POLLUTION IMPACTED COMMUNITIES IN THE MANUFACTURING OF SIPCOT INDUSTRIES IN CUDDALORE

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ABSTRACT

His study examines the relation between employees perceived Quality of Work Life (QWL) with life domains using spillover theory. The questionnaire was administered and reliability test was used to validate it. The SIPCOT chemical industrial estate in Cuddalore is one among many such clusters of polluting industries in India. The needs of communities and workers in such areas are remarkably different from those of communities not living in polluted places. In unpolluted places, the health of communities would be the responsibility of the municipality and/or the health department. The results showed that the employees who sensing higher level of QWL were sensing high level of job satisfaction, life satisfaction and general well-being. Fulfilling the needs of the employees by the organization can achieve higher level of QWL and organizational commitment from the employees. This article highlights the needs and pollution impacted communities in the manufacturing of SIPCOT industries in Cuddalore.

KEYWORDS
Industrial Accident, Injury to Fishermen as a Result of Water Pollution, Communities, Manufacturing SIPCOT Industries, Air Pollution, Water Pollution and Sea Pollution
INTRODUCTION

The SIPCOT chemical industrial estate in Cuddalore is one among many such clusters of polluting industries in India. The needs of communities and workers in such areas are remarkably different from those of communities not living in polluted places. In unpolluted places, the health of communities would be the responsibility of the municipality and/or the health department. In pollution-impacted communities, the causes and sources of pollution are often within the jurisdiction of agencies such as the Pollution Control Board and the Factories Inspectorate, whereas the health of the workers outside the factory and residents comes under the purview of the District Administration and the public health system. Given the peculiarities of this situation, it is important that any approach to addressing health issues in such areas is done in coordination among these bodies.

In early July, organizations working amongst pollution-impacted communities in SIPCOT, Cuddalore approached us and invited us to serve on a panel of neutral experts to assess the state of the environment and the well-being of communities in the chemical industrial estate. On July 29, 2006, we visited the industrial estate, interacted with the villagers and listened to testimonies from Cuddalore residents, trade unionists, local politicians, women and social activists at a public hearing held in Cuddalore Town Hall. Prior to that, we had received and reviewed detailed briefing packs containing various reports relating to pollution in Cuddalore, and the responsiveness of regulatory agencies. We learnt through the reports and our interactions that residents of SIPCOT industrial estate in Cuddalore have complained about pollution from chemical industries for at least 20 years. Industries in the estate manufacture chemicals, pesticides, pharmaceuticals, paints, dye stuff, dyes etc. Over years, pollution from these industries has damaged vast tracts of land, polluted the groundwater and the local river Uppanar, destroyed livelihoods, hurt many and killed others. Residents’ complaints about the adverse effects of the industries on environment, health and livelihood have fallen on deaf ears. Villagers allege that the State Government and its regulatory agencies like the Tamil Nadu Pollution Control Board (TNPCB) and the Factories Inspectorate have colluded with industries to shield and condone violations by the industries. Indeed, we even witnessed an ongoing violation in the form of an unauthorized construction at Pioneer Miyagi Ltd in Semmankuppam village. Numerous agencies, committees and panels have cautioned against the expansion of polluting industries in SIPCOT, and have hinted at the need for studies to assess existing pollution.

POLLUTION

Air pollution occurs when the air contains gases, dust, fumes or odour in harmful amounts. That is, amounts which could be harmful to the health or comfort of humans and animals or which could cause damage to plants and materials.

Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, aquifers and groundwater). Water pollution occurs when pollutants are directly or indirectly discharged into water bodies without adequate treatment to remove harmful compounds.

Sea pollution includes a range of threats including from land-based sources, oil spills, untreated sewage, heavy siltation, eutrophication (nutrient enrichment), invasive species, persistent organic pollutants (POP’s), heavy metals from mine tailings and other sources, acidification, radioactive substances, marine litter, overfishing and destruction of coastal and marine habitats.

