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**PEOPLE'S PARTICIPATION  
IN ENVIRONMENTAL  
PROTECTION:  
A CASE STUDY OF  
PATANCHERU**

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# PEOPLE'S PARTICIPATION IN ENVIRONMENTAL PROTECTION: A CASE STUDY OF PATANCHERU

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## ***Abstract***

*This paper examines the role of local communities in environmental protection against industrial pollution using Patancheru Mandal in Andhra Pradesh as a model. An attempt is made in this study to identify the factors contributing to the evolution of the environmental movement and the strategies adopted by the local communities in order to draw the attention of government institutions to protect the environment. The paper concludes with a summary of the main observations on the effectiveness and outcome of the movement. The discussion in the paper draws on data from a case study of Patancheru industrial area in the Medak district of Andhra Pradesh carried out during 2002-2003.*

## **Introduction**

During the past several decades, there has been an increasing concern over environmental problems throughout the world involving depletion of ozone layer, acid rain, green house effect, soil erosion, deforestation, water pollution, air pollution, etc. The severity of these problems is in large part related to each nation's quest for development, technological advancement, industrialisation and urbanisation which causes unprecedented demands on the regenerative capacity of ecosystems and jeopardizes conservation of the environment. In addition, the introduction of resource and energy intensive production technologies under such conditions leads to economic growth for a small minority of the population while undermining the material base for the survival of the large majority (Bandyopadhyay and Shiva, 1988). It should be noted that in respect of resource utilization the recent period in human history is in sharp contrast with all the earlier periods. Ever expanding and intensifying industrial and agricultural production generated additional demands, which caused

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depletion of resources and denied the citizens their fundamental right over natural resources. It is against this background that the concern for environmental protection has emerged questioning the validity of the dominant concepts and indicators of economic development (Sinha, 1998).

Ever since the Silent Valley environmental protection movement, India has been witnessing a growth in the number of environmental protection movements such as Chipko Movement in Uttar Pradesh, Aapiko Movement in Karnataka, Narmada Bachano Andolan in Central India, Gandhamardhan Movement in Orissa etc. A close look at the evolution of these movements suggests; i) there is a link between the livelihoods of the people and their participation in the movement ii) the participation of local people plays a major role in the success of the movement (See, Guha, 1991; Wagle; 1997; Reddy; 1998; Swain; 2001). Among these movements, a few of them were able to get the support of outsiders like NGOs, social activists, national media and sometimes-international networks to expose the impact of environmental pollution and degradation. There are other environmental movements fighting for this cause sustained by the constant support and sacrifice of local people in the absence of national leaders and large media coverage. The first category of movements can be referred as macro-level environmental movements and the second category can be viewed as micro-level movements. The distinction between the two movements lies in their objectives, e.g., macro-level movements aim to influence the policy whereas the micro level movements focus on result oriented sustainable development practices (Reddy, 1998). The Patancheru environmental protection movement against industrial pollution falls in the second category, which, in the absence of like national leaders, large media coverage, and outside NGOs, has been able to achieve most of its goals in its last two decades of struggle.

### **Scheme of the Paper**

The paper is structured into four sections. In the first section, the paper briefly focuses on the emergence of environmental movements in India

and its reasons. Methodological issues in the study are discussed in the second section. In the section, a framework for analysis of struggles of local and rural communities against environmental problems is proposed and discussed in detail. The third section provides the case study of people's participation in the environmental protection of Patancheru industrial area. For doing this, the study focuses on the objectives and strategies of the local communities in drawing the attention of governmental institutions for protection of the environment in Patancheru. Finally, the paper presents a summary of the main observations and outcomes of the environmental movement.

### **Environmental Movements in India: A Historical Perspective**

In recent years, there has been an explosion of popular and governmental interest in environmental problems. The world is widely seen to be in the throes of an environmental crisis. As a result, environmental matters have become a critical issue of the political agenda in almost every country. While the degree of popular interest in global environmental degradation may be something novel, the history of environmental concern and conservation is certainly not new. On the contrary, the origins and early history of contemporary Indian environmental concern and concomitant attempts at conservationist intervention lie far back in time. The genesis of concern for environmental protection in India can be traced back to the early twentieth century when people protested against the commercialisation of forest resources during the British colonial period; it was only in the 1970s a coherent and relatively organized awareness of the ecological impact of state-monolithic development process started to develop, to grow into a fully fledged understanding of the limited nature of natural resources and to prevent the depletion of natural resources (Shiva, 1991).

This concern for environmental issues was a product of the very specific and ecological destructive conditions of the commercial expansion of the Colonial powers like, Dutch, East Indian Company and

French East Indian Company. The industrialization of the world had changed the natural world through new methods of resource extraction, production and transportation. The scale and intensity of exploiting natural resources increased manifold. The industrialization of Europe also led to major changes in the rural economy. The increasing process of industrialisation needed materials to process and consume, and the demands for them led to a transformation of agriculture through adoption of more capital-intensive and market-oriented methods of production. Further, the process of industrialization in European countries also had its impact on the natural environments of Asia, Africa and North America, since the needs of the industrialised countries were met with the exploitation of natural resources and commercialization of forest resources in all these continents.

