

# An Invisible Disaster

## Endosulfan Tragedy of Kerala

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The rationality of science and economics, and the politics of development often silence the struggles of individuals and communities exposed to the risks of indiscriminate use of pesticides. This article highlights the aftermath of aerially spraying endosulfan, a toxic pesticide, in Kasaragod District of Kerala. It analyses the economic and political forces that have come together to push aside the struggles of affected individuals and communities whose experiences contradict the science-dominant public discourse in the state. Though endosulfan has been banned, those suffering from serious disabilities due to its use are still to receive adequate help.

### 1 Introduction

The Plantation Corporation of Kerala (PCK) began spraying endosulfan, a highly toxic organochlorine pesticide, aerially on its cashew plantations extending over 45,000 hectares in Kasaragod District in Kerala in 1978. In 1981, Sreepadre, a freelance environmental journalist, first brought out the consequences of using endosulfan on a large scale by reporting on various disabilities among domestic animals. He went on to report of many instances where the pesticide also seemed to have had a negative effect on the people in Padre village in Enmakaje panchayat of Kasaragod District. This attracted public attention. Disabilities among adults and children with multiple deformities in some villages of the district were higher than the national average.<sup>1</sup> Public resistance to the spraying of endosulfan began in 1985, initially in some villages. The everyday experiences of the people in the district eventually convinced them that demanding a ban on the use of endosulfan was the only way out. In 1998, the Government of Kerala temporarily put aerial spraying on hold, and a permanent ban on it came following a lower court verdict in 2001.

There is still no agreement on the after-effects of spraying endosulfan in Kasaragod District for more than 20 years. Even after 34 years, those who have suffered from many if its injurious effects have not been recognised as victims of a pesticide disaster. Both the state and central governments have not accepted them as endosulfan victims, and there have been many attempts to assert that endosulfan is a “safe chemical.” In 2009, the Stockholm Convention’s Persistent Organic Pollutants Review Committee agreed endosulfan was a persistent pollutant, and its Conference of Parties in April 2011 initiated steps that would

result in a global ban. The Indian representative opposed the recommendation, and the central government allowed the use of endosulfan for 10 years more. The Indian representative argued that there was no scientific evidence to prove endosulfan had inimical effects. This neglected field-based observations, studies, and reports indicating the adverse effects of endosulfan, the experiences of the affected communities, and the unique health issues encountered in 11 panchayats of Kasaragod District.

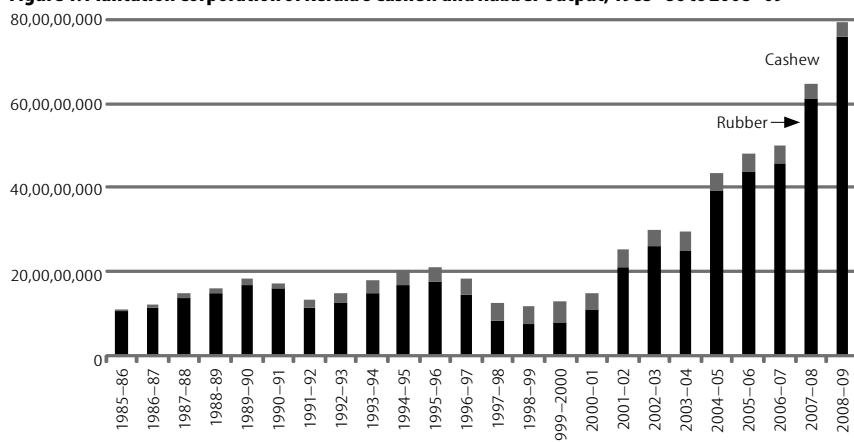
Using the theoretical framework of corrosive communities, this paper attempts to understand the process by which unfounded rationality dominates the public imagination, and unravels the social, political, and economic factors that have led to the marginalisation of the communities exposed to endosulfan in Kasaragod District. It goes into the economic and political ideologies that favour the use of endosulfan, and the interests of mainstream society against those of the victims of the disaster. The article also highlights the marginalisation and neglect of communities, especially the process of delegitimising victims and violating their human rights to dignity and assistance.

