title and published *The Population Bomb* (1968), warning that global overpopulation threatened to trigger mass starvation.
- 4 As the fourth foreign policy objective mentioned in US President Harry Truman’s 1949 inaugural address, the Point Four Program evolved as the major foreign aid project of his administration. The programme was deployed as a tool in the Cold War, extending tens of millions of dollars’ worth of technical assistance to US-aligned nations across Asia, Latin America, Africa, and the Middle East.
- 5 Launched to alleviate the devastation of the Great Depression, US President Franklin Roosevelt’s New Deal programmes notably included the Tennessee Valley Authority (TVA). Beginning in 1933, the federally owned TVA coordinated massive projects of flood control, rural electrification, and fertiliser production across seven US states.
- 6 “William Iliff Oral History Transcript,” 1961, IBRD/IDA Oral Histories, Folder 44, World Bank Group Archives (WBG).
- 7 “Fifty-Year Population Projections,” 1958, Folder 1840725, India—General—General Negotiations – Correspondence, Vol 2, WBG.
- 8 Norris E Dodd to F T Wahlen, 9 February 1953, File 10DIR346, Land and Water Use Branch Files, Agriculture Division, Archives of the Food and Agriculture Organization (FAO) of the United Nations.
- 9 Beginning in 1913, the RF’s International Health Division, financed public health projects across colonial India, most prominently supporting work on hookworm disease eradication, malaria control, and surveys of nutritional health.
- 10 “J George Harrar Biographical Data,” Folder 330, Box 8, FA 485, Biographical Files, RFR, RAC.
- 11 J G Harrar, Paul C Mangelsdorf and Warren Weaver, “Notes on Indian Agriculture,” 11 April

- 1952, p 12, Folder 4, Box 1, Series 460, RG 1.2, Program and Policy, RFR, RAC (hereafter Harrar, Mangelsdorf, and Weaver, page number). The RF and FF both supported Arthur Mosher’s work in rural extension at the Allahabad Agricultural Institute that grew out of the work of the Presbyterian Mission. The American architect and planner Albert Mayer’s model village at Etawah in Uttar Pradesh, launched in 1946, also enjoyed financing from the FF. S K Dey, who left his career as an engineer at General Electric, also transformed his refugee rehabilitation project at Kurukshetra into for rural extension training and community development at Nilokheri in East Punjab with the support of the FF. See Sackley (2013).
- 12 Harrar, Mangelsdorf, and Weaver, 19 (see note 11).
- 13 Harrar, Mangelsdorf, and Weaver, 26 (see note 11).
- 14 Harrar, Mangelsdorf, and Weaver, 20 (see note 11).
- 15 “Notes on Discussion: India Conference (including Pakistan and Ceylon),” 26 March 1952, p 12, Folder 4, Box 1, Series 460, RG 1.2, Program and Policy, RFR, RAC.
- 16 Harrar, Mangelsdorf, and Weaver, 11 (see note 11).
- 17 Founded on a doctrine of self-help for partition’s refugees, Dey’s project at Nilokheri attracted the attention and funding of the FF beginning in 1950. Nilokheri would be employed as a model for India’s national community development initiative of the 1950s, with Dey heading the short-lived Ministry of Community Development. See Loveridge (2017).
- 18 Harrar, Mangelsdorf, and Weaver, 22 (see note 11).
- 19 J George Harrar, “Transcript of Taped Interviews with Dr J George Harrar,” 1979, p 6, Folder 1, RG 12, Oral History Interviews, RFR, RAC.
- 20 Harry Curran to G Stewart Mason, 22 February 1960, p 5, Folder 1840734, India—General—General Negotiations—Correspondence, Vol 11, WBG.
- 21 G A Haig, “Dr Norman Wright’s Tour to Australia, India, etc,” 5 November 1949, India: Food Situation and Future UK Policy, MAF 83/2168, The National Archives of the United Kingdom (UKNA).
- 22 Harry G Curran to G Stewart Mason, 19 July 1960, Folder 1787294, Indus Basin Dispute—India Comprehensive Plan—Correspondence, WBG.
- 23 N E Borlaug, “Indian Wheat Research Designed to Increase Wheat Production,” 11 April 1964, pp 1–2, Folder 546, Box 84, Series II, RG 6.7, New Delhi Field Office, RFR, RAC.

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