In response to these exploitative policies by the Colonial powers, local people protested against the monolithic theories of ecological imperialism in the colonial countries. Even though in few colonial countries the local people succeeded in bringing laws to protect the environment, the purpose of the law was designed to serve only the interest of the colonial power. Colonial states increasingly found conservationism to their taste and economic advantage, particularly in ensuring sustainable supply of timber and in using the structures of forest protection to the benefit of industrialization back at home. However, the protest made by the local people against the commercialization of forest against the colonial power and the emergence of intellectual concern for environmental protection in western countries against industrialisation laid the foundation and its influence in western countries for future environmentalism.

In this way, environmental problems were certainly not unknown in the past, but possibly for the first time in human history, there was now the perception of an environmental crisis. This was the perception seized upon by the first wave of environmentalism<sup>2</sup> (Guha, 1991) which

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<sup>2</sup> Environmentalism as an ideology is built on the premise that human life can only be understood in the context of natural world.

raised the question whether the great increases in wealth and prosperity brought about by modern industrialization was in fact sustainable. Notably, while the industrial city was the prime generator of ecological degradation, much of the burden of this degradation was felt in the colonial countries. After getting independence many of the Asian, African and Latin America countries fell as prey to the same developmental philosophy, which resulted in the indiscriminate use of natural resources. The recent ecological degradation and economic deprivation generated by the resource intensive classical model of development have resulted in environmental conflicts across the world (Sinha, 1998). Its ramifications can be noticed in the increasing environmental movements and concern all over the world in general and India in particular<sup>3</sup>. These environmental movements can be seen as slowly progressing toward defining a model of development to replace the current resource intensive one that has created severe ecological instability and exposing the socio-ecological effects of narrowly conceived development based on short-term criteria of exploitation. The movements are revealing how the resource-intensive methods of development have ecological destruction and economic deprivation built into them (Pal, 1999).

As in other parts of the world, a number of environmental movements have emerged in India demanding restoration of balance between development and environment and asking for a greater role for the state agencies in the protection of the environment. The history of environmental movements in India goes back to colonial period. A major change in the utilization of natural resources of India was introduced by the British, who linked the resources of this country with the direct and large non-local demands of Western Europe. Natural resource utilization by the East India Company, and later by the colonial rulers, replaced the indigenous organizations for the utilization of natural resources, like water, forest and minerals that were mainly managed as and controlled by local

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<sup>3</sup> See also, Guha (1991).

communities. With the establishment of British colonial rule in India, the ever-increasing resource demands of the industrial revolution in England were largely met with materials from colonies like India. Changes in resource endowments and entitlements introduced by the British came into conflict with the local people's age old rights and practices related to natural resource utilization. As a result local responses were generated through which people tried to regain and retain control over local natural resources<sup>4</sup>. The Indigo Movement in Eastern India and the Deccan Movement for land rights or the forest movement in all forest areas of the country, the Western Ghats, the Central Indian Hills or the Himalayas, were obvious expressions of protest generated by these newly created conflicts for natural resources (Omvedt, 1984).

Although the genesis of concern for environmental protection in India can be traced back to the early twentieth century when people protested against the commercialisation of forest resources during the British colonial period, it was only in the 1970s that it received public attention (Shiva, 1991). Similarly, Ramachandra Guha in his book "*Environmentalism: A Global History*" talks of various waves of environmentalism, 'an early period of pioneering and prophecy, culminating in recent decades in a widespread social movement. He speaks of a first wave of environmentalism, the initial response to the onset of industrialization, and a second wave, when a largely intellectual response was given shape and force by a groundswell of public support.' He also points out that while environmental problems were not unknown in the past, the perception of a crisis is definitely more recent. The emergence

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<sup>4</sup> During the British rule in India, there were a number of environmental movements including Indigo movement in eastern India and the Deccan movement for land rights in the south. However, protest movements to preserve land and forest rights were usually regarded as a part of the grand anti-national movement, so the environmental message was to some extent subsumed by the broader national purpose. See, also Swain (1997)

of the idea environmentalism in India in the early 1970s was inevitably influenced by Western concerns.

However, the outlooks of the developed and developing countries like India towards environmentalism differed. While environmentalists in the West had fixed their sights on the objective of upholding and promoting the quality of life, the government and the vast majorities of people in the developing countries preferred the subsistence of the masses of poor people to the promotion of the quality of life of a few (Guha, 1991). In the west, environmental movements focus on consumption, productive use of natural resources and conservation or protection of natural resources. In India, the movements are based on use and alternative use of, as well as control over natural resources.

Based on these principles, environmental movements in India grew in the 1970s and 1980s building upon the work of thousands of civil society groups and individuals spread across the country. These groups responded to the weaknesses of democratic governance processes in the country. In the subsequent years, environmental movements have received considerable support both from the media and the judiciary. Its relationship with the political and bureaucratic systems, on the other hand, remains weak and often antagonistic. But given the availability of 'democratic space' within the country, the environmental movement has grown rapidly over the last three to four decades. It has played a key role in three areas: *(i)* in creating public awareness about the importance of bringing about a balance between environment and development; *(ii)* in opposing development projects that are inimical to social and environmental concerns; and *(iii)* in organising model projects that show the way forward towards non-bureaucratic and participatory, community-based natural resource management systems.

