

FIELD REPORT

# Paddy Cultivation in Kerala

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Paddy cultivation in Kerala has witnessed a steady decline since the 1980s. The sharp fall in the area under paddy cultivation as well as in the quantity of rice produced in the State has had important implications for Kerala's economic, ecological and social development. Over the last five years, however, there have been commendable signs of a revival in rice production in Kerala. A new sense of purpose and enthusiasm is visible now among paddy cultivators in Palakkad, a region that is referred to as the "rice bowl" of Kerala. This field report, which is based partly on interviews with farmers, government officials and leaders of mass organizations in Palakkad, is an account of some of the long-term challenges facing paddy cultivation in Kerala. It also attempts to review the policy initiatives of the State and local Governments over the last few years that have helped revive rice cultivation in Kerala.

#### TRENDS IN PADDY CULTIVATION

Rice is the staple food of the people of Kerala, and, traditionally, the cultivation of rice has occupied pride of place in the agrarian economy of the State. The lush green of paddy fields is one of the most captivating features of Kerala's landscape. The area under paddy cultivation increased substantially during the first fifteen years after the State's formation – from 7,60,000 hectares in 1955–56 to 8,80,000 hectares in 1970–71. In 1965–66, rice accounted for the highest share of gross cropped area in Kerala (32 per cent of the total). There was, however, a steady decline in the area under rice cultivation from the 1980s onwards – from 8,50,000 hectares in 1980–81 to 5,60,000 hectares in 1990–91, 3,20,000 hectares in 2001–02 and 2,30,000 hectares in 2007–08. Today, rice occupies only the third position among Kerala's agricultural crops with respect to area under cultivation, and it is far behind coconut and rubber (see Figure 1 and Table 1).

A reversal of this trend of long-term decline in paddy cultivation in Kerala is necessary for at least two reasons. First, because, as the Government of Kerala's *Economic* 

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**Figure 1** Area under rice cultivation and annual production of rice, Kerala, 1955–56 to 2009–10 *in '000 hectares and '000 tonnes* 

*Sources:* GOK (2008), GOK (2010), and data from Directorate of Economics and Statistics, Government of Kerala, reported in Krishnadas (2009).

*Review 2010* notes, foodgrains produced in the State account for only 15 per cent of its total consumption of foodgrains (GOK, 2010, p.106). Kerala imports foodgrains from Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Bihar and Gujarat to fully meet its consumption needs. It is the State's relatively efficient public distribution system that has so far ensured availability of foodgrains at reasonable rates to the population of Kerala.

Secondly, paddy fields are a vital part of Kerala's environment and ecological systems. They provide natural drainage paths for flood waters, conserve ground water, and are crucial for the preservation of a rich variety of flora and fauna. In several regions of Kerala, paddy cultivation is carried out in a manner that enriches the specific geographical and ecological features of these regions. For instance, in *kaipad* fields in Kattampally in Kannur district, paddy has been traditionally cultivated in fields filled with saline water. In *pokkali* fields in the Kochi area, farmers alternate the cultivation of prawn with paddy cultivation. Other such examples include *kole* fields in Thrissur and Ponnani, as well as paddy fields in Meppayar in Kozhikode and Kabani in Wayanad.

Between 2007–08 and 2009–10, the area under rice cultivation in Kerala increased by 5,000 hectares and the production of rice in the State increased by 69,300 tonnes. The average productivity of rice cultivation in Kerala rose from 2,218 kg/hectare in 2002–03 to 2,557 kg/hectare in 2009–10 (GOK, 2008, p.43; GOK, 2010, p. 40). These increases may be termed marginal, but, given the steady decline in paddy cultivation

	1965-66	1985-86	1995-96	2003-04
Rice	32.1	25.5	16.4	12.01
Coconut	22.5	24.7	30.3	35.1
Tapioca	8.6	7.8	4.1	4.3
Rubber	5.9	10.8	14.5	18.4
Pepper	4.0	4.0	6.1	8.0
Cashew	3.4	5.0	3.6	3.4
Arecanut	2.4	2.1	2.3	3.6
Banana	1.8	1.8	2.3	4.2
Tea	1.6	1.2	1.1	1.4
Cardamom	1.2	2	1.4	1.6
Coffee	0.9	2.3	2.7	3.2
Others	15.6	12.8	15.2	4.8
Gross cropped area	100.0	100.0	100.0	100.0
Gross cropped area, in '000 hectares	2,051	2,807	3,052	2,584