REVIEW OF LITERATURE

Chander & Singh (1983) were indicating the influencing factors towards QWL from various other scholars conducted on quality of work life, which includes employment conditions, secured employment, income adequacy, sharing of profits, stock options, rewards, employee autonomy, commitment, social interaction, self- expression, self- esteem, satisfaction, democracy, involvement, career advancement, job enrichment, relationships with supervisors and peers.
Watson et al., (1985) there are two kinds of moods and emotions people tend to bring in the workplace; with these while performing their jobs in the organization employees tend to experience positive affectivity and negative affectivity. Positive affectivity employees reflect enthusiastic feeling, active and alert but negative affectivity employees experiencing subjective distress and unpleasant nervousness.

Danna & Griffin (1999) Quality of Working Life is a holistic concept, which considers work-based factors such as job satisfaction, satisfaction with wages and relationships with work colleagues and includes factors that predict the life satisfaction and general feelings of well-being.

Sirgy et al., (2001) suggested spillover approach to Quality of Work Life. In this approach satisfaction on one life domain may influence in satisfaction of another life domain. Job satisfaction will affect other life domains such as financial, family, social, leisure, health and so on. There is balance of influence between and among life domains. Dissatisfaction in one domain is compensated by satisfaction in other domain.

Page et al.,(2002) asserted that workers had their common complaints related to wage and working conditions. Management has to concentrate and make them to feel better. The major factors were such as working hours, working lunch, and late attendance. If the workers perceived that management pays them low and inadequate wages, less number of days in leave, long working hour without compensation and strict on late attendance. These issues create disputes and leads to job dissatisfaction.

Gupta & Parul (2010) studied on Quality of Work Life of telecom sector employees and examined whether and how the Quality of Work Life affects the level of satisfaction of employees of telecom sector. Found that factors related to Quality of Work Life are influencing the job satisfaction and productivity. The factors has to be concentrated were fair compensation, adequate income, healthy working environment, safe working conditions, opportunity for personal development, opportunity for career growth, social integration, work force integration, social relevance of work constitutionalism in work organization and eminence of work life.

OBJECTIVES OF THE STUDY
A study on Industrial Accident Leading to Death and Injury to Fishermen as a Result of Air pollution, Water pollution and Sea pollution in SIPCOT in Cuddalore.

SIPCOT INDUSTRIAL UNITS
Set up in 1982 by the State Industries Promotion Corporation of Tamilnadu (SIPCOT), the Cuddalore Chemical Industrial Estate is located 8 kms south of Cuddalore town on the seaward side of the Cuddalore-Chidambaram Highway, stretching from Pachaiyankuppam in the North to Semmankuppam in the South. Phase I of the industrial complex spreads over 200 hectares (519 acres) and is set up to accommodate 53 units. Phase II covers 88 hectares (200 acres) while Phase III of the complex will cover about 300 acres of land and is located about 26 km from Cuddalore town, near Periapattu village on the Cuddalore-Chidambaram highway. Currently, 22 functional units lie within Phase I of the industrial estate on the western bank of the River Uppanar. A few companies such as EID Parry, Arkema Peroxide, Clariant and Bayer operate outside the SIPCOT limits but in the vicinity of the Estate. These companies manufacture pesticides and intermediates, pharmaceuticals and intermediates, chemicals, plastics and plastic additives, dyes and intermediates and textiles.

Site Visit
Our visit to the SIPCOT chemical complex started at 7:30am. The panel members assembled at the 1st crossroad before Tagros Chemicals where they were greeted by local members of SIPCOT Area Community Environmental Monitoring (SACEM). SACEM members introduced us to the history and the background of SIPCOT before taking us on a pollution patrol of the complex. SACEM explained that they regularly conduct pollution patrols. These exercises, usually undertaken by a group of two or more monitors, involves traveling
on a bicycle or auto rickshaw through the industrial estate observing the levels of pollution, the functioning or nonfunctioning of specific factories, the levels of odour at various key locations, and other indicators of air or other pollution. The observations of each pollution patrol are sent to the local Tamilnadu Pollution Control Board.