India has witnessed a wide range of environmental movements such as Silent Valley Movement in Kerala, Chipko Movement in Uttar Pradesh, Apiko Movement in Karnataka, Narmada Bachano Andolan in

Central India, Gandhamardhan Movement in Orissa etc<sup>5</sup>, which aim at halting environmental degradation or bringing about environmental restoration or regeneration or sustainable use of natural resources. The present study focuses on environmental movements against industrial pollution in Patancheru.

### **Methodological Issues**

The environmental pollution is reported to be high in Andhra Pradesh. With the recent spurt in industrialization and ever increasing investments, the impact on environment remains to be an area of concern. What follows is a brief description of environmental situation in the state of Andhra Pradesh where the field chosen for case study is located. The study was undertaken in Patancheru Mandal, one of the most industrial polluted areas of India, adjacent to Hyderabad. It is situated in the Medak District of Andhra Pradesh. The data for the study are drawn from fourteen villages which are: Patancheru, Ganapatigudem, Aratla, pocharam, Lakadarm, Gandigudem, Byathdole, Chiduruppa, Ismailkhanpet, Inole, Bacchugudem, Isnapur, Pasamahilaram and Kistareddypet. The rationale behind the selection of these villages was that these villages were mostly affected by the discharge of industrial effluents and also affected socio-economically because of industrial pollution. The quantitative data for the study were collected from the Judicial Academy of Andhra Pradesh, APPCB, BDO, Revenue Office, District Collector Office and District Medical Office through personal visits spread over a period of six months. Government documents, reports, judiciary judgments were examined. In addition, the views of the social activists, APPCB Chairman, Patancheru Zonal Office Chairman, Environmental Engineer of APPCB and other pollution control board functionaries were also gathered through interviews to supplement the documentary data. The analysis is by and large descriptive and interpretive.

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<sup>5</sup> Environmental movements in Western Countries have emerged out of the concern for the conservation and protection of natural resources whereas in India it emerged only when the immediate livelihoods of the people were affected or threatened.

## **Analysis of the Struggle against Industrial Pollution in Patancheru**

This section provides a detailed analysis of the citizens' struggle against the industrial pollution in Patancheru. The first section briefly discusses the controversial issues in the debate over industrialisation in Patancheru to set a substantive context for the emergence of local communities' struggle against industrial pollution. The second section presents an analysis of the dynamics of the local communities struggle and a description of the main actors and a brief chronology of important events in the struggle. The final section highlights the outcome of the local communities' struggle.

## **Industrialisation in Patancheru and the Controversial Issues**

The process of industrialisation in India was launched as a continuous and deliberate policy in the early fifties to bring about a rapid economic development in the country. The thrust of the industrial policy in India was rapid industrialisation and growth for achieving economic development. As part of industrial policy not only Central government but also state governments, appear to be in real hurry to industrialise their respective States.

The state of Andhra Pradesh with its rich mineral resources, adequate availability of power and various incentives offered by the government provides very good scope for setting up a wide range of medium and large industries. According to the results of the Annual Survey of Industries 1981-1989 brought out by Government of India, the State ranks second in the number of registered factories. The government is offering a number of incentives for the growth and promotion of industries. Andhra Pradesh Industrial Infrastructure Corporation was formed in September 1973. Its objective is to develop infrastructure facilities for industries in the State.

As a result, numerous small-scale pharmaceutical industries have been set up in Patancheru, Jeedimetla, Bollaram, Kukatpally and Sanathnagar industrial areas in Andhra Pradesh. Medak district of Andhra Pradesh has about forty percent of the total medium and small-scale industries. The paper focuses on industrialization in Patancheru and how it has affected the socio-economic life of the local people, which paved the way for the emergence of environmental movements in Patancheru against industrial pollution.

Patancheru industrial area in the Medak district of Andhra Pradesh is one of the major industrial estates in India. It is situated 30 km away from Hyderabad city, on the National Highway No.9 leading to Mumbai. The industrial units are mostly owned by NRIs who were persuaded to invest in the state. The project raised the hopes of local people and they expected better employment and overall prosperity. Agriculture land was sold at throwaway prices (Rs. 6000/- per acre), and is now being resold at whopping prices of Rs. 10 to 14 lakhs an acre by government agencies (Revenue Office, Patancheru, 1998).

Patancheru's strategic location was seen as one of the reasons for the rapid industrialization in and around this area. The criteria for selecting Patancheru for locating industries were:

- proximity to the city of Hyderabad,
- location on the National Highway No. 9 connecting Mumbai,
- infrastructure such as electricity, roads and assured supply of water from the Manjeera reservoir, and
- the area comes within the borders of Medak district for industries to obtain all incentives and subsidies declared by the government of Andhra Pradesh and the Government of India.

