

# Fraught with Contestations: Crop-Diversification under Agrarian Distress in Indian Punjab

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The paddy farmer of Punjab- a misnomer even half a century ago in the Indian agrarian scene has in recent times found himself at the center of one of the most heated sites of ecological contestations. Among various reasons, a wide section of experts have identified paddy cultivation to be the main cause behind the successively declining ground-water table in Punjab. According to a 2020-block wise study of ground water resources by the Central Ground Water Board, nearly 89 percent of the total 150 blocks of Punjab are in the over-exploited/critical/semi-critical category.<sup>1</sup>

Paddy – originally an alien crop in Punjab, since the 1970s has become mainstay of the State’s cropping pattern. The paddy-wheat cycle- that is paddy as the *kharif* or summer crop followed by wheat in the *rabi* or winter season has become Punjab’s dominant cropping pattern. The success of Green Revolution through adoption of High Yielding Variety seeds and inputs, along with the expansion of canal irrigation and later development of tube-well irrigation, free power tariff policy for agriculture since the late 1990s, availability of cheap migrant agricultural labour, as well as state-procurement are some of the major reasons for the expansion of paddy as the major summer crop in the State. In 1971-72, paddy in Punjab occupied only 11 percent of the net sown area, but it steadily grew to 61 percent in 1999-2000, and by 2016-17 it had further risen to 73.4 percent.

This article presents some initial reflections on the contestation over cropping transitions in Punjab. The farmers’ response in this article is based on recent interactions with some farmer unions, primarily in the Malwa region of southern Punjab as part of the ongoing research. Increasingly world over failures in sustainable transitions in agriculture are relegated to the regressive and reactionary stances of the farming sections. However, through the case of diversifying out of paddy cultivation in Punjab, the attempt is to discern some of the complicated terrain behind cropping transitions and notions of

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<sup>1</sup> Central Ground Water Board (2021), *National Compilation on Dynamic Ground Water Resources of India*, Government of India, Ministry of Jal Shakti, Faridabad

sustainability, especially under conditions of agrarian distress. Further, Punjab, with its longer history of surplus food grain production which has in ways aided an organized and vocal agrarian mobilization, provides us with a fitting entry point to understand these contentions in greater detail.

### *State Policy Towards Diversification*

The first recommendations for diversifying the cropping pattern of Punjab, away from the dominant paddy-wheat cycle came in the late 1980s. A committee under economist S.S. Jhohal was constituted in the aftermath of the earlier phase of farmers' protests to look into the price and procurement policy for foodgrains, as farm incomes lagged behind the rising cost of production and procurement by the Food Corporation of India declined. The report came out in 1986 and recommended that at least 20 percent of the area under the paddy-wheat crops should be diversified into other crops for sustaining Punjab's resources in the long run.

The recommendations were not implemented then, as instead, foodgrain production was promoted in Punjab as result of a prolonged drought in 1987 and consequent food shortages in the country.<sup>2</sup> Reports suggest that the paddy farmer in Punjab to meet the higher cost of irrigation had to spend Rs 2000-2500/acre in 1987 in contrast to Rs 1500/acre in a normal year. However, there was a significant reduction in acreage under paddy in the state as the poorer sections of the peasantry did not have the financial means to carry out cultivation.<sup>3</sup> Thus the drought of 1987 brought back focus on the vital position of Punjab's foodgrain, and specifically paddy production in the country's food security needs.

But since the mid-1990s as Public Distribution System was turned into a targeted scheme as part of the larger structural-adjustment reforms, stocks of foodgrains started building up which affected levels of foodgrain procurement. The neoliberal policy in agriculture at the same time, which called for greater deregulation of input prices, caused a jump in the cost of cultivation. Consequently, indebtedness and farmer suicides rose in the Punjab countryside which made the procurement-policy and assured Minimum Support Prices further significant for farmers as a coping mechanism. In 1997, the Prakash Singh Badal led Akali Dal government in Punjab announced the policy of free electricity

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<sup>2</sup> Tempest, Rone (1987), "India Faces No Food Shortage Despite Drought", *Los Angeles Times*, August 30, <https://www.latimes.com/archives/la-xpm-1987-08-30-mn-4979-story.html>

<sup>3</sup> Badhwar, Inderjit (1987), "Monsoon failure: Drought saps livelihood of millions of peasants in 21 states across India", *India Today*, September 15, <https://www.indiatoday.in/magazine/cover-story/story/19870915-monsoon-failure-drought-saps-livelihood-of-millions-of-peasants-in-21-states-across-india-799296-1987-09-14>

for agriculture use as part of his election promises. This policy added impetus to the irrigation dependent paddy cultivation in the State.