The C D Mayee Committee report of 2004, which came out after 15 or more committees of medical doctors and other experts had examined the issue, categorically rejected the demand for banning endosulfan and denied it was the cause of diseases, contrary to what the people felt. This report is still “functioning” in that it guides government policies. For instance, the pro-endosulfan position of the Ministry of Agriculture is based on this report. The committee’s conclusions were based on the common threads in all the studies conducted in Kasaragod since 1989. Barring a National Institute of Occupational Health (NIOH) Report (2002), all the other reports had raised doubts on whether endosulfan was culpable, but they recommended a detailed epidemiological survey, which has not yet been initiated.

The first report on the adverse effects of endosulfan came out in 1987, formal field studies were initiated from 1994 onwards, and the latest study by the Indian

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**Figure 1: Plantation Corporation of Kerala's Cashew and Rubber Output, 1985–86 to 2008–09**

Source: Annual account statements.

Council of Medical Research (ICMR) has not been completed. Critics of governments in Kerala since the 1990s have pointed to field-based information that shows endosulfan has had negative effects. Several reports by government institutions and committees (the NIOH and the Indian Medical Association among them) have specifically mentioned the negative externalities of endosulfan. However, these findings have not guided action. Objections have been raised about the method of assessment, and the methodological rigour of many studies. The C D Mayee Committee Report itself is based on selected previous work, which too has methodological limitations. Its declaration that there is no direct evidence to prove a link between endosulfan and health issues in Kasaragod District is only indicative of our limited understanding — it does not negate the evidence on the negative consequences of using the pesticide.

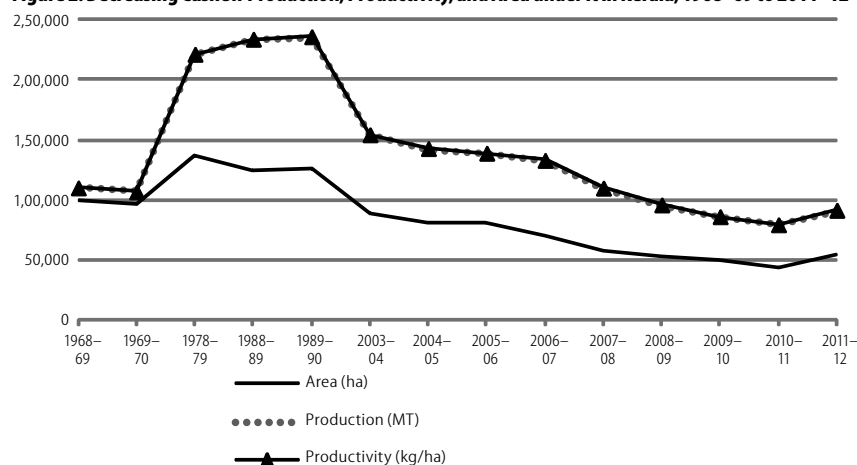
## 2 Economic Debates

This section highlights the arguments put forward in favour of using endosulfan in general and in Kerala in particular. Endosulfan is portrayed as a safe and cheap pesticide, best suited for cashew plantations. The ban on endosulfan is objected to on the grounds that pesticides, that are more expensive and harmful to the farm ecosystem will take its place, and eventually result in more damage. However, it is evident from the experiences of farm workers and communities exposed to endosulfan that endosulfan itself is not safe.

A review of the annual accounts of the PCK from 1985 to 2009 shows that cashew cultivation has not been profitable to it (Figure 1), and that cashew production came down considerably during this period compared to rubber. Thus, the data on cashew production itself questions the rationale of using endosulfan. This raises a significant question. Was killing tea mosquitoes the only reason for using endosulfan? Probably not, as indicated by the data on the PCK's expenditure on

declined, highlighting its extensive and continued use in other parts of the country and the world in the name of enhancing productivity.