Apart from this, the State extended several facilities including soft loans and infrastructure for the industrialists. Consequently, industries such as Bharat Heavy Electrical Ltd. (BHEL), A.P. Scooters, Nagarjuna steels, Allwyn Watches etc. were set up in the late sixties and early

seventies as part of an effort to industrialise the area the majority being pharmaceutical and chemical industries. The industrialisation process in Patancheru was started in the late 1970s taking into account various socio-economic factors. But, in course of time, industrialisation in Patancheru brought to the fore several socio-economic problems, instead of solving them. Though this area is declared as an industrial estate, basic facilities such as roads, storm water drainage, water supply etc. appear to be inadequate. The effluents both treated and untreated are discharged outside the industrial premises on to the road, into wells, polluting ground water as well as the natural water sources. Due to inadequate facilities for discharging the industrial effluents, stagnant pools have built up in the vicinity of the industrial areas. These stagnating effluents percolate into drains and the cherus<sup>6</sup> and pollute the groundwater. Industries established in these estates are water-polluting in nature and are medium and small-scale industries, without adequate arrangements for wastewater treatment. Thus untreated/partially treated effluents from these industries flow into nearby surface water bodies, i.e., Cheruvus and ultimately join the Nakkavagu stream. The Nakkavagu in turn joins the river Manjeera. Since the Manjeera joining the Godavari River, the Godavari is under threat in the long run. But neither the industry nor the administration had the foresight to make plans for the disposal of wastes that would be generated by the industrial activity. This ignorance, or negligence, has brought misery to the people of this area.

### **Impact of Industrial Pollution in Patancheru**

Haphazard release of effluents and dumping of solid wastes and indiscriminate release of gases have adversely affected on natural resources, health of the people and their occupations, especially food production. About 14 villages around Patancheru industrial area have fallen victim to industrial pollution (Report of APPCB 1998).

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<sup>6</sup> A cheru is also known as small tank is bigger than a kunta, and is man-made, whereas kuntas are small natural water bodies. These water bodies are used mostly for irrigation and drinking purposes. They also help in recharging the groundwater, thus maintaining the groundwater stable and sustaining the village wells for livelihood.

## **Pollution of Water Resources**

Patancheru is known more as one of the water polluted area than as a major industrial estate of India. The main source of water for the people of Patancheru was Nakkavagu stream. The Nakkavagu stream was a lifeline for farmers, fishermen and livestock and other flora and fauna till 1977. The Nakkavagu drains over the south-eastern part of Medak district and over a small portion of Ranga Reddy district. There are fourteen villages (see table1) on the banks of the Nakkavagu, which might have come up centuries ago because of the availability of water in the Nakkavagu, which helped an agro-based economy to develop. For all practical purposes, it was the only place for bathing, agriculture by manual lift irrigation called *Budkis*, fisheries, dairying, etc., till the 1960s.

The Nakkavagu basin consists of more than 600 cherus and kuntas. A cheru is bigger than a kunta, and is man-made, whereas kuntas are small natural water bodies. These water bodies are used mostly for irrigation and drinking purposes. They also help in recharging the groundwater, thus maintaining the groundwater stable sustaining the village wells. Since the economy and livelihood of the area is mainly based on agriculture, the very survival of the population of the area is dependent on the village tanks. Industrial pollution has a direct impact on this rivulet, as it is not a perennial river (See table 2). Water flows for three months in the rainy season. But effluents flow throughout the year, even in the absence of rain. The impact of pollution is direct and damaging because there is no further dilution, as in other big rivers or sea. The flow in the Nakkavagu starts only with the effluents from Voltas, Asian Paints, Reliable Papers, etc., in the south of Patancheru. The major contribution to the Nakkavagu drain is through the Iskavagu and the Pamulavagu. The Iskavagu drain originates around Bharatiya Heavy Electrical Limited (BHEL) of Ramachandrapuram. It receives partially treated sewage from the BHEL colonies before entering Patancheru. The Pamulavagu carries toxicants from the Bollaram and Kazipalli Industrial estates.

**Table 1: Names of the villages affected by industrial pollution**

S. No	Name
1	Patancheru
2	Gandigudem
3	Kistareddypet
4	Pasamahilaram
5	Pocharam
6	Ganapathigudem
7	Lakadaram
8	Byathdole
9	Aratla
10	Chiduruppa
11	Ismaikhhanpet
12	Inole
13	Bacchugudem
14	Isnapur

**Sources:** Andhra Pradesh Pollution Control Board Report of 1998

National Geological Research Institute (NGRI), Central Pollution Control Board (CPCB), and National Environmental Engineering Research Institute (NEERI) have surveyed the Nakkavagu at different point of time. It has been found by these agencies that the drain is highly polluted having no dissolved oxygen, immediately after the outfall from the common effluent treatment plant. The water quality of Nakkavagu has deteriorated to the extent of no life surviving in it, resulting in acidification, increase in Total Dissolved Solids (TDS), decrease in dissolved oxygen and decrease in biological diversity. The water is not suitable for irrigation. It is also observed that this water flows into the kacha bed of the Nakkavagu and percolates into the groundwater, thus polluting the groundwater. The ignorant farming community stopped irrigation when Nakkavagu got polluted, but tried to dig open wells and tube wells just away from Nakkavagu. Without knowing the phenomenon of pollutants entering groundwater, they borrowed money to dig wells, but lost everything, and became bankrupt.