POLLUTION IMPACTED COMMUNITIES

1. Air pollution

After visiting SIPCOT, we were convinced that the entire area is severely polluted due to industrial activity. Although monitors told us that many industries had closed down or operating at low capacity in anticipation of our visit, the pollution was quite bad in some spots. In every village people told us about the various kinds of odours that emanated from the units in the area. Some of the residents complained of chest tightness (maar addaippu), itching of the throat and running nose as a result of their exposure to the clouds of smoke emitted by the factories. One resident said “when the factories release smoke – it comes like a cloud, we can see it well, we immediately go inside our houses, close everything, close the food.” We also observed that trees and plants closer to the factories had a higher proportion of dead leaves than those further away.

One of us, Dr. Gaithonde, was also affected by the pollution: ”Within about 3 hours after starting the visit, I developed severe itching in the throat, mild breathlessness and watering of the eyes. The breathlessness was certainly a mild wheeze. This, to me, is a clear sign of the presence of pollutants/irritants in the air, given that I do not have a known allergic tendency, and given the timing of the attack and the circumstances it could not be anything else.

Picture-1 Air Pollution

Air pollutant means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration that may or tend to be injurious to human beings, other living creatures, plants, property or the environment in general. Air pollution emanates from many sources, stationary sources such as factories, power plants, smelters and smaller sources such as dry cleaners and degreasing operations, mobile sources such as cars, buses, planes, trucks, and trains; anthropogenic activities and naturally occurring sources such as windblown dust and volcanic eruptions. Air pollution has been aggravated by development that typically occurs as countries become industrialised: growing cities, increasing traffic, rapid economic development and industrialisation, and higher levels of energy consumption.

2. Water Pollution

Looking at people’s utensils, hearing their complaints, having read about the NEERI study on groundwater, and seeing the temple pond, we are convinced that the groundwater in the area has been affected by contamination and salinity intrusion due to industrial activity. In Kudikadu, Shasun Chemicals was reportedly supplying water to a limited number of households. In Pachaiyankuppam, the water was yellow-tinged. Women showed us aluminum vessels that had changed colour from silver to rust brown or orange within six months. Women are particularly burdened as a result of the groundwater problems. One woman told us “I have to travel more than half a kilometer for drinking water and there I have to wait up to 2 hours to get
Villagers complained that goats and cows fall sick often, especially after consuming local grass or water. They also said that ever since SIPCOT came up, veterinarian’s visits to the villages has increased. Industries draw their water from deep borewells. Just as predicted by the Asian Development Bank in the 1990s, the drawal of water from the coastal aquifer has now led to widespread salinisation of groundwater in the SIPCOT area. People complain that their bore wells and water sources are now useless because of salt water intrusion.

Water is one of the most important natural resources essential for the survival of living organisms. Water as a commodity generates concern for being an exhaustible resource and also because of the environmental issues related to its degradation. Pollution of water courses may take place due to natural causes such as silt carried by run-off, organic wastes of plants and animals, minerals leaching through soils, thermal pollution and algal blooms. It may also be due to the discharge of domestic and industrial wastewaters. Toxic chemicals used for agriculture and other purposes, solid wastes, oil from garages and cleaning of vehicles, drainage from farms and manure, land surface drainage, cattle washing, watering and dipping agricultural wastes, dust fall, wastes due to recreational use, intrusion of sea water and many more such activities cause pollution of water bodies.