As the crisis of foodgrain procurement resurfaced, along with the ecological concerns becoming more pronounced, the second committee under SS Johl to look into crop diversification was constituted again in 2002. This report titled “Agricultural Production Pattern Adjustment Programme for Productivity and Growth”, recommended diversifying the cropping pattern away from rice-wheat into fruits, vegetables, agro-forestry, floriculture, livestock etc.<sup>4</sup>

Diversification of the cropping pattern also finds mentions in other policy documents of different state institutions. For instance, the Punjab Agriculture University, Ludhiana in its ‘Vision 2040’, proposed alternative cropping patterns.<sup>5</sup> The Reviving Green Revolution Cell, sponsored by the Tata Trust was established in 2002 and later housed within the Punjab Agriculture University, with the motive of promoting diversification into agriculture.<sup>6</sup> The World Bank supported contract farming policy adopted by the state government, involving the Punjab Agro-Foodgrains Corporation and agro-businesses, was aimed at diversifying into oilseeds, maize, cotton, basmati rice.<sup>7</sup>

However, despite the various policy directions towards diversification, as figure 1 shows the acreage under paddy has been steadily growing in Punjab. The traditional cotton producing belt in the Malwa region has most recently shifted to paddy cultivation. This is not to say that one does not notice attempts at diversifying out of paddy. For instance, sunflower was introduced into the cropping pattern of Punjab in the 1990s, as a result of the 1987 drought which brought focus to the deficient oilseed production in the country.<sup>8</sup> In 1990-91 there was 5 thousand hectares under the crop, which rose to 14.6 thousand hectares in 2010-11, however according to provisional data by 2019-20 it dropped to 4.3 thousand hectares. This has been largely attributed to the price fluctuations suffered by the farmers, as they sold their produce lower than the announced MSP. Although sunflower is

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<sup>4</sup> Gill, Puneet Pal Singh (2013), “Punjab govt needs to work on crop diversification: Economist”, *Business Standard*, January 28, [https://www.business-standard.com/article/economy-policy/punjab-govt-needs-to-work-on-crop-diversification-economist-106042601140\\_1.html](https://www.business-standard.com/article/economy-policy/punjab-govt-needs-to-work-on-crop-diversification-economist-106042601140_1.html)

<sup>5</sup> Punjab Agriculture University (2012), *Vision 2040*, Ludhiana

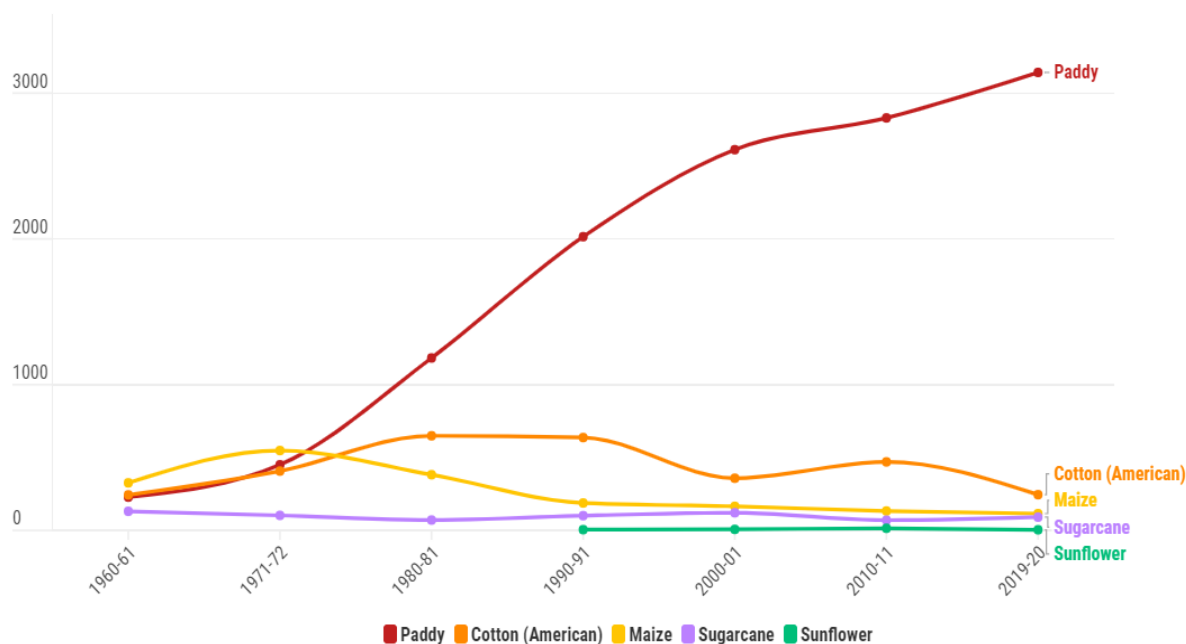
<sup>6</sup> Reviving Green Revolution Cell, <https://www.rgrcell.org/our-mission/>