 Table 1 Share of crop in gross cropped area, Kerala State, selected years in per cent

Source: Data from Department of Economics and Statistics, Government of Kerala cited in Krishnadas (2009).

in Kerala through the 1990s and 2000s, a reversal of that trend, however small, is in itself a remarkable feat.

#### LONG-TERM CHALLENGES TO PADDY CULTIVATION

Palakkad and Alappuzha are the two major rice-producing districts of Kerala. While the Kuttanad region in Alappuzha is endowed with a large system of backwaters, agriculture in Palakkad benefits from irrigation projects in Malampuzha, Chulliar, Meenkara, Walayar, Pothundi, Mangalam and Parambikkulam.

Within Palakkad district, Chittur, Alathur, Kuzhalmannam, Kollengode, Nenmara and Palakkad are the blocks in which paddy production is concentrated. There are many farmers in this region who cultivate rice in relatively large plots, ranging in size from 5 to 10 acres each, which is much above the average size of plots for paddy cultivation in Kerala as a whole. Among farmers who have plots of this size, the operational holding typically comprises self-owned land, land owned by relatives and leased-in land. Productivity in rice cultivation is relatively high in this region. Farmers and Krishi Bhavan (agricultural assistance office) officials observe that yield levels of 3,000 kg/hectare are quite common in this region, which is higher than the State-wide average (2,557 kg/hectare). There are also farmers who have achieved yields as high as 4,500 kg/hectare.

Discussions with farmers and officials in these villages pointed to a range of issues that affect paddy cultivation in Palakkad and the rest of Kerala. These issues are discussed below.

# Seasonal Shortage in Labour Supply

There was wide agreement that seasonal shortage of agricultural labour is a major challenge facing rice cultivation in Kerala today. Movement of the work force from agriculture to a diverse set of non-agricultural occupations has been occurring at a much faster rate in Kerala than in the rest of India from the early decades of the 20th century. According to National Sample Survey (NSS) data, by 2004–05, only 35.5 per cent of Kerala's workers were engaged in agriculture, fishing and forestry, while the Indian average was 56.5 per cent. The vast expansion of mass education, and the rapid growth in construction and service-sector incomes in recent years have boosted occupational diversification in Kerala. Between 1993–94 and 2004–05, persons engaged in agriculture and allied activities in the State declined by 8,79,000, even as the total number of workers increased by 16,05,000 (NSSO, 1997; NSSO, 2006).

Such trends in Kerala's labour market have had important implications for paddy cultivation in the State. Farmers in Palakkad observed that it is often difficult to find workers at the time of transplanting and harvesting, operations for which timely availability of labour is crucial. Further, the wage levels are relatively high, particularly because the boom in construction activity in recent years has generated a large demand for labour. In the Alathur–Chittoor region, daily wages for male agricultural workers range between Rs 250 and 350, and daily wages for female agricultural workers are between Rs 150 and 250. It is to be noted that agricultural wages in Palakkad are lower than in most other regions of Kerala.

# Low Levels of Profitability

According to P. K. Sudhakaran, President of the Palakkad district All India Kisan Sabha, paddy cultivation in Kerala is seriously constrained by relatively low levels of profitability. Below, we shall discuss three major factors that affect profitability: costs of cultivation, yield levels and prices.

First, as already noted, labour costs are relatively high. At the same time, as farmers in Palakkad pointed out, the expenses involved in purchasing other agricultural inputs are an equally large burden. At the time of writing this report (the third week of June 2011) – a time when farmers have to apply fertilizers after transplanting of seeds – fertilizers were seen to be in short supply in some of the villages I visited. Typically, farmers hire machinery either from the panchayats or from private sources, since not all panchayats own costly machinery such as combine harvesters (one harvester costs between Rs 2.1 million and Rs 2.4 million). They pay Rs 1200 per hour as hire charges to the panchayat for a combine harvester, and Rs 1800–2000 per hour for hiring this machine from a private source.