3. Coastal Pollution

The major activities that are responsible for coastal pollution in Tamil Nadu are discharge and disposal of untreated domestic and industrial wastes, discharges of coolant waters, harbour activities such as dredging, cargo handling, dumping of ship wastes, spilling of cargo’s chemicals and metal ores, fishing activities etc. There are 14 major industries located in the Ennore-Manali areas. The industries at Manali and Ennore are mostly chemical based, manufacturing petrochemicals, fertilizers, pharmaceuticals, paints etc. There are two power plants at Ennore, namely, Ennore Thermal Power Plant with a production capacity of 200 MW and North Chennai Thermal Power Plant with a production capacity of 600 MW. The fly ash continuously deposits in the sea. The industries at Ennore-Manali are using a wide variety of raw materials and discharge waste products into the air, water or land as gaseous emissions, liquid effluents and sludge, respectively. In the coastal area of Tamil Nadu 488.02 MLD of wastewater is generated and only 226 of MLD is treated.
Currently, effluents of several SIPCOT industries are discharged into the sea through a pipeline that releases the effluent near Rajapettai village. The effluents stain the sea red to a distance of more than 200 metres from the point of discharge. The fishermen in this village complain of intense foul odour when the wind blows in from the sea. They report various health problems such as nausea, breathing trouble and throat irritation as a result of exposure to the odour from the effluents. Fisher folk blame the CUSECS discharge for declining fish stock in the sea and for fish kills, including the death of a dolphin in February 2006.

4. Health

The following ailments were frequently reported: Skin itching and other skin diseases; breathlessness; difficulty in breathing; tightness in chest; giddiness; dizzy spells; headache; throat irritation; stomach ulcers; diarrhea; nausea; indigestion; mouth ulcers; burning sensation in eyes; hearing problems; dimming of vision; asthma; white discharge and excessive bleeding (for women); uterine cancer; infertility; miscarriages; jaundice. Generally, people are affected by one or more of these ailments. There are no proper medical facilities or experienced doctors. It is very clear that many of these ailments are directly related to pollution. For instance, one woman said: “The moment the ‘cloud’ comes there is chest tightness, itching of the throat and running nose.” This is indicative of air pollution. Other statements, such as about a spurt in cancer cases, indicate the need for urgent assessment of health issues. One woman said “There are four women of different ages who have got cancer. We have never seen this before.” In Pachaiyankuppam, we heard women complaining that the average age at puberty among girls was getting delayed from a normal of 13 years to 15 years. This is cause for concern and more in-depth study because certain environmental poisons are known to disrupt the endocrine system leading to such disorders.

5. Agriculture

The panel witnessed first-hand the air pollution, widespread groundwater pollution, direct contamination of land and indiscriminate hazardous waste dumping. We also saw about 45 acres of land near the Temple Pond in Kudikadu that was lying barren. Agriculture on the Western side of the National Highway seemed to be healthier than on the Eastern side where the industries are located. However, villagers’ testimonies indicate that the effects are spreading to the Western side too. Residents of Semmankuppam, a predominantly agrarian village, say they used to get three crops a year until 1995, but have to struggle to raise one crop nowadays. Also, salinity intrusion -- upto 1 km according to some -- has laid waste their borewells and forced them to depend on rains. Paddy yields have dropped from 40 bags per acre to 20 bags (of 75kg each). This has had a disproportinate impact on agricultural labourers and small and marginal farmers.

RESPONSE OF INDUSTRIES AND GOVERNMENT

Despite invitations to attend the public hearing, representatives from the industry and Government departments failed to depose in front of the panel. The panel also saw firsthand that the industry seemed to have an upper-hand over the district administration and pollution control regulators. In the instance of Pioneer Miyagi’s illegal construction, we learnt that the company had ignored orders by district authorities and the TNPCB. The authorities too seemed reluctant to punish the violators, and seemed content with repeating their orders. We were given the example of Tagros Chemicals, where the company had expanded production at an illegally constructed factory unit. The illegal factory operated for two years before a public hearing was held by the TNPCB to seek comments on whether or not the factory should be constructed. The illegality was pointed out. But the TNPCB did nothing despite confirming the illegality. By and by, both the Ministry of Environment and Forests and the TNPCB regularized the illegality. It is clear that companies with political clout can and do get away with anything in SIPCOT. Such unregulated and corrupt functioning in dealing with highly hazardous industries located in close proximity to residential populations is a recipe for disaster.
INJURY TO FISHERMEN AS A RESULT OF WATER POLLUTION

In September-October 2002, fisher folk working in the river Uppanar that runs behind SIPCOT, Cuddalore and stopped fishing after all active fishermen began developing serious skin problems. They attributed the problems to an illegal discharge of acidic effluents from Pioneer Miyagi Chemicals -- a routine occurrence, according to them. The company uses large quantities of hydrochloric acid to dissolve bones (and manufacture Ossein). The New Jersey Department of Health warns: "Contact [with hydrochloric acid] can cause severe skin burns and severe burns of the eyes, leading to permanent damage with loss of sight. Exposure to dilute solutions may cause a skin rash or irritation."