**Table 2: Names of Various Lakes and Ponds with Location and the Sources Contributing to Pollution**

<b>S. No</b>	<b>Name of the Pond/lake</b>	<b>Location</b>	<b>Industry Contributing To Pollution</b>
1.	Saki Cheruvu	Patancheru	Sai Baba Cellulose
2.	Kistareddypet Cheruvu	Kistareddypet	Bollaram Industrial Estate
3.	Kazipalli Cheruvu	Near Bollaram CETP	Paks Trade Centre
4.	Asanikunta	Near Bollaram CETP	Bollaram Industrial Estate
5.	Muthangi Cheruvu	Near Muthangi	Industries located in its catchment
6.	Isnapur Cheruvu	Near Isnapur	Industries located in its catchment
7.	Lakadaram Cheruvu	Near Lakadaram	From Isnapur Cheruvu
8.	Pedda Cheruvu	Near Chitkul	From Isnapur Cheruvu
9.	Yardanur Cheruvu	Near Yardanur	Alkabeer & other industries
10.	Gummadidala tank	Along Narsapur	Industrial Estate
11.	Binthapalli tank	Along Narsapur road	Industrial Estate
12.	Jinnaram Cheruvu	Pamulavagu	Industrial Estate
13.	Kalateleal Cheruvu	Near Toopran	Industrial Estate
14.	Digwal Cheruvu	Near Kohir	Pharmaceutical Industries
15.	Pasupa stream	Near Medak	Nizam Sugar Factory

**Sources:** (Central Pollution Control Board Report, 1998)

### **Air Pollution**

Industrialisation in Patancheru has not only contaminated water sources but also affected the atmosphere there. The main cause of the air pollution is the presence of chemical industries. Among them Voltas Limited, Qure Drugs, Hinustan Florocarbons, A.P. Metallurgical Engg, Chandra

Pharmaceuticals are the main culprits and chemical industries add fuel to the fire.

Major industries causing air pollution are:

- Pesticide units
- Bulk drug industries
- Particleboard industries
- Steel rolling industries
- Common effluent treatment plant
- Distillery

The major pollutants are: 1. Mercaptans 2. Wood and iron, particulate matter 3. Chlorine and other bulk drug intermediaries 4. Hydrogen sulphide (Medak District Medical Office, 1998).

The major offender in Patancheru, which made it into a toxic hellhole, is Voltas, a pesticide unit which is hazardous. While selecting the site for such a pesticide unit, neither the PCB, nor the management (owned by the Tatas, pioneers in many industries in the country), thought of the inhabitants who have been existing for several centuries on the other side of the national highway. Whenever people of Patancheru hear the name of Voltas mentioned, the tragic Bhopal disaster comes to their mind and they panic. The panic is triggered by the unbearable air pollution, obnoxious smell, frequent leakage of toxic gases, and unexplained ill health. At present, because of the pressure from local people and courts, Voltas, which changed its name to Ralchem, is trying to modify the effluent treatment plant, and put an incinerator to burn the toxic gases, and close the solar evaporation ponds. But the people of Patancheru and those in a radius of 30 km, still face the danger of a tragedy like the Bhopal gas tragedy (*Rao, 2001*).

### **Impact of Pollution on Crops**

Air pollution and groundwater pollution have a direct impact on the crop yield and food cycle. High total dissolved solids and chemical intermediates

degrade the soil characteristics. Crop yield suffers due to the increase in salinity, loss of living structure of the soil complex, physiological dryness, and change of physical and chemical properties of soil. The soil contains heavy metals like iron, nickel, zinc, copper, cobalt, and cadmium. Soil pollution with heavy metals and other toxins extends into the food cycle causing irreparable damage to health. There was an yield of 30 bags of paddy per acre before industrialisation. Now the crop yield is only 10 bags (Views shared by the affected people). The production of crops in some other areas has drastically reduced to 80% of the previous yield; sometimes there is no yield at all, only fodder. The impact is not only on quantity, but also on quality. Cooked rice gets putrid within 6 to 8 hours. The land area affected has increased from 1000 acres to 5215 acres (Revenue Office, Medak District 2001). The milk yield has also decreased. Milk is also contaminated through the consumption of fodder by animals, grazing on polluted lands.

A socio-economic study has been done in one of the affected villages named Pocharam. It is found that there is a complete deterioration of the economy and the health of people as there is no alternative livelihood other than agriculture. A healthy villager with his agricultural occupation, descended from his ancestors, (a few of them became industrial labourers) is neither able to leave his land and village, nor able to survive.

### **Impact on Livestock**

Over 1000 animals died due to consumption of toxic water and fodder in the affected villages. After interim directions by the court, metro water works is supplying water for human consumption, but animals consume the toxic water from the Nakkavagu or the polluted tanks. The death of milch and farm animals and sheep is a common sight in these villages. There is no adequate treatment facility for animals. Only one veterinary surgeon is looking after the affected animals in 14 villages. As a result, thousands of animals affected by industrial pollution died because of inadequate treatment.