<sup>7</sup> World Bank (2004), *Resuming Punjab's Prosperity: The Opportunities and Challenges Ahead*, Poverty Reduction and Economic Management Sector Unit, South Asia Region

<sup>8</sup> Government of India (1990), *The Drought of 1987: Responses and Management*, Volume 1, National Efforts, Ministry of Agriculture, New Delhi

covered under the 14 *kharif* crops that the Centre announces MSP for, there is no assured procurement and farmers find themselves at the mercy of private traders.<sup>9</sup> Procurement in Punjab is largely restricted to two crops- wheat and paddy.

**Figure1: Acreage under major kharif crops, Punjab, 1960-2020, in thousand hectares**



Source: Punjab Statistical Abstract, various years • The figures for 2019-20 are provisional

In most recent times, paddy cultivation along with the issue of declining groundwater table has also come to be associated with stubble burning induced air-pollution. Government of Punjab’s action plan for control of burning of crop residue proposes to divert 9 lakh hectares under paddy to maize, cotton, vegetables, pulses, oilseeds and other plantation crops by 2024.<sup>10</sup>

Contrary to intentions with reference to another policy prescription, data shows that in the period since the Punjab Preservation of Subsoil Water Act of 2009, which includes clauses on penalizing farmers from sowing paddy before a notified date, in order to limit the depletion of ground-water, the

<sup>9</sup> Chaba, Anju Agnihotri (2019), “No sunshine for sunflower farmers: produce sells at 31% less than MSP”, *Indian Express*, June 8, <https://indianexpress.com/article/cities/chandigarh/no-sunshine-for-sunflower-farmers-produce-sells-at-31-less-than-msp-5770344/>

<sup>10</sup> Government of Punjab (2022), *Action Plan for Control of Burning of Crop Residue in the State of Punjab*, <https://ppcb.punjab.gov.in/sites/default/files/documents/FINAL%20Action%20Plan%20Stubble%20Burning%2029May2022.pdf>

acreage under paddy has grown and has in-turn led to other consequences such as increased stubble burning.<sup>11</sup>

The Punjab State Power Corporation Limited (PSPCL) has emerged to be one of the key organizations which arranges regular meetings with farmers to promote crop diversification, as it is also the point body responsible for ensuring power supply for irrigation during the intensive paddy cultivation season. As the attempts to include alternative crops in the cropping pattern have largely failed, the PSPCL has been promoting the uptake of the short-duration paddy varieties instead of the predominant long-duration PUSA-44 variety. The Government of India has withdrawn the PUSA-44 variety from the seed chain (foundation-breeder-Truthful Label), intended towards its eventual disappearance from the production cycle.

#### *How are the Farmer Unions Responding? - Case of Paddy Varieties*

Within the crop-diversification drive, farmers and farmer unions have often been portrayed to be disruptors and resistant to adopting ecologically suitable cropping patterns. However, there has been an absence in overall investigation into the points of contestations and their actual roots. This section is built on initial interviews that I carried out with farmer unions in Malwa region of southern Punjab.

The farmer unions of Punjab have a long history of acting as pressure groups. The Bhartiya Kisan Union (BKU), led the farmers' protests of the 1970s-80s. However, since then there have been multiple splits in the BKU and Punjab presently has over thirty farmer unions active in the State, including the BKU splinters as well as other organisations. There are ideological, and programmatic differences between the groups, although, of those interviewed none came out to be dismissive about the urgency of the ecological threats of a depleting groundwater table or the ultimate need to diversify. However, every group stressed on the roadblocks towards transition away from paddy and a general lacking of state support. Proposals made by the PSPCL with reference to delaying the dates for paddy sowing, were seen to be 'political' acts without any concrete alternatives, aiming to limit agriculture's subsidy and put onus of ecological problems squarely on farmers. Therefore, the systemic squeezing of agriculture, and restricted choices with farmers amidst losses, were the predominant articulations