The Pesticides Manufacturers and Formulators Association of India (PMFAI) claims that endosulfan, invented in Germany 55 years ago, is the third largest selling insecticide globally, accounting for 40 million litres valued at Rs 30 crore (\$300 million). Indian companies (both public and private) account for 70% of the market and a ban would replace it with multinational pesticides. Thus, risking a few lives benefits the masses (globally, by providing a cheap pesticide), according to this logic. But a detailed reconsideration of the risks involved in producing and consuming the cheapest pesticide; its costs versus its benefits; and the financial benefits reaped by stakeholders is warranted. This has not been undertaken. The argument that foreign pesticides will replace endosulfan is speculation, and it is unlikely when one considers that the risks of pesticide manufacturing are now outsourced to underdeveloped or developing countries.

**Figure 2: Decreasing Cashew Production, Productivity, and Area under It in Kerala, 1968–69 to 2011–12**

Source: Economic Review, 2010, State Planning Board, Government of Kerala.

procuring endosulfan from private companies other than the public sector Hindustan Insecticides Ltd (HIL). The average cost of one litre of endosulfan varies from Rs 70 to Rs 145 and a considerable quantity was purchased from private companies, indicating that the PCK has been actively aiding the endosulfan industry rather than the pesticide aiding cashew production. In spite of the ban since 2001 in Kerala, HIL's production of endosulfan has not

The other argument that favours endosulfan use is that it increases the productivity of small and marginal farmers. However, in Kasaragod, endosulfan was aerially sprayed on large government-owned plantations and the result was a significant decline in cashew production compared to rubber. In spite of various efforts to promote cashew production, including the use of endosulfan, its output in Kerala has declined in the past decades (Figure 2)

and cashew factories continue to depend on imported raw cashew.

### 3 Political Debates and Ideologies

This section highlights the marginalisation of those affected by endosulfan from mainstream politics in Kerala. Two key trends are evident in the state. One, political parties have, under pressure, expressed sympathy for the affected individuals, but have remained largely critical or silent on what has to be done to address the root cause — banning endosulfan and other toxic pesticides. Two, all efforts to meaningfully reach out to the victims have been distorted for political gain, thus further marginalising them.

Agriculture ministers in both Left Democratic Front (LDF) and United Democratic Front (UDF) governments have been critical of the anti-endosulfan movement, as it goes against the pro-science development model of the state. Efforts to raise the issue have been labelled petty opposition politics or vote-bank politics. For example, an effort by the Democratic Youth Federation of India (DYFI), the youth wing of the Communist Party of India (Marxist) (CPI-M), to file a case in

the Supreme Court in 2011 was dubbed an attempt by left parties to politicise the issue by the then Opposition leader and current Chief Minister Oommen Chandy (*Malayala Manorama*, 27 April 2011). Though political party units at the local level could not ignore ground realities, they initially distanced themselves from demands for a ban on endosulfan. Efforts to question either ruling front on endosulfan are distorted by arguments on what the other side failed to do during its time in power, and any attempt to reach out to the affected communities is portrayed as vote-bank politics. With the media full of these petty political squabbles, the public's attention has been distracted from the real struggles of victims.

A land redistribution plan of LDF Forest Minister Binoy Viswam of the Communist Party of India (CPI) in the previous state government and a compensation package prepared by the PCK under its chair, a CPI nominee, were heavily criticised by both the CPI-M and the Centre of Indian Trade Unions (CITU). Viswam announced that the forestland leased out to the PCK's Rajapuram estate would be distributed to endosulfan victims, and issued an order

asking the principal forest secretary to notify this and prepare a plan to hand over 269.43 hectares when the 35-year lease ended in August 2012 (*Malayala Manorama*, 4 May 2011). However, the PCK decided to renew the lease agreement with the forest department. The CITU, which wanted to retain the loyalty of PCK workers, pushed for renewing the lease agreement, citing its commitment to protecting workers' rights. A pro-worker stand but a detachment from the anti-endosulfan movement has been the position of not just the CITU but all trade unions and political parties in the state (*Malayala Manorama*, 10 May 2011). The CITU-led Plantation Corporation Protection Council also complained about the compensation package of Rs 5 crore announced by the PCK, saying it violated the election code of conduct. It went on to accuse the government of deliberately trying to pin all responsibility for spraying endosulfan on the PCK.