## Impact on Fisheries

There are four fishermen's cooperative societies: in Patancheru, in Ismailkhanpet, in Erdanoor and in Arutla. Each member used to earn Rs. 100-150 per day. There is a community known as Tenugu or Bestha, which depends on fishing. The Nakkavagu and 12 big cherus in these villages were auctioned by the Department of Fisheries, and revenue was collected from these fishermen until 1986. The Nakkavagu and all tanks later got polluted and millions of fish died. A number of families were affected by the massive death of fish due to the pollution of cherus (see Table 3). Since these societies continued to exist even after the pollution, auctioning of these tanks went on as a ritual until 1990 in spite of the representations of Fishermen's Cooperative Societies, regarding the pollution of these cherus. Instead of protecting the cherus, which are revenue sources to the government, the fishermen were harassed for non-payment of lease amounts. This has increased poverty in these villages.

**Table 3: Number of families affected by the death of fish due to the pollution of cherus**

<b>Name of the society</b>	<b>Name of Cheru</b>	<b>No. of families that lost livelihood</b>
FMCS, Patancheru	Saki Cheru	59
	Posamudram Cheru	
	Inole Cheru or Pedda Cheru	
	Nalla Cheru, Bachuguda	
	Pedda Cheru, Chitkul	
	Chowdhani Cheru, Indresam	
	Komati Cheru, R.Banda	
	Pedda Cheru, Ila pur	
FMCS, Ismailkhanpet	Nakkavagu	50
FMCS, Eradnoor	Nakkavagu	27
FMCS, Arutla	Nakkavagu	38
<b>Total</b>		<b>174</b>

**Source:** Information Given by Fishermen's Cooperative Society, Patancheru

## **Impact of Pollution on Human Health**

As mentioned before, pesticides such as mercaptans, chlorine, hydrogen sulphide, and many other chemicals and intermediates are being released into the atmosphere by the industries. The presence of these gases cause skin diseases, and respiratory diseases like bronchitis and bronchial asthma, respiratory failure, hypertension, convulsions and brain tumors. Hydrogen sulphide causes pneumonitis, and fluorocarbons are known carcinogens. Hindustan Fluorocarbons in the area has brought neofluorosis. Increasing incidence of cancer, leukemia in young boys, lung cancer in non-smokers, and liver cancer in non-alcoholics can be attributed to pollution. Indiscriminate dumping of toxic chemicals like arsenic, nickel, lead, mercury and other metals, and pesticides has resulted in heavy metal poisoning. Water, soil, fodder, and animal milk contain toxic metals and chemicals. According to the report of a health survey in the villages of Sultanpur, Gandiguda, and Dayeraa symptoms of heavy metal poisoning have been found by the District Medical Office of Medak.

In this way, industrialization in Patancheru has brought miseries to the people. Though the purpose of industrialisation was to develop the area, in due course of time development was given priority over human progress. It was under such circumstances people of Patancheru area joined hand together and started the movement against industrial pollution.

## **Emergence of Citizens' Movement**

People's participation against industrial pollution in Patancheru is first of its kind in Andhra Pradesh. Before the start of this movement, there was hardly any environmental movement in the state. The existence of more than 300 chemical and pharmaceutical industries in Patancheru has affected the livelihood of the local people. As it is rightly pointed out unlike in Western Countries, environmental movements in India emerge only when the immediate livelihoods are directly affected (Guha, 1991; Kothari, 2001; Krishna, 1996). Patancheru environmental movement is no exception to this. The affected citizens of Patancheru and adjoining

pollution-affected villages came together as an informal group to raise their voices against industrial pollution only when their livelihood was in danger.

In the Patancheru environmental movement against industrial pollution, people belonging to all sections participated. In the beginning, most of the participants were farmers but in the later phase, the movement was sustained by intellectuals, advocates students, and youth organizations. The local people were mobilized by intellectuals of the area, who visualised the ill effects of pollution on human health, initiated awareness campaigns along with other concerned individuals and groups. Dr. A. Kishan Rao, a local medical practitioner led the movement with the help of other intellectuals like Dr. K. Purushottam Reddy, President for Citizens Against Pollution (CAP), K. Chidamberam, General Secretary of Jana Vighyan Vedika, Hanumant Reddy, social activist of Pocharam village, and other social activists of the area also joined the movement. Dr. A. Kishan Rao facilitated the subsequent awareness campaign as the focal point of CAP in Patancheru. This campaign enabled the concerned citizens of Patancheru and adjoining villages to join hands together under the banner of Patancheruvu Anti Pollution Committee (PAPC), in 1986.

Under the leadership of Dr. A. Kishan Rao, who is well versed in the pollution problem in this area, PAPC organized a dharana along with the farmers and industrial workers before Volhro Factory. This action marks the first step of organized protest by pollution victims. The people of Patancheru and other affected villages organized a number of protests including hunger strikes, dharans in July/August 1986. The nature of the movement was always based on Gandhian principles. They never resorted to any kind of violation to get things done. These protests included a Patancheru bandh and finally a 40 km long march to State Assembly. A delegation of the victims submitted a memorandum to the then Chief Minister Sri N. T. Rama Rao demanding (1) establishment of Effluent Treatment plant (ETP) by every industry, (2) adequate compensation for degraded agricultural lands and (3) supply of protected drinking water to the affected villages.