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<sup>11</sup> Dabas, Harsh (2022), "Falling Groundwater Table and Rising Pollution; the Twisted Tale of The Punjab Preservation of Subsoil Water Act, 2009", *Live Law*, 28 October, [https://www.livelaw.in/columns/falling-groundwater-table-and-rising-pollution-green-revolution-punjab-preservation-of-subsoil-water-act-212623#:~:text=\(1\)%20No%20farmer%20shall%20sow,Gazette%20for%20any%20local%20area](https://www.livelaw.in/columns/falling-groundwater-table-and-rising-pollution-green-revolution-punjab-preservation-of-subsoil-water-act-212623#:~:text=(1)%20No%20farmer%20shall%20sow,Gazette%20for%20any%20local%20area).

among the farmer bodies. A prominent farmer leader said the bigger question was, “whether paddy should be grown in Punjab in the first place”, pointing to a broader framing of the ecological issue which did not detach it from the crisis in agriculture.

Among the various issues connected to crop-diversification, here I focus on the issue of adoption of short-duration paddy varieties, which has been the latest policy drive towards restricting the depleting water-table in Punjab.

Some of the farmer unions that I interviewed reported that the short-duration paddy varieties, mainly PR-121 and PR-126 released in 2013 and 2017 by the Punjab Agriculture University, had a much lower productivity as compared to PUSA-44, released by the central agricultural university in 1993. The PUSA-44 variety although takes 130 days for maturation after transplanting and greater number of irrigation cycles, provides a higher quintal per acre of production as compared to the 110- and 93-days maturation period of PR-121 and PR-126 respectively. Production surveys carried by the Indian Institute of Rice Research in 2021, found that the yield difference between PUSA 44 and PR 126 in Sangrur district, which has the highest acreage under paddy in the State, was between 1.2 and 3.24 quintal/acre, which for a small farmer can amount to be a substantial loss.<sup>12</sup>

One also has to remember that in the last two decades, the productivity of paddy in Punjab has stagnated, and agricultural growth is primarily driven by prices.<sup>13</sup> Therefore, any further drop in standard productivity of food grains would be hard for farmers to accept. For perspective, average paddy yield in Punjab in 2018-19 was 16.72 quintal/acre, much higher than the national average (10.33 quintal/acre), however, lower than the world average of 18.93 quintal/acre, and much lower than 28.18 quintal/acre in China and even 23.54 quintal/acre in Vietnam and 19.17 quintal/acre of Bangladesh.

In a discussion on adoption of short-duration paddy varieties, a farmer union leader said that in one of the yearly meetings that the PSPCL organizes to discuss matters of diversification and other issues

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<sup>12</sup> ICAR- Indian Institute of Rice Research (2021), *Production Oriented Survey 2020*, All India Coordinated Rice Improvement Programme, Hyderabad

<sup>13</sup> Bhattacharya, Soham (2021), “Why are Farmers in Punjab and Haryana angry?”, *Frontline*, December 16, <https://frontline.thehindu.com/cover-story/farmers-protests-why-are-farmers-angry-in-punjab-haryana-over-new-farm-laws-2020/article33320475.ece>

with the farmer unions, there were open disputations raised by farmers against the claims of the PSPCL officials about the high yield of the short- duration paddy varieties. Therefore, even though the State government has been promoting the short-duration paddy varieties and has tried to completely stop the circulation of PUSA-44 seeds, there is still a substantial acreage under the long duration variety, mainly in the Malwa region. According to the central Ministry of Agriculture and Farmers' Welfare, in 2020-21, the non-basmati paddy acreage under PUSA-44 was as high as 60 percent in Sangrur district and 70 percent in the adjacent Bhatinda district.<sup>14</sup>

It was also found that in districts which saw a higher uptake of the short duration paddy varieties, farmers took up a third crop after the harvest of paddy and sowing of wheat, in order to compensate for the yield loss.<sup>15</sup>

A 2018 cost-benefit study on the adoption of paddy varieties in Punjab remarked that the 'the private benefits achieved from cultivating PUSA 44 far exceed the private costs of its cultivation', implying the higher advantage of the yield benefit from PUSA 44 as opposed to other varieties, even after accounting for the higher implicit costs for irrigation. The paper further says 'hence, PUSA 44 farmers have no incentive to care about the social cost of groundwater depletion.'<sup>16</sup> However, it needs to be pointed that under conditions of general distress, in this case of falling farm incomes, and amidst existing rural inequalities, aspects of 'social costs' attain complexities, which cannot be clearly delineated and hence needs a more nuanced assessment.