The anti-endosulfan movement in Kerala has from 1982 questioned the position of political parties on the use of pesticides and fertilisers. None of the state's political parties have supported any

**Table 1: Various Efforts to Enumerate Endosulfan Victims and Support Offered by Panchayats in Kasaragod District**

Serial Number	Name of Panchayat	Measures Taken by Panchayats to Identify Victims from 2000–01 to 2010	Number of Patients and Their Present Condition	Criteria Used to Identify Patients	Welfare Measures Taken by Panchayat for Endosulfan Victims	Money Spent on Victims from 2000–01 to 2010	Have You Identified Any Scheduled Caste/Scheduled Tribe Victims
1	Kallar	Survey conducted with the help of the social welfare department	456; no idea of present condition	Welfare department's criteria	Arranging vehicles to transport patients from home to hospitals and medical camps	No special allocation	No separate data collected
2	Panathady	None	Nil	Nil	Nil	Nil	Nil
3	Kumbadje	None	Nil	Nil	Nil	Nil	Nil
4	Badiadka	Survey conducted with the help of the social welfare department	327; distributing free medicines	Welfare department's criteria	Disability pension	Rs 26,30,819 sanctioned; Rs 25,68,495 spent	SC 35; ST 4
5	Kayyur-Chemeny	Survey conducted with the help of the health department	31 (bedridden), 192 (partially bedridden), 128 (other problems)	Health department's criteria	Nil	Rs 100,000 for treatment	Not available
6	Enmakaje	Survey conducted with the help of the health department	376	Health department's criteria	Under the Kerala government's package, Rs 2,000 has been distributed to 275 patients, Rs 1,000 to 101 patients, Rs 300 for bystanders of seriously affected victims and one girl was shifted to a specialist hospital in Thiruvananthapuram	Nil	Nil
7	Muliyar	Survey conducted with the help of the health department	Nil	Nil	Nil	Nil	Nil
8	Belloor	Nil	Nil	Nil	Nil	Nil	Nil
9	Ajanur	Nil	Nil	Nil	Nil	Nil	Nil

Source: RTI No 6693/2011; RTI Ref No- A-1692/11-12; RTI Ref No- A 2179/2011; RTI Ref No- 133-4416/11; RTI Ref No-1381/11; RTI Ref No-A1-3290/11; RTI Ref No- A2-1131/2011; RTI Ref No-A3-2685/11; RTI Ref No-A 1920/2011.

movement against endosulfan because their trade unions see PCK workers as a valuable constituency. The anti-endosulfan movement articulates the problems of the victims in Kasaragod District. Though local political leaders have begun supporting the movement, for the mainstream parties, speaking out against endosulfan goes against the mainstream development model. The victims have no such ideological imperative and their plight is in opposition to the stance of the mainstream political parties.

The socio-demographic profile of the affected communities also helps in explaining their neglect. Compared to other districts in Kerala, northernmost Kasaragod lags behind in terms of economic and social development. The people have little bargaining capacity compared to the politically and economically mobilised communities elsewhere in the state. The endosulfan victims, landless tribals, migrants, and deprived Dalits do not pose any real threat to the state. Hence, neglect has been accepted as a given condition, legitimising the lack of government attention.

The main demands of the anti-endosulfan movement were banning the use of endosulfan and providing the affected people with proper compensation. It has partially succeeded in that there is a statewide ban on endosulfan, but other harmful pesticides continue to be used. The movement has also been successful in eliciting a few declarations of assistance, but it has come nowhere close to ensuring proper compensation for the victims and providing them with assistance, especially for the disabled.

#### 4 Politics of Numbers

This section highlights the plight of survivors in the resource-poor context of Kasaragod District. Two key issues are that the number of victims has to be reliably ascertained, and they have to be provided with adequate support.