Apart from the people of Patancheru, farmers of Sultanpur, Gandigudem and Krishnareddypeta organized a rally in Bollaram industrial area to protest against pollution on 18 August 1986, and blocked all roads leading to an industrial estate. This was done consequent to the contamination of Asanikunta tank of Sultanpur & Posamudram of Krishnareddypeta and due to the overflow of industrial effluents. This was a unique protest, which went on for 48 hours. On 21 August 1986, P APC organized a dharna before the office of Revenue Divisional Officer (RDO) Sangareddy, calling for immediate steps to control pollution. Despite these peaceful demonstrations and protests, government and the district administration did not respond in any concrete manner. Therefore, in order to force the issue, the P APC organized a bandh in Patancheru on 26 August 1986. Continuous pressure of this sort, however, yielded results as district administration served notices to 22 industries. Initially, all the industries obtained stay orders; finally they got 6 months time to install individual ETP's in March 1987, by approaching the High Court.

Matters then were at standstill, with no visible efforts either by industries or the government to solve the problem. The deadline fixed by the Court ended on 3<sup>rd</sup> September 1987 and industries had not moved an inch towards setting up ETP's. Finding no other alternatives farmers under the banner of the CAP and the P APC announced their second phase of public protest.

### **Role of Judiciary**

The fact that the environmental activists' resort to judicial intervention has to be contextualized in terms of the presence of *opportunity structures* that created a favourable space/environment for the seeking of legal redress as well as *emerging constraints* faced by the citizens to enjoy their fundamental right to life through a healthy environment. In terms of favourable opportunity structures, what stands out the most is perhaps the status that India's Supreme Court had obtained since 1980s as an institution that often backed the claims made by social movements and other actors in civil society through judicial activism, in particular on

environmental issues (Jayal, 1999). As she points out, social movements and grassroots NGOs with transnational linkages had become a force to be reckoned with in the legal realm of India. The various factors that are constitutive of this opportunity structure might be considered in a positive sense as factors of enablement that influenced the move to judicial activism. As far as emerging constraints to enjoy fundamental rights are concerned, citizens have to face a corrupt and ineffective implementing agency which has failed to discharge its constitutional duties to ensure the protection of fundamental rights of the citizens. Therefore, the constraint factors have to be considered in a negative sense as factors of frustration with other institutions to seek the help of judiciary for the protection and improvement of environment.

Apart from seeking a solution to the problem from the administration, voluntary groups in Patancheru decided to seek the intervention of judiciary in this matter. On 9 October 1987, few farmers under the guidance of the action group filed a writ petition in the High Court against 20 industries. This was done in the belief and hope that with the administration failing to respond, at least the legal system<sup>7</sup> would help in solving their problem.

However, the industrialists approached the High Court for stay order and then the focus shifted to Court battles, which are usually long drawn affairs. Unable to bear this, in the month of October, 1990 about 200 villagers participated in an indefinite 'Road Blockade' demonstration organized by action groups near Bollaram Industrial Area. This action was necessitated by the continued indifference of the Government to the pollution problem.

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<sup>7</sup> While conventionally the executive and the legislature play the major role in governance, the Indian experience in the context of environmental governance is that the judiciary has begun to play a very significant role. The intervention of judiciary in environmental matters happens due to certain factors such as: ineffectiveness in the enforcement of existing environmental laws, violation of fundamental rights and statutory and constitutional provisions, environmental groups, research institutes, NGOs and media etc, playing their roles.

Despite the representation in the Court by the farmers themselves, a Division Bench on technical ground opened all closed industries. Disheartened by this, the farmers decided to approach the Supreme Court, through Sri M. C. Mehta (W.P. 1056/1990). After a long battle of 5 year, the Supreme Court delivered interim orders- an historical judgement. It had ordered the National Environmental Engineering Research Institute (NEERI), Nagpur, to study the impact of industrial pollution in this area. Subsequently, NEERI submitted a report. This report (1990) acknowledging the problem of pollution, suggested a compensation of Rs. 32.22 crores to be paid to the affected people for the period 1984 to 1992.

In addition to this, other benefits, which resulted from people's participation are the following interim orders given by the Supreme Court of India at various times:

- Stoppage of effluent flow into water bodies immediately.
- Provide drinking water to the affected villages.
- Restoration of cultivable land by application of suitable conditioner.
- Remedial action in respect of 13 Cherus (Tanks) by 2000.
- Rectification of CETP.
- Discharge of treated effluents into sewer line.
- Medical care to pollution victims.
- Sustained continuous vigilance in discharge of effluents.