Secondly, the productivity of rice cultivation in Kerala is still relatively low. In 2008–09, the yield of rice in Kerala (2,519 kg/hectare) was higher than the all-India average

(2,178 kg/hectare), but lower than the yield levels of Punjab (4,022 kg/hectare), Andhra Pradesh (3,246 kg/hectare) and Tamil Nadu (2,683 kg/hectare) (Government of India, 2010). A comparison with other countries shows that, according to the Food and Agriculture Organization (FAO) data for 2008, paddy yield in China was 6,556 kg/hectare and in Indonesia, 4,895 kg/hectare (1 hectare = 2.47 acres) (FAO, 2010). Clearly, therefore, there is much scope for improvement of productivity levels in paddy cultivation in Kerala and in the rest of India.

Given the high costs of cultivation and the modest yield levels, the price of paddy becomes an important determinant of profitability for the farmer. In Kerala, the minimum support price (MSP) for paddy announced by the State government, which was only Rs 700 per quintal in 2006 and was gradually increased in the subsequent years, rose to Rs 1400 per quintal in 2011. However, even Rs 1400 per quintal is not remunerative enough for a person who is primarily dependent on farming.

Velayudhan is a farmer in Kannadi village, Palakkad district, who cultivates paddy on a 10-acre plot. He gave me a detailed account of his costs of cultivation and the income gained from cultivation. According to his estimates, the cost of cultivating rice on a 1-acre plot (in one season) ranges between Rs 17,000 and Rs 18,000. He obtains 2,000 kg of paddy from one acre and, therefore, at an MSP of Rs 1400 per quintal, his net income is Rs 10,000. Paddy needs intense monitoring during the 120-day period of its cultivation, and, taking into account the time and labour spent by him and his family members (not included in the cost mentioned above), a net income of Rs 10,000 per acre per season is far from adequate.

Similar views were expressed by other farmers as well. Many of them also referred to the unpredictability involved in paddy cultivation. Raghunath, a farmer who cultivates 5 acres of paddy, said that the yields he obtained varied widely across years. Watching the approach of dark clouds, Sudhakaran, a farmer who cultivates paddy on 15 acres, regretted that he could not harvest his second crop the previous year because of heavy rain and said that he had lost Rs 1,50,000 on that account. The risks are certainly much bigger for farmers who operate smaller plots of land.

# Competition from Other Crops

Over the years, large tracts of paddy fields in Kerala have been converted into land for the cultivation of crops such as coconut, banana and rubber. The area under rice cultivation as a proportion of the gross cropped area in the State declined from 32.1 per cent in 1965–66 to 12 per cent in 2003–04. During the same period of nearly four decades, the area under coconut cultivation increased from 22.5 per cent to 35.1 per cent and that under rubber cultivation from 5.9 per cent to 18.4 per cent of the total cropped area. Banana, coffee, pepper, arecanut and cardamom are the other crops for which the area under cultivation has increased over the years (see Table 1). Field research conducted in 2004 indicated that the net income from cultivation of 1 acre of rice in Kerala was only Rs 2,400, whereas the net income from cultivation of 1 acre of banana was Rs 46,000 (Krishnadas 2009). The fact that it has to compete with other high-value crops is a constraint that limits the expansion of rice cultivation in Kerala (Kannan 2011).

## Land as a Speculative Asset

The conversion of paddy fields into residential and commercial plots has been going on at a rapid pace in Kerala since the 1980s. The high density of population, inflow of remittance incomes from migrant workers, and the fast growth of the services sector have created a high demand for land in the State. Land prices have gone up and land has become a speculative asset.