A submission by the Joint Director of Health Services, Cuddalore, corroborates the charges by the fisher folk against Pioneer Miyagi for discharge of untreated acidic effluent into the river. "On 20.9.02, 13 persons (fishermen) suffered chemical burns due to effective/discharge from SIPCOT industries into Uppanar River," the statement read. The fisher folk said medicines from the Government hospitals and private hospitals did little to ease their problem. No systematic treatment was provided for the victims of acid burns. When the fisher folk approached the District Collector for assistance, the Collector is reported to have dismissed their concerns and advised them to look for an alternative livelihood. This attitudinal malady that afflicts many bureaucrats and people in regulatory agencies is the most serious obstacle to implementing the Precautionary Principle, or taking any sensible steps in the matter of health.

In October 2002, NGOs FEDCOT and CorpWatch requested public health specialist Dr. R. Sukanya (M.D) to look into reports of the September 2002 occupational injuries among fisher folk, and the general state of health in SIPCOT. In her report submitted to the Indian People’s Tribunal on Environment and Human Rights, Dr. R. Sukanya states: "In the fishing village of Sonnanchavadi, chemical contamination of the river poses a serious and ongoing occupational health threat. The fact that the villagers have been forced to stop fishing - and suffer wage losses - is a violation of their fundamental and constitutional guaranteed right to livelihood."

Through this presentation, the following points are sought to be made:

- Lack of preventive care: Adequate efforts have not been made to eliminate pollution-related health injury.
- Absence of appropriate treatment: Fisher folk received no effective treatment for their ailments. Only symptomatic and ineffective treatment was provided.
- Difficulties in accessing redressed (including compensation)
- Lost wages and added expenses due to health care costs
- No punitive action against industry to deter future violations

SUGGESTIONS AND POLICY IMPLICATIONS

The following important suggestions and policy implications of the study

1. The Health Department should play a proactive role in ensuring that practices to prevent harm are followed within industries. They should do this by coordinating with the Factories Inspectorate.
2. The Health Department should facilitate the routine monitoring of workers health data required to be collected under the Factories Rules to identify problems (if any) of occupational diseases among them.
3. The Factories Inspector should be directed to diligently perform his/her functions, particularly in regard to maintaining industrial safety and ensuring emergency response by industry. The Inspector should also ensure that only trained workers are deployed on hazardous jobs and contract workers are not used for such activities.
4. Hospital infrastructure in the areas near polluting industries should have trained personnel and equipment to deal with cases of industrial injury and poisoning.
5. The District Administration should be instructed to assist the victim or his/her survivors in accessing compensation and/or pension. An interim compensation fund should be created with advance contributions from polluters.

6. The Health Department should pursue the Factories Inspectorate to initiate statutory criminal proceedings against the TANFAC with a view to delivering exemplary punishment that will serve as a deterrent to corporate negligence on matters related to industrial safety and hygiene.

7. Stop Exposure by Stopping Pollution: Pollution control acts are often not enforced rigorously as a concession to industries. This cannot be tolerated. Polluters must be punished, and repeat offenders must be closed down.

8. Health Care facilities: The Health Department should set up specialized health care facilities to cater to the special needs of pollution-impacted communities.

CONCLUDING REMARKS

The present study concluded that, it supports the spillover theory as employees satisfaction in one life domain is positively influence in other life domains. The needs are major contributor in QWL; sensing of QWL leads to sense job satisfaction, life satisfaction and general well-being. Fulfilling the needs of the employees by the organization can achieve higher level of QWL and organizational commitment from the employees.

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