The enumeration of endosulfan victims has been fraught with problems. Though endosulfan was banned in the state in 2001, except for some random surveys conducted in tandem with medical camps, there was no comprehensive government initiative for identifying

victims in the district until 2010. Table 1 (p 63) shows the random initiatives undertaken by some of the affected panchayats to enumerate victims, and the government's figures have always not agreed with those of the local communities. In the absence of justice, assistance that is most needed has been delayed, while that which is available is highly inadequate. Regional remoteness and its associated disadvantages also make it difficult for the victims to access the few services that are available.

In a November 2010 health department survey, which has been the most comprehensive till now, 2,836 victims were identified in 11 panchayats. However, local communities claim that there are 9,500 victims in the district and that there were issues with the criteria used by the survey.

#### 5 Assistance Victims Receive

This section reviews the various initiatives taken by different actors towards supporting endosulfan victims, and the challenges they face. Despite numerous recommendations cautioning against the use of endosulfan and advocating a just response to the victims, the state government has been lukewarm in its approach. Rather it has been careful about not legitimising the status of the victims. For example, the National Human Rights Commission recommended a ban on endosulfan and distributing PCK land to the victims, which the State Human Rights Commission also repeated, but the government opted to do nothing.

The state government assistance now in place includes the following —

(i) Rs 2,000 per month for those who are unable to work and require lifelong treatment (those receiving Rs 300 as disabled pension get Rs 1,700); (ii) Rs 1,000 per month for those with other illnesses; (iii) vehicle to transport patients from home to health centre; and (iv) the temporary services of 184 health workers in primary health centres. However, the criteria for selecting beneficiaries have been questioned both by experts and community leaders, and the extent of coverage is limited. How these welfare measures will be sustained is a question yet to be answered. The PCK announced Rs 27 crore as relief to endosulfan victims, but instead of initiating a comprehensive compensation package, it handed over a cheque for the Chief Minister's Relief Fund. This was to avoid legitimising the ill effects of endosulfan, and admitting to the PCK's role in all this. The Rs 27 crore is for the following five programmes, to be implemented through panchayats — free health care; free rations; scholarships for children; housing schemes; and pensions.

Special financial support of Rs 1,50,000 has been distributed to bedridden victims but it is much less than the Rs 5,00,000 the State Human Rights Commission recommended. The coverage and implementation of all the above programmes has to be examined to assess their effectiveness. So far more than Rs 24 crore has been expended, and not much money is left for other schemes. The National Bank for Agriculture and Rural Development (NABARD) has offered a Rs 200 crore package to 10 panchayats for the Integrated Child Development Services (ICDS) programme; infrastructure of

**Table 2: Endosulfan Victims in Panchayats of Kasaragod District**

Name of the Panchayat	Mental Retardation	Cerebral Palsy	Locomotor Disabilities	Multiple Disabilities	Other Congenital Anomalies	Mental Illness	Cancer	Infertility	Deaf and Dumb	Vision Problem	Skin Disorders	Others	Total
Badiadka	59	4	30	4	0	2	3	0	14	15	1	13	145
Bellur	24	4	36	16	9	15	2	2	7	25	7	13	160
Muliyar	42	6	23	7	5	17	1	19	11	9	11	15	166
Karaduka	76	4	37	18	8	21	5	8	37	14	17	29	274
Kallar	88	4	32	4	31	18	13	19	34	21	36	102	402
Ajanur	74	3	15	6	17	15	2	10	14	10	23	59	248
Kumbadeja	54	1	25	22	9	7	1	27	9	14	6	26	201
Kayyur—													
Chemeny	33	7	18	65	58	29	10	12	28	25	26	100	411
Panathady	113	0	36	11	30	4	8	30	35	15	17	52	351
Enmakaje	56	23	61	35	12	10	1	6	28	11	9	7	259
Pullur-Periya	49	6	51	26	14	15	1	4	13	18	9	13	219
Total	668	62	364	214	193	153	47	137	230	177	162	429	2,836

Source: Health Department Survey, November 2010.

schools; and improving roads and water supply.

These recommendations and allocations have created a public impression that endosulfan victims have been well taken care of. However, a close look at the programmes reveals several gaps that need to be plugged, even if one sets aside the rights to assistance, compensation, and justice.