Even in a village like Kannadi, located 5 kilometres from Palakkad town, 0.01 acre of land sells for Rs 200,000. There is thus great pressure on farmers to sell their paddy fields and to use the money from the sale of land for a variety of needs, including children's education and marriages, purchasing a car and building a new house. Interestingly, some farmers said that the money they received from selling small pieces of their paddy fields is what helps them to remain in paddy cultivation. They use the money from such sale of land as security, and also to meet their additional expenses.

#### Recent Initiatives to Revive Paddy Cultivation

Over the last five years, the State and local governments in Kerala have initiated a number of programmes targeted to benefit the agricultural sector in general, and paddy cultivation in particular. In the first half of the 2000s, an unprecedentedly large number of farmers, including 37 paddy cultivators, committed suicide in Kerala. The major reason for this farmers' distress was the fall in the prices of agricultural commodities produced in the State, as a consequence of agricultural trade liberalization at the national level. To resolve the agrarian crisis, the Left Democratic Front government of Kerala, which took office in May 2006, inaugurated a three-pronged strategy for agriculture. The strategy aimed to provide urgent relief to farmers in debt, to stabilize agricultural prices, and to raise agricultural productivity and incomes (Government of Kerala, 2006, pp. 19-25).

Within the agricultural sector, the thrust of the new policies was on paddy cultivation. As noted in the 2007–08 State Budget speech, "the main programme envisaged in the agricultural sector is a package to increase paddy production" (Government of Kerala, 2007, pp. 10). These policies received a further boost when the Kerala government launched a Food Security Programme in 2008–09, with "utmost importance" attached to rice production. The State Budget for 2009–10 proposed a package covering all the stages of paddy cultivation, from seed production to paddy procurement. The

amount allotted for paddy cultivation was enhanced to Rs 500 crores, which was meant to support a range of activities including paddy procurement and soil-water conservation (Government of Kerala, 2009).

It should be noted that there were hardly any references to paddy cultivation in the texts of the Kerala State Budget speeches for the years 2002–03, 2003–04 and 2004–05. Therefore, going by State Budget proposals alone, it can be said that there was a clear improvement in the government's policies relating to rice cultivation from the mid-2000s. Some of the specific programmes initiated in Kerala to promote rice cultivation are discussed below.

# Policies on Prices and Procurement

Paddy needs to be procured from farmers at reasonably high prices if paddy cultivation has to be a profitable activity for them. K. N. Harilal points out that one of the significant interventions by the State government in favour of rice cultivation has been with respect to prices.<sup>1</sup> Minimum support prices announced by the government greatly influence the rate at which farmers are able to sell their crop. While the Central Government announces MSP for various crops, State governments can decide to procure a crop at a price higher than that announced by the Central Government.

The minimum support price for paddy in Kerala has been higher than the MSP announced by the Central Government. Starting with an MSP for paddy of only Rs 707 per quintal in 2005–06, the Kerala government has raised the MSP every subsequent year, with the increase being particularly large after 2009–10. In 2010–11, the MSP for paddy announced by the State government was Rs 1300 per quintal, which was substantially higher than the MSP for paddy announced by the Central Government, at Rs 1000 per quintal. In the State Budget presented in February 2011, the Kerala government further raised the MSP for paddy to Rs 1400 per quintal (see Table 2).

State government policies related to the procurement of paddy have been impressive too. In the first half of the 2000s primary cooperative societies had been procuring paddy from farmers in Kerala, but since these societies did not have adequate organizational or financial capabilities for procurement, they incurred losses. Given the absence of effective procurement by the government or its agencies, paddy farmers were at the mercy of private dealers, mainly a small group of modern ricemill owners in Ernakulam district. It was under these circumstances that the State government, in 2005, entrusted the Kerala State Civil Supplies Corporation Limited (popularly known as Supplyco) with the responsibility of procuring paddy from the farmers of Kerala, mainly in the major rice-producing regions.

<sup>&</sup>lt;sup>1</sup> Personal communication on June 3, 2011.