There have been other issues raised with respect to the short-duration varieties. For instance, farmers complained of not receiving the Minimum Support Price on the PR-126 variety as the moisture content was found to be higher due to its early maturation date. Previously, the promotion of another short-duration variety PAU 201, which had a high yield performance was ultimately de-notified in

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<sup>14</sup> Government of India (2021), *Cultivation of Paddy*, Rajya Sabha, Unstarred Question No 2095, May 8, Ministry of Agriculture and Farmers' Welfare

<sup>15</sup> Mishra, Vivek (2021), "Why Punjab's short-duration paddy varieties have not solved stubble burning", *Down to Earth*, 16 November, <https://www.downtoearth.org.in/news/air/why-punjab-s-short-duration-paddy-varieties-have-not-solved-stubble-burning-80224>

<sup>16</sup> Joshi, Kuhu, Joshi, PK, Khan, Md. Tajuddin and Kishore, Avinash (2018), "'Sticky Rice': Variety Inertia and Groundwater Crisis in a Technologically Progressive State of India", *IFPRI Discussion Paper 01766*, South Asia Regional Office, IFPRI

2010 after protests from rice-millers, who complained of discolouration and broken grains.<sup>17</sup> The marketing of non-basmati paddy in Punjab is directly linked to the procurement by the Food Corporation of India, which also sets the criteria for assessing grain quality. Therefore, adaptability of any variety does not only depend on issues related to its production, but also post-harvest and marketing requirements of the farmers.

### *Fault lines in the Diversification Project*

Underneath the contestations and tensions around crop-diversification in Punjab are fault lines and contradictions between policy and reality.

Dominance of paddy-wheat in Punjab's rural economy prevails over the well-entrenched and highly organized networks of post-harvest and marketing mechanism, as well as the rural-credit in the State. For instance, in absence of institutional credit, rural-credit through the informal channels of *arhatiyas* or commission agents is available in paddy, and not basmati or horticulture crops as they are considered risky due to absence of guaranteed procurement.<sup>18</sup> Therefore, any far-reaching transition plan for sustainable and equitable crop-diversification in the State needs to factor these aspects of surplus production management. Whereas, at present the State policies towards diversification come out to be delinked with the realities of crop-production and far removed from incentives that farmers seek.

The lack of trust among the farmer unions towards government policies, reflects the distancing of the State caused by removal of public support, that has taken place under the neoliberal economic regime. The role of research and extension services that could aid the process of ecological transitions, have been steadily squeezed out of funds. This however, calls for greater research into the role of the extension and research services in the post Green Revolution realities of Punjab.

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<sup>17</sup> Times News Network (2021), "Govt mishandled PAU 201 paddy variety: Millers", *The Times of India*, <https://timesofindia.indiatimes.com/city/chandigarh/govt-mishandled-pau-201-paddy-variety-millers/articleshow/88265149.cms>

<sup>18</sup> Singh, Sukhpal (2020), "Punjab's small farmers need access to institutional finance in order to end their dependence on arhatiyas", *Frontline*, December 18, [https://frontline.thehindu.com/cover-story/punjab-small-farmers-need-access-to-institutional-finance-in-order-to-end-their-dependence-on-arhatiyas/article33355505.ece?cx\\_testId=21&cx\\_testVariant=cx\\_1&cx\\_artPos=0&cx\\_experienceId=EX5HJ2KKW7FI#cxrecs\\_s](https://frontline.thehindu.com/cover-story/punjab-small-farmers-need-access-to-institutional-finance-in-order-to-end-their-dependence-on-arhatiyas/article33355505.ece?cx_testId=21&cx_testVariant=cx_1&cx_artPos=0&cx_experienceId=EX5HJ2KKW7FI#cxrecs_s)



Lastly, the project of any agricultural diversification has also become furthermore complicated due to the overall conditions of agrarian distress, which have made farmers' more risk averse towards adoption of any new technology or cropping pattern shift, which fails to promise a sustainable income. Thus, the widening inequalities and concentration of landownership, reinforced by caste relations in the Punjab countryside and part of the crisis in agriculture, after all cannot be delinked from understanding the impediment towards agricultural diversification.