Table 2 (p 64) shows that a large number of the victims are persons with disabilities. The special needs of these persons, including education and social rehabilitation, have been neglected. Alternative daycare facilities for bedridden victims to enhance their quality of life and reduce the burden of caregivers; the livelihood issues of victims and caregivers; and transportation facilities to enhance access to daycare and occupational rehabilitation facilities remain distant dreams. Even assessing and certifying disability has not been done across all the affected communities.

The healthcare infrastructure in Kasaragod District is inadequate even in normal circumstances, according to senior officials. Improving it is essential, but endosulfan victims are unlikely to benefit because of accessibility issues and the lack of capacity of the system to address the needs of people with disabilities. A rehabilitation centre could, to some extent, address the health needs of disabled people, but this does not exist even at the district headquarters. For specialised health services, cards were issued by the state government to victims so that they could avail themselves of treatment from the district hospital in Kanhangad (in the district), the general hospital in Thalassery (neighbouring district), the general hospital, Kannur (neighbouring district), the Malabar Cancer Centre, and the Regional Cancer Centre. Only 63 victims have so far used their cards, and 50 of them sought medical care from the closest hospital, the district hospital in Kanhangad.<sup>2</sup>

## 6 Discussion

Endosulfan victims in Kasaragod District have gone through multiple crises. They are the victims of an industrial policy and social and economic marginalisation. Almost all studies mention the

externalities of endosulfan, but the state, political parties, and the general public, to some extent, still believe in tackling the problem on a case-by-case basis. Many academics and journalists have compared the higher prevalence of neurobehavioural disorders, congenital malformations in female subjects, and abnormalities related to the male reproductive system with those in other states that use endosulfan to defend the PCK. This view still dominates the public discourse on endosulfan. Even if the ill health seen in Kasaragod District is not due to endosulfan, it is imperative to study why disabilities and other diseases are high there. And basic, special services have to be put in place. Since the endosulfan saga has not been declared a chemical disaster, no government agency is under any pressure to support the victims. Even the general disaster management framework does not apply here. The money allocated under various heads for mitigation is insignificant. The state and the pesticide industry would have been responsible if the crisis had been declared a disaster, but in the absence of that, the rehabilitation of victims becomes an act of charity.

The bulk of endosulfan was purchased from HIL, a public sector company, and there were not much leakage of public money to private companies. However, this has legitimised the political economy of the pesticide industry. During 20 years of spraying endosulfan, there were no interim reviews of the hazardous effects of it by either the PCK or the government. As a public sector corporation, it was the responsibility of the PCK to listen to the local community. The PCK did not conduct any such meetings. The violation of basic precautionary measures recommended in the Insecticides Act, 1968 did not hamper the business of the PCK, HIL, or the private companies. The state's endorsement of endosulfan is in itself a significant impediment to considering the legal right to compensation.

The Rs 27-crore compensation was paid to the Chief Minister's Relief Fund so that the PCK could avoid all responsibilities and obligations. This was similar to the PCK funding a corporate social responsibility activity. Thus, the anti-endosulfan

movement in Kerala has been unsuccessful in fixing responsibility for the adverse effects seen in Kasaragod District.

The support systems that exist are not targeted at individual needs, especially persons with disabilities. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 specifically states the rights of the disabled, but the state government and the district medical office have not taken any steps to assess the disabilities of the victims. Many of them do not even have disability certificates.

General rehabilitation and ex-gratia payments are not enough for the victims to overcome the corrosive effects of exposure to endosulfan. Medical surveys show that there are many children with serious health issues, but no proper attention has been paid to this. Some panchayats have recently started a bed-school system for bedridden victims with the help of local communities, but they struggle to sustain them. So the crisis continues, as does the neglect.

## NOTES

- 1 Karaduka panchayat is one of the worst affected. The total population is 18,067 and endosulfan-affected people are 474, including 200 who were not included in the health department survey. The percentage of endosulfan survivors is 2.69%.
- 2 RTI No D/2463/11, No A6-4496/2011, No B2/242/11, No 1120/AO/05/MCC/1174, No R1. AOCS/RCC/11/2011

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