Year	MSP – Central government*	MSP – Kerala
2004-05	560	700
2005-06	570	707
2006-07	580 + 40 (bonus)	850
2007–08 I	645 + 100 (bonus)	900
2007–08 II	645 + 100 (bonus)	1000
2008-09	850 + 50 (bonus)	1100
2009-10	950 + 50 (bonus)	1200
2010–11 I	1000	1300
2010–11 II	1000	1400

**Table 2** Minimum support prices for paddy announced by the Government of India andGovernment of Kerala, 2004–05 to 2010–11 in rupees per quintal

*Note:* In 2007-08 and 2010-11, Kerala State Government raised MSP more than once during the course of the year.

Source: Information provided by Kerala State Civil Supplies Corporation Ltd., Kochi.

Farmers in Palakkad agreed that they have benefited greatly from the procurement of paddy by Supplyco. After every agricultural season, the farmer deposits the harvested crop with procuring agents (chiefly mills in the locality) recognized by Supplyco. Based on the receipt of paddy issued by the agents, Supplyco transfers money to the farmer's bank account. Public sector banks provide loans to farmers based on deposits made by Supplyco or its agents.

# Support from Local Institutions

Kerala has built a strong set of democratic institutions at the local level, and they have been a pillar of support for rice farmers in the State. During the late 1980s, the State government initiated a programme of group farming for paddy cultivation. *Padasekhara Samitis* – or collectives of paddy farmers – represent an institution that began as a part of this group farming effort. In Palakkad, farmers in rice-growing villages are organized in *Padasekhara Samitis*. In Kodumbu panchayat, for instance, where paddy is cultivated on 1,200 hectares of land, there are 19 such *Samitis*, and their leaders are democratically elected by the members. *Padasekhara Samitis* and Krishi Bhavans – institutions of agricultural assistance run by the State's Agriculture Department which work under the panchayats – play a central role in programmes to revive rice-growing in Kerala.

Krishi Bhavans distribute seeds and fertilizers to farmers at subsidized rates through *Padasekhara Samitis*. When I visited the Krishi Bhavan office in Kodumbu, it was crowded with *Padasekhara Samiti* leaders making enquiries about the availability of fertilizers. During the last two years, there has been a jump in the funds allotted to panchayats for paddy cultivation as part of the Food Security Programme. For example, a relatively small panchayat like Kodumbu has been allotted Rs 89,00,000 in 2011–12 under the programme, a good part of which will be utilized for purchasing

machinery and inputs for paddy cultivation in the village. C. Sathyabhama, the Agriculture Officer in Kodumbu, observed that *Padasekhara Samitis* help the Krishi Bhavan officials in ensuring that the benefits from government funding reached the farmers.

Krishi Bhavan officials noted that, over the last two years, there has been a major emphasis on mechanization of paddy cultivation in the villages of Palakkad. Panchayats are trying to purchase combined harvesters, paddy transplanters, weed cutters, bush cutters, rotavators, cultivators, insecticide sprayers and haybailing machines as part of the mechanization drive. At the time of my visit, Krishi Bhavan officials in Kodumbu were evaluating different models of weed cutters to be purchased for the panchayat.

The Krishi Bhavans have also been organizing training camps with a view to form *Thozhil Senas* (labour armies) in various panchayats across Kerala. This move is designed to address the acute shortage of workers who are trained in the use of agricultural machinery. Five to seven days of training are provided to persons who volunteer to join the *Thozhil Sena*. *Thozhil Sena* members are given free uniforms, identity cards, insurance protection, and a stipend of Rs 160–200 per day during the training period. After training, they form groups that provide agricultural labour services. In Palakkad alone, more than 70 panchayats have so far formed such *Thozhil Senas*.

The State government has also launched a scheme to bring fallow land under paddy cultivation in 70 to 80 selected panchayats that fall within the major rice-producing regions of Kerala. Krishi Bhavans coordinate this programme with assistance from *Thozhil Senas* in the village or from *Kudumbashree* units (self-help groups of women). Reports of the successful conversion of fallow lands into paddy fields have come in from different parts of Kerala. This programme can help to vastly expand the area under paddy cultivation in the State.