In this way, the Supreme Court of India has played an innovative and pivotal role in strengthening the foundation of environmental movement in Patancheru. The intervention of judiciary in environmental protection has provided the right platform for the environmental activists and local organizations to pressurize the government to ensure their

right to a healthy environment<sup>8</sup>. All these benefits through the intervention of the country's apex court were possible only because of the people's active and consistent participation against industrial pollution. People's participation has taken a new shape ever since the judiciary intervened in the matters of environmental protection. Some of the landmark judgments on the environment have become a beacon and a driving force to the environmental movement in Patancheru.

### **Outcome of the Movement**

In other environmental movements in different parts of India, such as the Silent Valley Movement in Kerela, the Chipko Movement in Uttar Pradesh, the Aapiko Movement in Karnataka, the Narmada Bachano Andolan against Sardar Sarvor Project in Central India, the movement against Tehri dam in Uttarpradesh, the movement against Konkan Railway Projects in Maharashtra, Movement against vehicular as well as industrial pollution in Delhi etc., one can find the role of national and international NGOs, the involvement of renowned social and environmental activists, publicity of the environmental problems by national dailies (Reddy, 1998). But, in case of the Patancheru environmental movement, one finds the absence of the above actors in addressing the problem. In spite of the absence of these above actors, the decade long, environmental movement in Patancheru has succeeded in achieving some of its goals<sup>9</sup>.

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<sup>8</sup> The intervention by the judiciary in environmental cases has resulted in giving new lights to several provisions of the constitution, which earlier remained unnoticed. For example, the Court fortified and expanded the Fundamental Rights enshrined in Part III of the Constitution. In the Deheradun Quarrying Case, the Supreme Court held that the fundamental right to a wholesome environment is a part of the fundamental right to life in Article 21 of the Constitution. In addition to this, in numerous environmental cases the Supreme Court is stepping into the shoes of the administrator, marshalling resources, issuing directions to close down factories, requiring the implementation of environmental norms, cutting through bureaucratic gridlock and so on.

<sup>9</sup> The popularity and success of environmental movements depend on various factors including the support of local people which is a very crucial factor in achieving the goals of the movement (for a detail discussion on the popularity/success and the difference between micro and macro level movements, see, Reddy (1997).

First of all, this movement has drawn the attention of the policy-makers to the cause of environmental problems. Right from the very beginning, the movement has been able to pressurize all the three government organs to respond to the cause of environmental problems in this area. As a result of the people of Patancheru industrial area have been provided with safe drinking water and compensation for those whose land was affected by the discharge of industrial effluents, primary health centers have been opened in the affected villages, and built CETP for the treatment of effluents. In addition, discharge of treated effluents into sewer line became mandatory.

Secondly, it has brought all sections of people under one platform to fight against industrial pollution. This has also strengthened the unity of local people in other issues which have affected their livelihood.

Thirdly, to create awareness among the people about environmental problems different NGOs and voluntary groups have come up in Patancheru area. In the initial phase of the movement, there was no role played by national or international NGOs nor any attention paid by national dailies; but with the consistent participation of people against industrial pollution, the movement caught the attention of outside actors. Recently, one of the international environmental NGOs, namely, Greenpeace has been actively working in this area to highlight the environmental problems through different strategies and to find solutions

Finally, environmental problems in Patancheru have become a political issue which is rarely found in other parts of the country. In every general election (both Parliamentary and Assembly) every political party in its manifesto has given priority to environmental problems in Patancheru.

## Conclusion

The above study demonstrates that people's participation in environmental protection is necessary to attain sustainable use of natural resources. The failure of implementing agencies in enforcing the environmental laws and the intervention of judiciary under such circumstances has further strengthened environmental movements in Patancheru. It was their participation in the environmental protection that resulted in drawing the attention of policy-makers; even the Supreme Court of India responded to the cause of industrial pollution victims of Patancheru. However, the judiciary should ensure that its orders are implemented. The role of Andhra Pradesh Pollution Control Board in implementing the directions of the judiciary is far from satisfactory. The study has found that our enforcement mechanism is very weak although the laws are very well drawn up. Even though, people's pressure against industrial pollution in their areas led to temporary action by the government through judicial action, a permanent solution is yet to be found to ensure better environmental conditions like safe drinking water and clean air. The directions of the judiciary to give drinking water without any cost to the affected villages, remediation of the tanks, health facility to all the affected villages, laying wastewater pipeline for 18 km. from Patancheru to Amberpet before January 2001 are yet to be carried out.

There are a lot to be done immediately to make the area polluted free one. As the present status of the movement seems to be inconsistent and unorganized, to make the area polluted free becomes a mirage. Keeping up continuous people's participation, vigilance, pressure on politicians and government machinery and the industry is the only way to protect the environment and attain sustainable development. The community should rise to the occasion and make its voice heard against such disasters. No industry should be allowed into any locality or village without a complete presentation to

the community of what its activities would entail. In like manner, there is space for environmental NGOs, social and environmental activists, media etc. in highlighting the environmental problems and mobilizing people to find solutions for the problem.

Summing up, it can be said that the study aimed at understanding the process and programmes for protection of environment by people's participation in Patancheru. The study especially focused on the processes which enabled people's participation and identified the factors, which facilitated such participation. More studies are necessary for evolving suitable methodologies both for protection of the environment and for continuous participation of the people as a watchdog against pollution.

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