# *Rice-processing: The Experience of Paddyco*

While Palakkad and Alappuzha are the two major paddy-growing regions of Kerala, most of the modern rice mills in the State are concentrated in Ernakulam district, mainly in the Kalady–Perumbavoor area.<sup>2</sup> Large, private-sector rice mills in this area often act as a cartel, and are powerful enough to influence the price for paddy received by the farmer. As noted above, State government policies on prices and procurement have helped farmers receive steady prices. Similar interventions by the public or cooperative sectors in rice-processing can provide greater security to farmers' incomes.

<sup>&</sup>lt;sup>2</sup> Krishnadas (2009) reports that 80 out of 120 modern rice mills in Kerala are located in Ernakulam district.

It was in this context that farmers in Palakkad took up the initiative to set up a rice-procuring and processing unit in the cooperative sector. Paddyco, the farmer's cooperative in Elappully in Palakkad district, aims to ensure a steady stream of income to farmers, and to produce and distribute rice of good quality at reasonable prices. Paddyco is a cooperative society with 353 farmers as its shareholders. Although it was registered as a society in 1997, regular production operations could not start until 2004 because of a shortage of working capital. Paddyco had to take a loan to purchase machinery, and the interest charges on this loan continued to be a major financial burden for the cooperative. However, as part of the 2008–09 Budget proposals of the State government, Paddyco was given fresh financial assistance amounting to Rs 20 million, and this has helped the cooperative to recover. It currently has the capacity to process 70 tonnes of rice in a day, and it aims to expand its procurement and processing operations.

In addition to the programmes discussed above, the State government has started giving a monthly pension of Rs 300 to paddy farmers who are aged 60 years and above. There are also schemes to provide insurance to small farmers and insurance cover against crop failure.

### The Way Forward

There have been commendable initiatives in Kerala over the last five years to expand paddy production. But, given the huge challenges facing rice cultivation in the State, it is still too early to say whether these initiatives will be able to meet all their objectives. Certain key areas that require attention from policy makers are discussed below.

Most importantly, the enormous possibilities with respect to use of technology in paddy cultivation in Kerala should be fully explored. Mechanization of agricultural operations is still at an infant stage in the State. Availability of agricultural machinery at affordable prices to farmers and availability of personnel who are sufficiently trained in the use of such machinery are two major hurdles. Most agricultural machines now available in Kerala are imported, and farmers complain that these machines do not always suit the soil conditions in the State. Farmers prefer seeds produced in Kerala (especially seeds available from Kerala State Seed Development Authority) to seeds produced elsewhere, as local seeds, they believe, suit local conditions and ensure higher yields. However, seed varieties of high quality are in short supply in Kerala.

There is much that the State and Central governments can do to rectify these shortcomings. Local manufacture of agricultural machinery needs to be encouraged. Kerala produces several indigenous varieties of rice, including scented rice varieties such as *jeerakasala* and *gandhakasala*, and the medicinally important *njavara* variety. New efforts in agricultural and biotechnological research can help in the production of high-quality seeds for the Kerala farmer.

Experts on Kerala agriculture have stressed the need for better irrigation and water management systems in the State. The agricultural extension network in Kerala needs to be strengthened. The Mahatma Gandhi National Rural Employment Guarantee Scheme can be better utilized for resolving the labour shortage in agriculture. Rice cultivation can be effectively combined with other occupations such as fish culture and livestock-rearing (Kannan 2011). There are also vast possibilities in Kerala for rice cultivation and the tourism sector enriching each other (as is the case in many Southeast Asian countries).

Lastly, farmers in Palakkad want to see a positive change in the general attitude towards rice cultivation. They believe that workers engaged in paddy cultivation should be well-trained people who take pride in their jobs, and who are ensured better wages and living conditions. Old farmers fondly remember how, as young children, they took delight in the sights, sounds and smells of the red, ploughed paddy field ready for cultivation; of the silvery fish slipping out of the field into nearby canals; and of the croaking of frogs through the night. These farmers would like paddy cultivation to thrive for years to come, for they want future generations too to experience these pleasures.

Keywords: cultivation, Minimum Support Prices, local institutions, Palakkad, Kerala.

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